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**IPM CROP SURVEY STARTS**

The IPM scouts and insect trappers were trained on Monday, June 3. So, we are pleased to introduced the 2024 NDSU IPM scouts and insect trappers:

- **Shelby Dietz**, central and south-central counties, working out of Carrington REC with Greg Endres
- **Frederick (Eddy) Nortje**, southwest and west central counties, working out of Dickinson REC with Victor Gomes
- **Chris Asmundson (insect trapper, IPM scout position vacant)**, north central counties, working out of NCREC in Minot with Shana Forster
- **Scott Roseth and Samantha Turnquist**, northwest counties, working out of Williston REC with Charlie Lim
- **Tommy Crompton**, southeast and east central counties, working out of NDSU campus, Fargo with Janet Knodel, Patrick Beauzay, Andrew Friskop, Wade Webster and Sam Markell.
- **McKenna Schneider and Natalie Eversvik**, northeast counties, working out of Langdon REC with Anitha Chirumamilla and Scott Knoke (Benson County Extension Office).

The IPM scouts working for the University of Minnesota Extension are:

- **Logan Blanke and Brett Barbein** working in the Morris area with Anthony Hanson, Regional Educator, IPM / Extension
- **Katie Olson** working in the Crookston area with Angie Peltier, Regional Educator, Crops / Extension

If you see scouts out in your fields, please know that they are helping to identify and find economic insect pests and diseases of wheat, barley, soybean and sunflower. Insect trapping for major pests like banded sunflower moth, armyworm and others is an important part of this effort. We also collaborate with the North Dakota Department of Agriculture on surveying for exotic pests (insects, diseases, nematodes), and negative results support the export of fields crops outside of North Dakota saving farmers markets and money. This work is supported in part by the Crop Protection and Pest Management Program [grant no. 2021-70006-35330] from the USDA National Institute of Food and Agriculture, and the North Dakota Department of Agriculture.

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### WATCH FOR ASTER LEAFHOPPERS IN CANOLA

Aster leafhoppers have migrated early into North Dakota and are mainly being observed in wheat fields. Leafhoppers are active, jumping, flying and feeding on plant sap with their piercing sucking mouthparts when temperatures are above 59°F. Plant symptoms are localized necrosis or stippling.

Canola and other Brassica species (mustard) are not a preferred host for food and reproduction of aster leafhopper. It prefers to feed on wheat, barley and vegetable plants (lettuce and carrot), grapevines and herbs. Adults may move between host plants and follow what's green and available.



**Adult aster leafhopper**  
(Photo courtesy of P. Beauzay, NDSU)

**Disease Vectors** — These insects may be economically important in canola, but less because of their feeding injury and more because they are the principal vector of Aster yellows. Aster yellows has a very wide host range and causes plant disease and economic losses in several vegetables and ornamentals. Aster yellows is caused by a phytoplasma; an organism similar to a bacterium but without cell walls.

Aster leafhoppers acquire the phytoplasma by feeding on an aster yellow-infected plant for a minimum of 30 minutes. Acquisition of the phytoplasma increases with longer feeding times. The aster yellow phytoplasma requires another two weeks' incubation period within the aster leafhopper before the leafhopper can transmit the disease to new plants.

Consequently, immigrating aster leafhoppers, arriving already infectious, are more likely to vector the disease into fields. However, once it acquires the phytoplasma, a leafhopper remains infectious for an extended period of time. Although the acquisition phase may be long, the leafhopper needs only a very short feeding period to transmit the disease to uninfected plants.

Symptoms of aster yellows in canola take about 21 to 35 days to appear, and sometimes plants are infected but show no symptoms. Flowers are distorted and sterile. Flowering portions of the plant may show excess branching and stunting (shortened internodes), resulting in a "witches broom" appearance. Aster yellows-infected canola plants often are taller than the rest of the plants. Pods are replaced by inflated round or oval blue-green bladderlike structures. Infected plants produce little seed, but the percent of infected plants is usually quite low (less than 5 percent) most years.

Symptoms on canola can be confused with sulfur deficiency, anthocyanin production (purpling due to crop stress) and growth regulator herbicide damage.



**Aster yellows – bladder shape pods (Ian MacRae, UMN)**

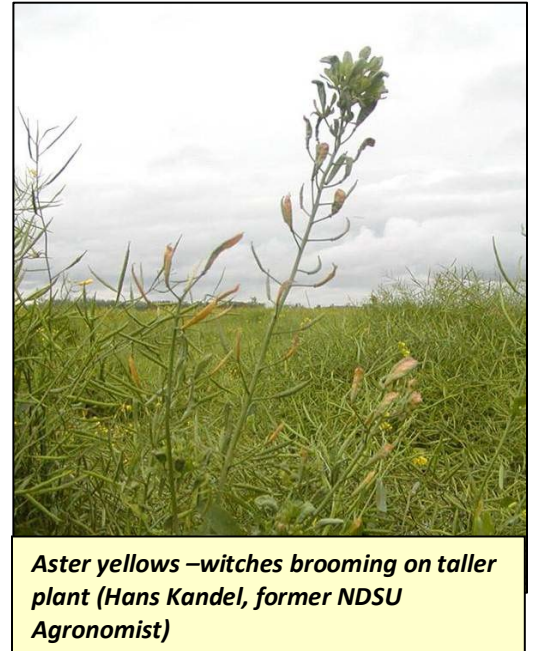
### Pest Management

The amount of aster yellows in fields would depend on the number of leafhoppers from local fields and immigrants from southern states, the percent of leafhoppers carrying the aster yellows phytoplasma and the time of arrival of the leafhoppers. Aster leafhoppers may feed on young canola plants at the beginning of the season and then move to grasses and more preferred crops (wheat) as the canola matures. Generally speaking, the more vectors of a disease that are present, the greater the potential for that disease to spread and cause yield loss.

Hot and dry conditions are not conducive to the spread of aster yellows. In contrast, abundant rainfall makes plants more succulent, which makes them more attractive to leafhoppers.

To manage aster leafhoppers and aster yellows in canola:

1. Plant early to reduce the incidence of aster yellows by making plants less attractive (more mature) to migrating aster leafhoppers.
2. Control perennial weeds in fields because weeds can be a good source of the aster yellows phytoplasma.
3. Due to the mobility of aster leafhoppers, any insecticide spray program would be a “hit or miss” situation. Leafhoppers move around from field to field and crop to crop, and preventing aster yellows from being vectored would be difficult. As in wheat and barley, no economic threshold has been established in canola.
4. We also do not know how often we would need to spray. The residual activity of most pyrethroid insecticides is seven to 10 days. However, the economics of multiple and frequent foliar insecticide applications is not practical in canola as it is in high-value vegetable crops.
5. In addition, flowering canola is a major source of honey for honey bees in North Dakota, and any insecticides sprayed during flowering would be deadly for honey bees. We recommend not spraying insecticides on flowering canola to protect pollinators, and only spraying insecticides when diamondback moth, bertha armyworms or other insect pests are at economic threshold levels in fields. If foliar-applied insecticides are necessary during flowering, spray in the early morning or late evening, when bees are not actively foraging.
6. Research conducted in snap beans and okra suggests that the neonicotinoid seed treatments should be effective in reducing leafhopper infestations in canola for up to 30 days.



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### CORN ROOTWORM EGGS HATCHING

Field agronomists have observed corn rootworm larvae that hatched from overwintering eggs in southeastern North Dakota and over the Red River in Clay County, MN. Egg hatch usually occurs from late May through June in North Dakota. Soon after hatching, the tiny first-instar larvae orient to volatiles emitted from growing corn roots to find their host plants and begin feeding. If we continue to have saturated or flooded soil conditions, 1<sup>st</sup> instar larvae can drown or have difficulty finding a host plant. It was interesting to note that the crop rotation on these fields was not continuous corn but a soybean-corn rotation, which suggests that these eggs were laid in soybean fields and it could be the



extended diapause variant of northern corn rootworm. However, we don't know if volunteer corn was growing in the soybean fields and present during egg laying.

The northern corn rootworm extended diapause has adapted to crop rotations through extended egg diapause (dormant period), in which some eggs remain in diapause for two or more winters. If corn is rotated annually with soybeans or another nonhost crop, 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 occur in Minnesota, South Dakota, Iowa, Wisconsin and Nebraska. However, this has not been researched in North Dakota yet.



*Corn rootworm larvae – mature 3<sup>rd</sup> instar (top) and early 1<sup>st</sup> instar (bottom)  
(Scott Bauer, USDA Agricultural Research Service, Bugwood.org)*

Please send in any reports of suspect extended diapause corn rootworm sightings into Extension Entomology.

[Janet J. Knodel](#)

Extension Entomologist



### **STRIPE RUST UPDATE AND INFORMATION FOR NORTH DAKOTA WHEAT GROWERS**

To my knowledge, we have not found stripe rust in North Dakota in 2024. The furthest report north is near Brookings, SD. If you think you have found stripe rust in ND, please let us know. The earlier stripe rust arrives in the ND, the greater the chance for economic losses on susceptible varieties. During our last significant stripe rust epidemic in 2015, we documented stripe rust during the first week of June on 3 to 4 leaf spring wheat. We remained cool and wet in June of 2015 allow the disease to develop rapidly and reported significant yields losses on susceptible varieties (close to 40% yield loss). This epidemic gave us the opportunity to gather insight on stripe rust management. This article will review identification tips, variety resistance, and fungicide selection and timing to effectively manage stripe rust.

#### **Identification**

Stripe rust is recognized by the presence of yellow-orange spores (think Cheetos® dust) erupting from pustules. When stripe rust is found on tillering wheat, the pustules will appear densely cluttered and appear on a small segment of the leaf (Figure 1). The characteristic linear pustules are most recognizable on wheat that is at or beyond the flag leaf growth stage (Figure 2). I am suspecting that we may find stripe rust along the ND/SD border in the coming week.



Figure 1. Stripe rust on a young wheat plant. Notice pustules with yellow-orange spores.



Figure 2. Stripe rust on a susceptible hard red spring wheat variety. Notice linear pustule orientation extending the length of the flag leaf.

**Varietal Resistance**

Genetic resistance for stripe rust is complicated. The rust pathogen can adapt quickly and can overcome commonly used resistance genes. Also, varieties may have single major gene resistance (all stage resistance) or have multiple minor genes (adult plant resistance). All stage resistance is more vulnerable whereas adult plant resistance is more stable. However, adult plant resistance will still allow pustule formation, but development is drastically reduced. With that being said, available wheat varieties may have all stage, adult plant, or both types of resistance. Given the non-favorable conditions for stripe rust development since 2021, we do not have robust knowledge of the available resistance in all of the available hard red spring wheat varieties. We have gone back through data on stripe rust resistance genes (funded by SBARE and the NDWC) and compiled some scores for a few of the hard red spring wheat varieties that may have been grown this year (Table 1).

Table 1. Hard red spring wheat varieties with corresponding stripe rust resistance score. Scores are based on a 1-9 scale with 1 = resistant and 9 = extremely susceptible.

Variety	Stripe Rust Resistance Score
WB 9590	7
SY Valda	6
SY Ingmar	6
MN Torgy	3
Shelly	6
WB 9719	3
Faller	8
Glenn	5
Ambush	3
ND Heron	6
ND Thresher	3
ND VitPro	3
ND Frohberg	5

**Fungicide Selection and Timing**

There are several very good to excellent fungicides when managing stripe rust. For the most updated ratings on leaf, stripe, and stem rust fungicide efficacy, please see Fungicide Efficacy for Control of Wheat Diseases on the Crop Protection website (hyperlink: <https://cropprotectionnetwork.s3.amazonaws.com/wheat-fungicide-efficacy-2024.pdf>)

The simple answer for a fungicide timing on a susceptible variety is flag leaf. Replicated plot research from 2015 had a clear message that timing was the more important fungicide factor. In 2015, research plots were planted to a susceptible variety (Prosper) and investigated two fungicide timings (tillering/herbicide timing and flag leaf). The yield results indicated that the early-fungicide timing did not differ from the non-treated check, whereas the flag leaf timing protected over 10 bushels (Figure 3).

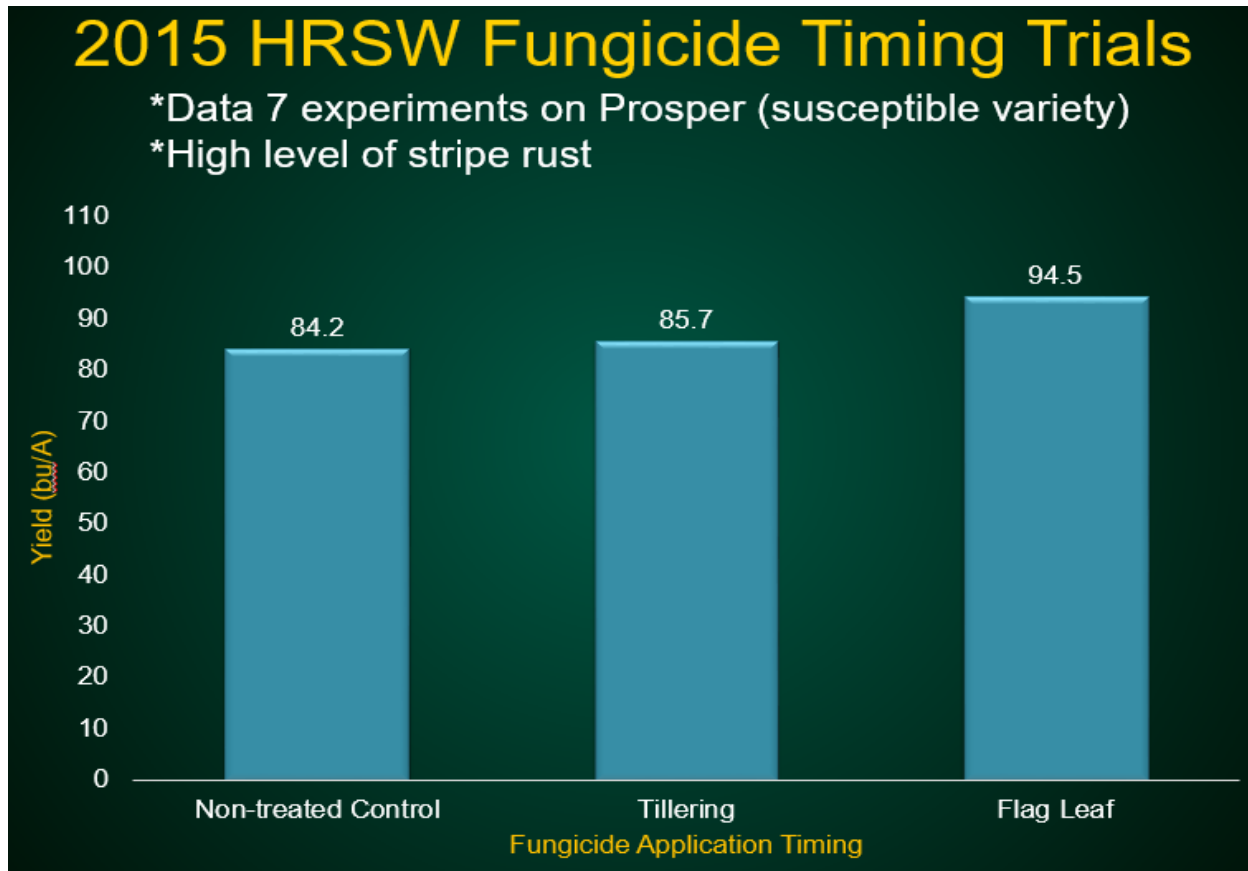


Figure 3. Summarized research from 2015 fungicide timing trials. Data was combined across seven experiments that compared fungicide timings of very good to excellent fungicide products.

Fungicide timing recommendations can be more complicated on varieties that have adult plant resistance. To help answer this question, SBARE and the NDWC funded variety by fungicide timing research for rust management from 2016-2018. The research examined the fungicide timings of flag leaf and early-anthesis (*Fusarium* head blight timing) on varieties with stripe rust scores of 5 and 7. The take-home messages from this research were that when we find rust during the early vegetative growth stages and prolonged dews continue, a flag leaf fungicide is needed for varieties rated 5 or above. If rust isn't found until the flag leaf stage or later, a fungicide application at early-anthesis on varieties rated 5 or above will help reduce both rust and *Fusarium* head blight (if risk is present).

### LEAF SPOTS AND DISCOLORATIONS IN WHEAT

The 2024 growing season can be described as cool and wet, with some days filled with high winds, snow, freezing nighttime temps, and the occasional 85-90°F day. The combination of these extremes has placed some stress on the first (oldest) leaves of wheat leading to odd discolorations and spots (Figures 1 and 2). These leaf spots can resemble a foliar disease and can often be misidentified as tan spot or other fungal leaf spots (Figure 3). The figures below provide more insight on identification tips to differentiate between abiotic spots and tan spot.

Although conditions have been favorable for tan spot, weather alone does not guarantee tan spot is going to explode in a wheat field. It is likely tan spot is developing in a susceptible winter wheat that was planted into no-till wheat stubble, but less likely developing in spring wheat planted into tilled broadleaf ground. Here are a few reasons that support the previous two statements. First, research suggests the initial spores released from fruiting structures (pseudothecia) on wheat stubble remain important for only a very short distance (inches to feet not miles). Additionally, the fruiting structures on wheat residue lose viability drastically after one to two years (even less if residue is buried). The use of

crop rotation and residue management can have a significant impact on tan spot epidemics. Another factor that influences tan spot development is crop canopy closure that creates longer leaf wetness periods. Right now, spring wheat ranges from early leaf stages to jointing, and most fields have not canopied yet, which would increase leaf wetness periods. The final consideration with tan spot is to check the variety susceptible rating. As a general rule of thumb, spring wheat varieties have more resistance than winter wheat.



**Figure 1. Abiotic leaf spots on a wheat leaf. Spots were localized on the oldest leaf and tip of the second leaf. This pattern suggests some environmental stress occurred when these leaves were emerged. The spots also have a white center with a heavy brown border around the spots. This does not resemble early symptom development of a fungal leaf spot.**



**Figure 2 (Photo Obtained from Lindsay Overmyer – ANR Agent Ramsey County). Abiotic leaf spots on the oldest leaves of wheat. Several of the spots have a white center with heavy brown border. Other spots are irregularly shaped and dark black. Both of these spots are not characteristic of a fungal leaf spot.**



**Figure 3. A wheat leaf with tan spot symptoms. Notice young tan spot lesions that appear as small brown dots with a distinct ellipsoid shaped yellow halo. There are also mature lesions that have a larger tan center with a yellow halo.**

[Andrew Friskop](#)

Extension Plant Pathology, Cereal Crops



### FIGHTING PHYTOPHTHORA IN SOYBEANS PT. 1

As we all are aware, it has been raining. A lot! And with this rain comes standing water in many fields, especially in Eastern North Dakota, causing struggles with getting seed in the ground. On top of this, seedlings that are emerging are now either underwater or may experience poor emergence due to seedling pathogens. In [Week 1](#) of the Crop and Pest Report, I briefly introduced some of these seedling pathogens, and as a reminder, the four that we primarily deal with in soybean are Fusarium, Rhizoctonia, Pythium, and Phytophthora.

The last two, Pythium and Phytophthora, are unique in that they are non-fungal pathogens called oomycetes or water molds. As the name suggests, water molds thrive under very high moisture conditions. With the increased moisture present and more seedlings starting to emerge in the next few weeks, seedling death or damping-off and stand loss will become more prevalent.

This week, I am going to focus heavily on the biology of Phytophthora, and next week we will dive into the management strategies.

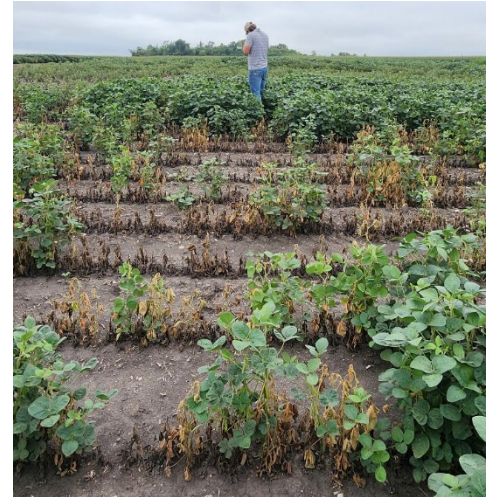
#### *Biology of Phytophthora sojae*

*Phytophthora sojae* is a soil-borne pathogen responsible for causing **Phytophthora root and stem rot (PRSR)** in soybeans. Unlike other soybean seedling diseases, Phytophthora is capable of causing disease throughout the entire growing season (Figure 1). *Phytophthora sojae* persists in the soil as oospores (*oh-oh-spores*), which are thick-walled resting spores capable of surviving for many years in the absence of soybean. During prolonged wet conditions like this spring, these oospores germinate to release zoospores (*zoh-oh-spores*) that are capable of swimming through water-saturated soil to infect nearby soybean roots. As these spores begin to infect into soybean roots, the pathogen begins moving upwards through plant tissue. This process can lead to rotting of root tissue, development of dark brown lesions on soybean stems creeping upward from the soil, and in severe cases can lead to plant death (Figure 2). While Phytophthora does thrive under saturated soils conditions, this pathogen does require somewhat warm soil temperatures between 60°F and 80°F, making it more likely to cause issues later in the spring.

#### *Phytophthora Sampling Program*

Currently, our lab is conducting a statewide survey of Phytophthora populations funded by the North Dakota Soybean Council. If you are interested in providing soil samples to better understand the Phytophthora populations in your area, please see further details [here](#).

Next week, we will discuss various management strategies for Phytophthora root and stem rot, including cultural practices, resistant varieties, and the use of fungicide seed treatments.



**Figure 1.** This was a field from our 2023 Phytophthora survey that has a large pocket of dead plants due to PRSR. One important point is the presence of plants that have died many weeks ago, plants that have just recently died from disease, and other plants that are clearly stunted presumably from root rots. These are all active symptoms of PRSR.



**Figure 2.** Soybean stem with dark brown lesion creeping up from the soil line. Also notice that the soybean plant pictured has pods present indicating the ability for PRSR to occur at any point in the season.

[Wade Webster](#)

Extension Plant Pathology, Soybeans



### A COMMON DISEASE OF ALFALFA, SPRING BLACK STEM

Spring black stem, caused by the fungus *Phoma medicaginis*, is a widespread disease in alfalfa fields during wet and cool spring conditions. Due to the 2024 spring season having been very wet and cool, multiple disease questions have been brought up in the past few weeks. This disease primarily affects lower leaves and stems of alfalfa plants, leading to the appearance of small, black lesions that can blend together and cause extensive damage if left unmanaged. Under severe cases spring black stem can lead to defoliation, reduced forage quality, and significant yield losses. During the winter, this fungus survives in infected plant debris and can spread through rain splashing debris onto stems and leaves or other means during early spring growth. If you detect this disease early, management strategies can be taken to minimize the impact of this disease on your alfalfa crop.

Effective management of spring black stem involves integrating cultural practices, planting certified seed, and fungicide applications when necessary. Cultural practices such as crop rotation, improving field drainage, and avoiding overhead irrigation can reduce the prevalence of the fungus. A timely cutting schedule to remove infected tissue before it spreads further is also beneficial. If disease is progressing quickly, an earlier cutting may help to prevent severe defoliation of the stand. It is also highly encouraged to plant certified seed to prevent the introduction of disease through infected seed lots. In fields with a history of severe spring black stem, fungicide applications may be needed to protect new growth, especially during prolonged wet conditions. However, these are most effective if applied prior to disease onset. By combining these strategies through IPM, farmers can maintain healthy alfalfa stands and ensure high-quality forage production throughout the growing season.

[Wade Webster](#)

Extension Plant Pathology, Soybeans

[James Rogers](#)

Extension Forage Crops Specialist



### A FINAL PLEA FOR FARMERS TO CONSIDER COVERING DISCS BEHIND AMMONIA KNIVES

When I moved to North Dakota from central Illinois 30 years ago I was amazed and I am still amazed at the lack of covering discs behind ammonia knives on toolbars. During my Illinois experience in the fertilizer retail sector the fertilizer dealership owned nearly all of the ammonia toolbars, letting our customers use them when they needed them for fall, preplant and side-dress ammonia applications. All of the bars had covers behind the ammonia knives. At first, they were paddles, then the industry moved to covering discs. We considered them mandatory pieces of equipment to seal the trench behind the ammonia knife. Our employees who applied ammonia for customers would sit in the field after one broke and waited for parts to come from the office before they would move another foot in the field. Our customers would go to the field end, call and wait for one of our employees to bring replace the disc before proceeding.



*Example of disc covers behind ammonia knives. These are wavy, but round would work also. This farmer was no-till, so the wavy coulter might work better in residue. NDSU image.*

Therefore, I found it fascinating and puzzling when I moved to North Dakota and found that it was not a 'thing' here. I mentioned the virtues of covering discs to a farmer who I worked with every year on field experiments since 1994, and finally after about 10 years he had some extra money and decided to purchase cover discs instead of redecorating his tractor. He told me that fall 'I should have listened to you 10 years ago. These are great'. They extend the number of days one could apply ammonia due to marginal field conditions and they prevent ammonia escaping slowly behind the applicator because of the loose soil they apply on top of the trench. So, in a final appeal to you, the North Dakota ammonia applicator, please consider disc covers or whatever will similarly work on your land to increase the efficiency of your application. You will thank me later.

#### **BEST TIME TO SIDE-DRESS CORN IN NORTH DAKOTA**

For farmers who need to side-dress corn in North Dakota, the ideal time from my research would V4 to V6. If the corn is V7 when it is side-dressed, the results would not be terrible, but yield increase from side-dress will decrease after V7, so certainly do not start at that growth stage if you can apply earlier. I have read at least one company in the south recommended starting at V9, but while that might be OK for Missouri, Arkansas and other states to our south a North Dakota farmer will not achieve highest yields if side-dress is applied that late.

[Dave Franzen](#)

Extension Soil Specialist  
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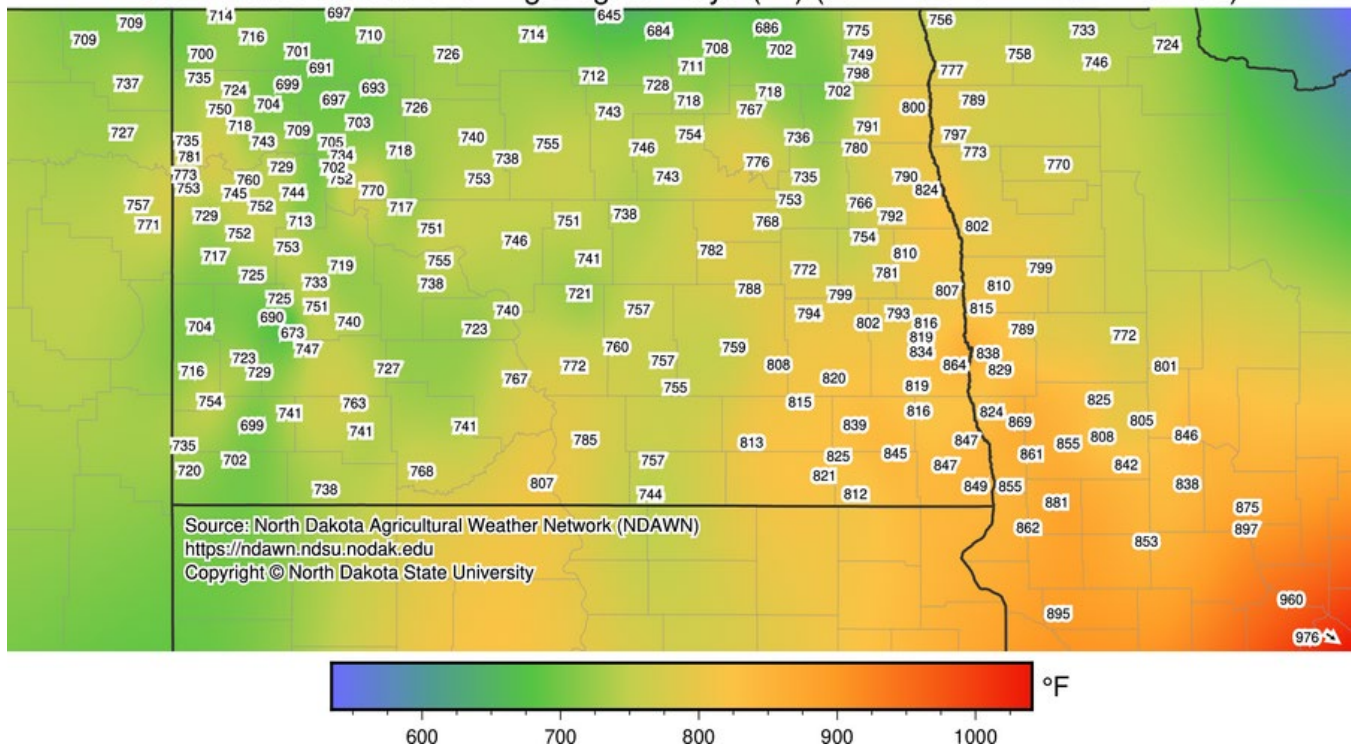
#### **GROWTH STAGE CUTOFF IN SMALL GRAINS**

Many spring seeded small grain fields are in good condition as we approach the middle of June. Spraying herbicides will be a challenge for many in eastern ND, as saturated field conditions are making field operations difficult or even impossible. Small grains will continue to grow and many fields are approaching some critical growth stages for different herbicide labels. Many herbicide labels do not allow applications after jointing, while several other products will allow application up to boot stage. Page 15 in the 2024 ND Weed Guide has a handy chart for application timings of most herbicides based on small grain growth stages.

The accompanying graphic also lists approximate GDDs from planting until small grains reach each listed growth stage. It is important to remember that these GDDs are an approximate guideline and not written in stone. Nothing replaces scouting fields to determine growth stages of crops. That being said, utilizing tools like NDAWN's Growing Degree Day graphics are a good way to determine accumulated GDDs over a time period at each NDAWN station.

The graphic below was generated on the NDAWN website to calculate accumulated GDDs for wheat since May 1. Any user can enter planting dates of fields and get an approximation of GDDs since planting as a guideline to estimate growth stage. Fields should be scouted to confirmed growth stages prior to any herbicide application.

## Accumulated Wheat Growing Degree Days (°F) (2024-05-01 – 2024-06-03)



Accumulated wheat GDD since May 1 at NDAWN stations.

[Joe Ikley](#)

Extension Weed Specialist

### SHOULD I FILE A PESTICIDE COMPLAINT?

I get this question every spray season. The answer depends on the circumstances and the nature of the complaint. When I receive an inquiry like this, I typically ask a series of questions to understand the nature of the problem: who the players are, and what it is they are trying to achieve.

My first question is: will or has an application resulted in human endangerment and/or injury? If so, I direct them immediately to the North Dakota Department of Agriculture (NDDA). The NDDA has made it a priority to make sure people are NOT physically harmed by pesticide use. I agree with this, and I strongly recommend that the complainant call the NDDA promptly, discuss the incident, and if it is egregious, a complaint should be formally filed so an investigation can be initiated.

My next question is: has an application occurred that has resulted in property damage that you are seeking compensation for from an applicator? If the answer is yes, I direct them to follow the procedure described in an **Alleged Property Damage – Notification of Applicator** section of the ND Century Code 4.1-33-16. This is a civil legal process the ND Legislature and Governor developed to recover losses from a pesticide misapplication. The NDDA has no role to play in this. To further clarify, I ask, “do you want to also file a complaint regarding this issue?” If so, I tell the complainant that the NDDA will follow up with an investigation only if it has been formally filed. The NDDA may or may not act, but if they do, it is likely because they believe a violation(s) of pesticide law has been committed and that the violation meets criteria described in their [Pesticide Complaint Response Policy](https://tinyurl.com/NDDAComplaintPolicy). (<https://tinyurl.com/NDDAComplaintPolicy>) Sometimes, the concern has nothing to do with property loss or human endangerment. If that’s the case, it is time to dig deeper to get clarification. Below are two broad issues I have responded to over the years.



**I believe a company and/or an individual is applying pesticides without certification(s).** This issue is usually raised by a rival company that is charging higher fees for an application because they have taken the time and effort to get certified. If this is important because it is undercutting business, I tell them the NDDA will only follow up on the matter if they file a formal complaint. An anonymous tip or a complaint to a pesticide specialist will not result in action by the NDDA.

**A crop consultant or business is recommending and/or applying an off-label use of a pesticide.** There are significant, serious ramifications from off-label use. People can get hurt. Crops can get damaged. Markets can be negatively impacted. It can create unfair business practices similar to the scenario mentioned above. And finally, there is the moral dimension. It undermines the agricultural industry, jeopardizes the availability of pesticides, provides an avenue of argument in the courts for environmental advocates, and it increases regulations on all pesticide users...conscientious or not. As a pesticide specialist the answer is easy. I would file a formal complaint with the NDDA. However, I do not have to live and work in the neighborhood with people who have been called to account. On the other hand, I remind people that doing nothing means you can continue to expect the same consequences of bad actors. At that point, I tell the complainant, the choice is yours.

Filing a formal complaint with NDDA, upfront, is not terribly time consuming or difficult. It can be done in less than 15 minutes, in my opinion. But after the complaint is filed, comes the hard parts. The NDDA is likely to follow up with interviews, and they will want a voluntary statement. That can take significant time, and once you have crossed over into formal complaint territory, where the NDDA goes with the investigation is out of your hands. So, too, is the finding of fact and/or the punishment that may be meted out to the people involved. Finally, at pesticide trainings I often hear from applicators that the whole process is a waste of time because no one is meaningfully sanctioned and bad applicators just keep using pesticides inappropriately. I fully understand that sentiment.

Should you file a pesticide complaint? If you are serious, and simply do not want to whine about the issue, I would recommend you thoroughly read the NDDA's description of the [Pesticide Complaint Process](https://tinyurl.com/NDDA-ComplaintProcess).

(<https://tinyurl.com/NDDA-ComplaintProcess>) After you are fully informed, and if you believe you need to act, go to the web form and submit a complaint:

<https://tinyurl.com/NDDA-ComplaintForm>



[Andrew A. Thostenson](#)  
Pesticide Program Specialist



### ASH ANTHRACNOSE RETURNS

Cool and moist weather during the last several weeks has led to high levels of ash anthracnose, a leaf disease common to our region. Defoliation of ash trees is the most commonly observed symptom, with green leaves littering the ground under infected trees. Additional symptoms of ash anthracnose leaf infections include brown-to-black blotches on leaf margins, causing leaf distortion, and small purple-to-brown spots in the middle of leaves (see photo). The last few years of drought have resulted in almost no ash anthracnose, but this year it's widespread around the state and defoliation can be heavy.

Trees that were otherwise healthy before being defoliated should recover on their own. Deciduous trees usually have enough energy reserves to grow new leaves. Re-foliated leaves are often smaller and the crowns of affected trees may appear thin. Several years of repeated defoliation may cause twig and branch dieback, especially in the lowest part of the crown.

Treatment with fungicides is usually not warranted. Fungicides are effective only as a preventative treatment and should be applied as leaves begin expanding. Treating trees now can prevent mid-season infections, but infection is more common in a wet, cool spring, rather than the drier, warm summer. For most large trees, fungicide applications aren't very practical. A light application of fertilizer (1-3 pounds of nitrogen per 1000 square feet of soil surface around the tree) may help reduce stress on highly susceptible ash trees.

The fungus that causes ash anthracnose overwinters in the upper parts of trees in seed samaras, on twig cankers, and on any other infected plant part that remains attached to twigs, so raking and destroying fallen leaves and twigs will only help reduce inoculum rather than completely eliminate it. As a result, ash anthracnose is a recurring problem on ash as long as we have wet, cool weather during budbreak. Disease severity, and therefore the extent of spring defoliation, varies from one year to the next, and among individual trees.



*Ash leaves showing symptoms of ash anthracnose. Note the dead leaf margins and distorted growth in the first photo. The second photo shows a dead leaf margin plus small dots where the fungus has entered the leaves through natural openings or wounds created by summer feeding by the ash plant bug.*

[Joe Zeleznik](#)

NDSU Extension Forestry Specialist



## around the state

### NORTHEAST ND

“Rain, rain go away, come again another day” is the thought running through farmers minds right now! The NE region received another 1- 2 inches of rain this week slowing down many field operations. Farmers are struggling to finish their plantings as final planting dates for crops like canola and soybeans are around the corner and the fields are too wet to do anything. Some farmers might have to go for prevent plant options. Continuous rains are also posing challenges for weed control interfering with crucial herbicide applications. Running the sprayers in wet fields is causing huge ruts making the situations worse.

Excess moisture is causing drowned out areas in fields and yellowing of wheat due to nitrogen loss from leaching. However, the majority of the small grains are benefitting from this moisture and cool weather with lush growth. Overcast days and rain have led to favorable conditions for Tan spot to start showing up in the winter wheat and spring wheat canopies. Soybeans and dry beans are emerging and corn is at two leaf stage. Canola farmers are struggling through planting and crusting issues. Canola flea beetle activity is low owing to the cool and wet conditions.



*Spring wheat field in Ramsey County  
Photo: Lindsay Overmyer, Extension ANR Agent,  
Ramsey County*



*Corn at two-leaf stage in Ramsey County  
Photo: Lindsay Overmyer, Extension ANR  
Agent, Ramsey County*



*Tan spot in winter wheat  
field plot at the Langdon  
Research Extension*

[Anitha Chirumamilla](#)

Extension Cropping Systems Specialist  
Langdon Research Extension Center

### NORTHWEST ND

We've had some good precipitation from scattered rains this past week. The Williston area got a total of 1.17 inches which fell early morning last Monday as per NDAWN records. Scattered and intermittent rains were good for planted crops although the rains slowed down field activities here and then. I've also seen the first rounds of sprays to control weeds in small grains in the past 2 weeks. There were some pretty strong winds last Tuesday (June 4) which peaked at 26 mph and gusts as high as 40 mph between 9:00am to 10:00 am. When the fields were dry, there were farmers rolling the fields to push down exposed rocks for leveled ground and smoother machinery operation come harvest season. The



latest winter wheat stage I've seen is at around jointing stage. Spring seeded small grains growth stages I've seen across the counties are from 2 leaf to going 5 tillers. I've seen insect damage from flea beetles in canola as well. Grasshoppers are starting to be talked about in our crop calls. Most of the later planted broadleaf crops like canola have just emerged in some areas but the latest canola I've seen was at 4-leaf. There are still a lot of acres where crops haven't completely emerged, but small seedlings are just out good in these fields.

[Charlemagne "Charlie" Lim](#)

Extension Cropping Systems Specialist  
NDSU Williston Research Extension Center

### **SOUTH-CENTRAL/SOUTHEAST ND**

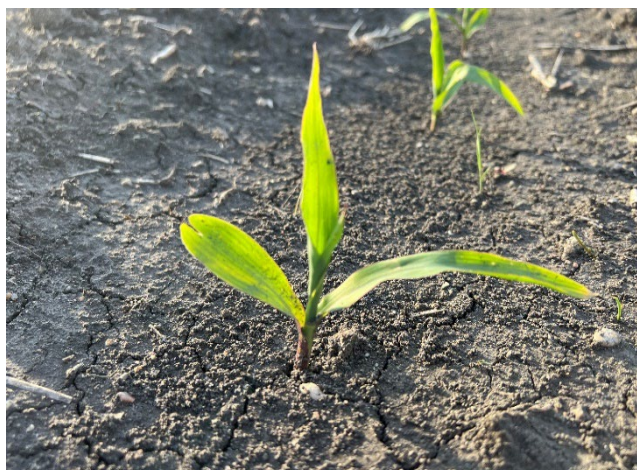
The region received 0.2 inches to greater than 3 inches of rain in the past week, with the least rainfall reported in the Wishek area. Most areas of the region planted for a few days in the past week, but some areas could not. Nearly all small grains and corn have been planted and have emerged. Soybean planting is highly variable across the region with a few counties nearly done while others have many acres to plant yet. Dry beans and sunflowers have been planted in all counties with some farther along than others.

In this region, Sargent County may be the farthest behind in planting with only 50 to 60 percent of all acreage in the county planted at the moment! Prevent planted corn acres have already been submitted in some parts of the region, but after the tremendous rains Tuesday, there will be an increase in the amount of prevent planted acres in the region, but the full extent is currently unknown.

The earliest planted hard red spring wheat has begun flag leaf emergence already. That's way ahead of last year! Corn in the northern part of the region is emerging to V2 while corn in the southern part of the region is between V3 and V4. Soybean stage ranges from germination to first trifoliolate throughout the region, with the most advanced plants being in the southern part of the region.

Hard red spring wheat, barley, and corn are mostly good to excellent throughout the region, but the saturated soils are taking a toll on all crops. Soybeans have not emerged enough to know how good the stands will be, but with all of the phytophthora we saw in the region last year, it is possible that untreated soybean seed may be vulnerable to death by phytophthora and/or pythium.

Thankfully weeds are growing slower than normal, however with all of the wet soils applying herbicides may be delayed. Please do the best you can to apply herbicides when kochia are two inches in height. That is the key weed to determine when to apply herbicides.



*Most advanced stage of hard red spring wheat in Griggs County showing two nodes meaning flag leaf emergence has begun.*



*Most advanced corn in Griggs County at V2 stage of growth.*

**ATTEND THE 2024 CROP MANAGEMENT FIELD SCHOOL**

Don't forget to register for the NDSU Extension Annual Crop Management Field School being held Friday, June 28, 2024 from 8:30 AM to 2:45 PM at the Carrington Research and Extension Center. This School has been offered for many years and is geared towards all crop advisors, but farmers are welcome to attend to brush up on some basic skills as well. The goal of this School is to provide updates, using field demonstrations and research trial on crop pest and soil management recommendations!



*Photo from a previous Crop Management Field School.*

Field sessions will include:

- \* **Weed identification - identify about 60 living weed exhibits, with brief reviews on selected weed biology and control**
- \* **Herbicide site-of-action - identify herbicide classes by examining crop and weed injury symptoms**
- \* **Small grain disease identification and management - review crop stages and disease identification, effective use of fungicides**
- \* **Soil management – diagnosis of crop nutrient deficiencies**

Speakers at this year's School include Greg Endres, Shelby Dietz, Dave Franzen, Andrew Friskop, Joe Ikley, and Jeff Stachler.

Preregistration is required. Only 50 participants will be accepted on a first-come, first-served basis, so register quickly to reserve your spot. Certified crop advisors will receive 4 continuing education units in crop pest and soil management.

For additional details and preregistration information, visit [www.tinyurl.com/payCREC](http://www.tinyurl.com/payCREC) or <https://agext-northdakotastate-ndus.nbsstore.net/carrington-research-extension-center> or contact the CREC at 701-652-2951. A completed preregistration form and \$100 fee is required by June 23, 2024.

[Jeff Stachler](#)  
Griggs County Extension Agent



THE JUNE 6 TO JUNE 12, 2024 WEATHER SUMMARY AND OUTLOOK

Rain was the most prominent feature of the weather this past week. Total rain for the 168 hour (7 day) period ending at 10:00 AM Wednesday, June 5 is presented in Figure 1. These next 7 days look much drier. I doubt it will be perfectly dry, although that seems possible for some western areas, but amounts should be very light where it does rain and over the next 10 days odds favor all areas, or at least a very high percentage of North Dakota, recording below average precipitation. Very good news for most of the region.

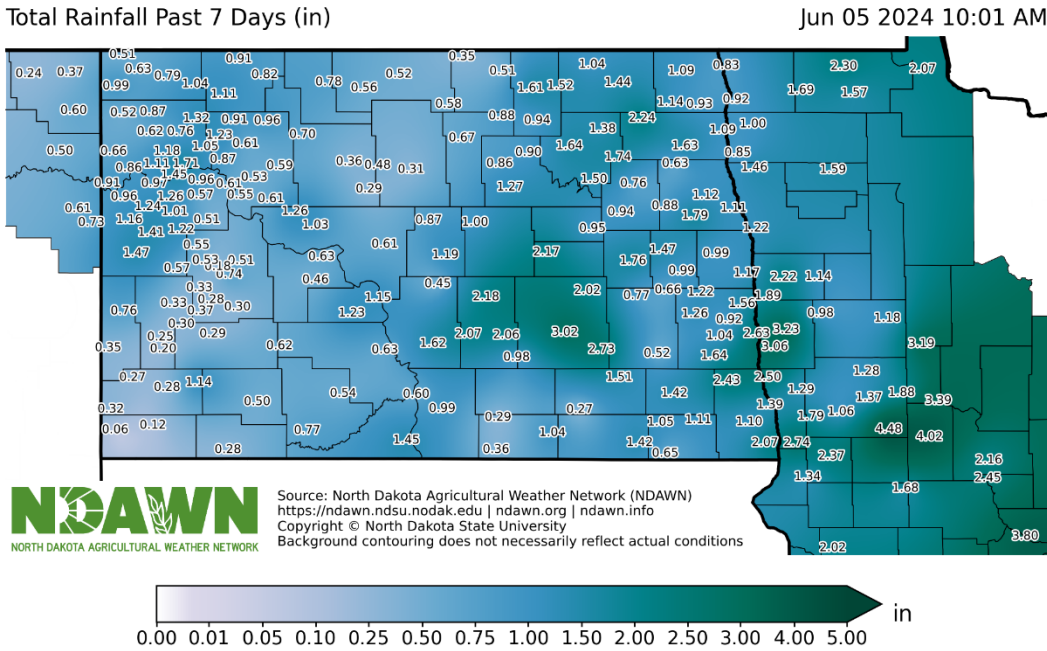


Figure 1. Total Rain at NDAWN Stations for the 168-hour (7 day) period ending at 10:00 AM on June 5, 2024.

Temperatures this past week were mostly close to average, although some parts of western North Dakota was a few degrees colder than average. This past week was similar to what was recorded in May (Figure 2) with last month overall finishing close to average across the region. As we switch into a dry pattern created by the upper-level wind switching from a southwestern flow to a northwestern flow, temperatures should be near average over the next 6 to 10 days with perhaps western North Dakota recording slightly above average temperature and eastern North Dakota recording slightly below average temperatures.



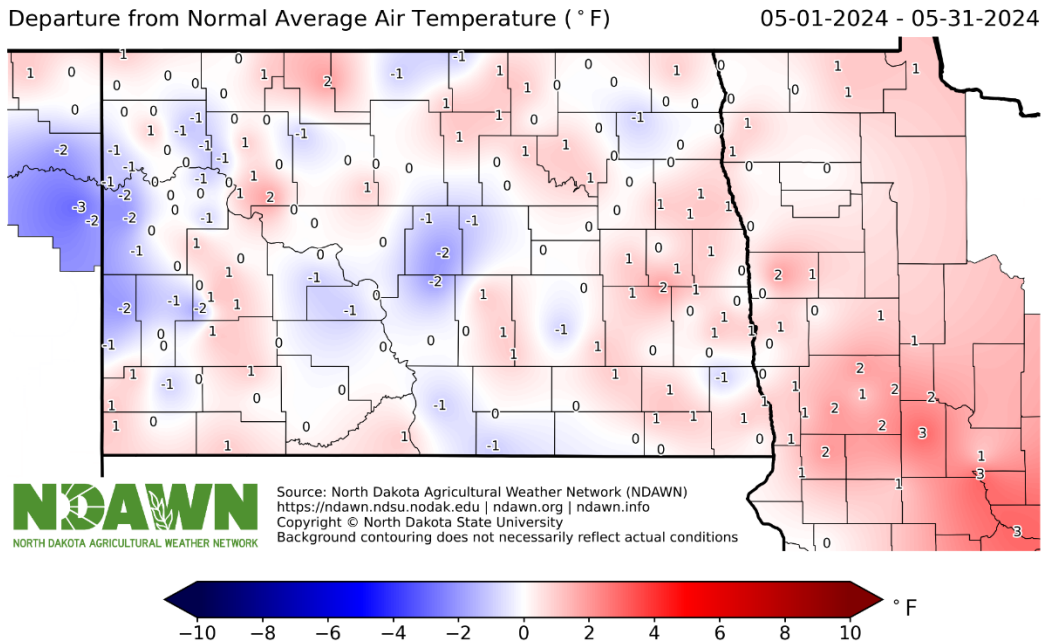


Figure 2. Departures from Average Air Temperatures at NDAWN stations during May, 2024.

Figures 3 and 4 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 these next 7 days, GDDs should be similar or slightly higher than what was recorded last week.

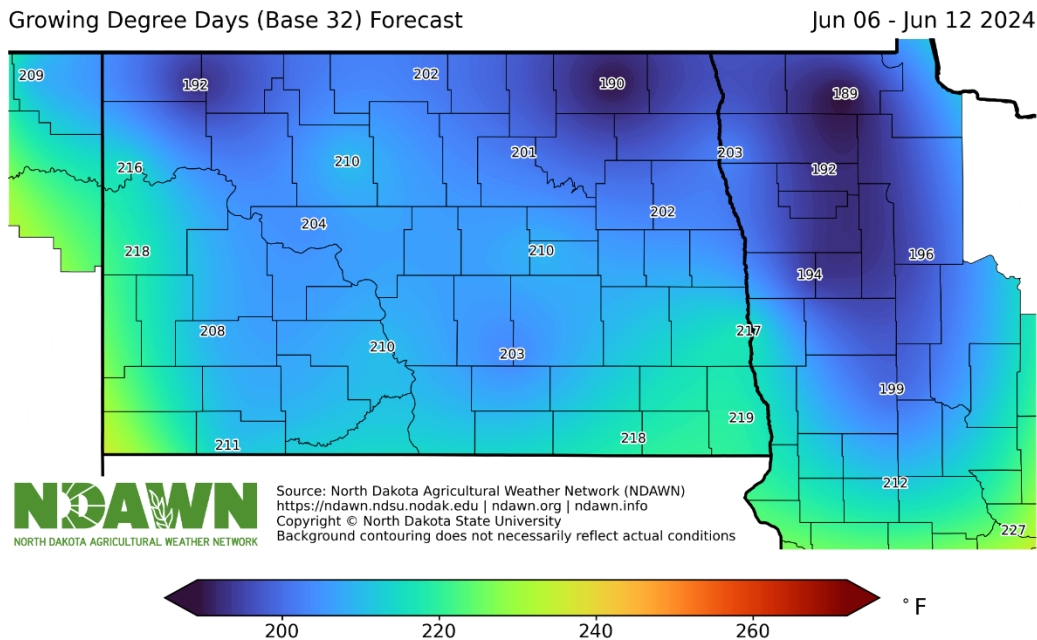


Figure 3. Estimated growing degree days base 32° for the period of June 6 to June 12, 2024.

Growing Degree Days (Base 50) Forecast Jun 06 - Jun 12 2024

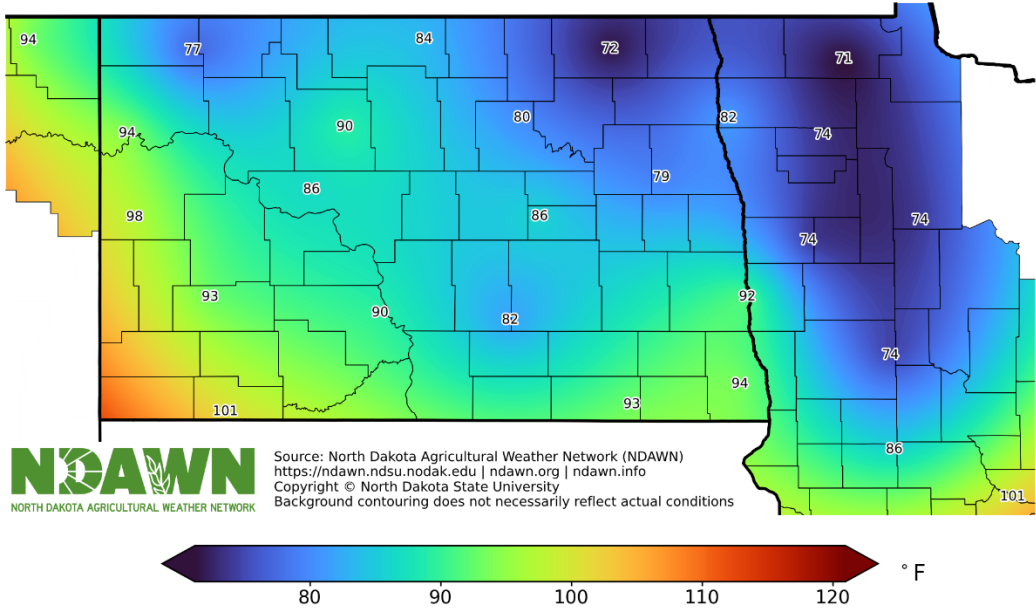


Figure 4. Estimated growing degree days base 50° for the period of June 6 to June 12, 2024.

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 Jun 03 2024

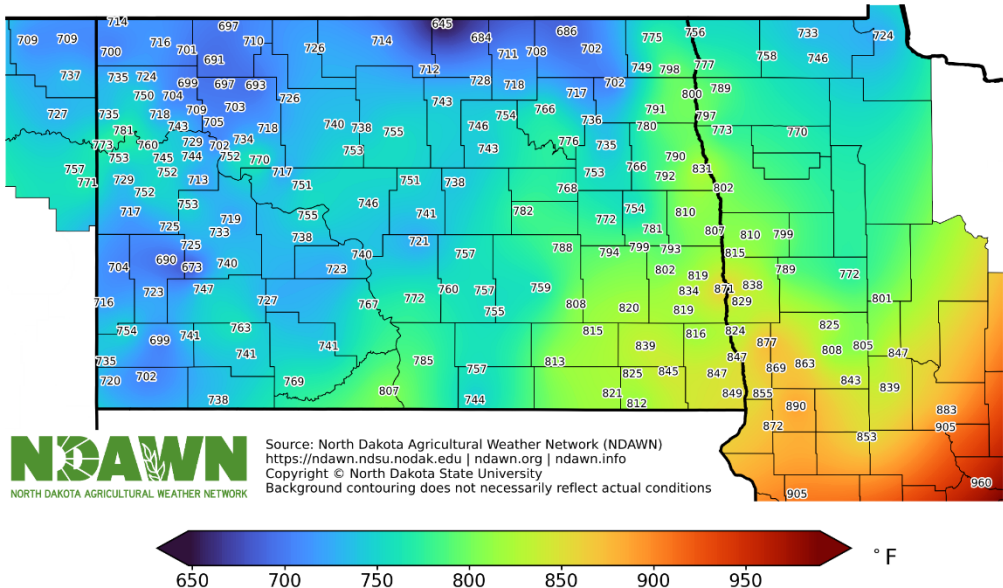


Figure 5. Wheat Growing Degree Days (Base 32°) for the period of May 1 through June 3, 2024

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>.

Corn | Soybean Growing Degree Days Since May 10 Jun 03 2024

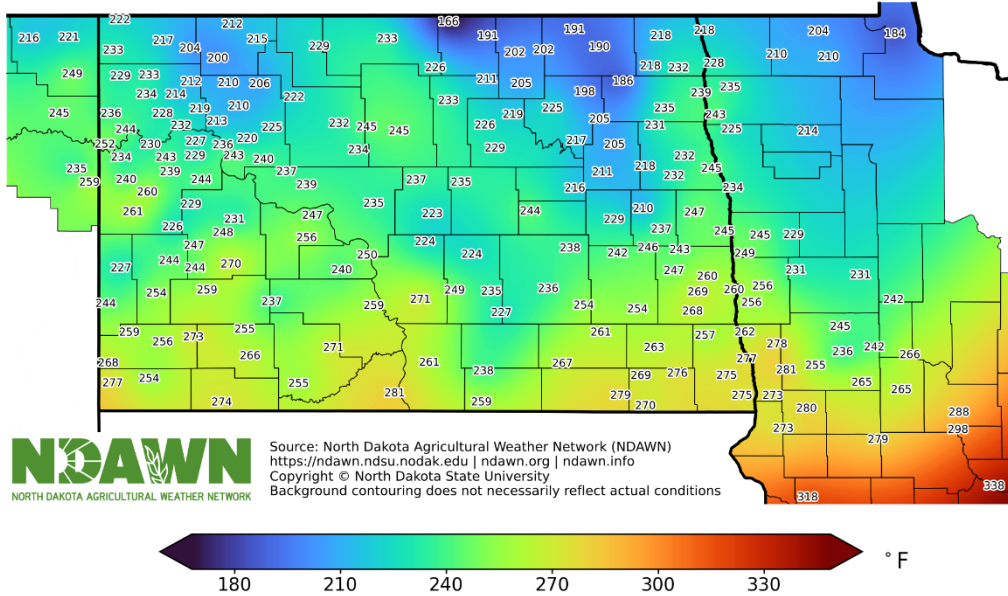


Figure 6. Corn Growing Degree Days (Base 50°) for the period of May 10 through June 3, 2024

Soybeans also use base 50° like corn, but NDAWN has a special tool for soybeans that, based on your planting date and cultivar, can estimate maturity dates based on average temperatures, as well as give you GDDs based on the planting date(s) you set. That tool can be found here: <https://ndawn.ndsu.nodak.edu/soybean-growing-degree-days.html>

[Daryl Ritchison](#)  
 Meteorologist

Director of the North Dakota Agricultural Weather Network (NDAWN)



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