North Dakota State University
CROP & PEST REPORT
NDSU EXTENSION

No. 9 July 4, 2024

Inside this Issue...

2024 NDSU ANNUAL FIELD DAYS

The North Dakota State University Research Extension Centers' annual field days show N.D. Agricultural Experiment Station research in action. The events take place at the Research Extension Center sites across the state and feature speakers, presentations and tours covering a diverse array of topics. The field days are open to the public.

2024 NDSU Research Extension Center Annual Field Days
July 8 – Central Grasslands Research Extension Center

July 9 – Dickinson Research Extension Center – morning agronomy tour

July 9 – Hettinger Research Extension Center – late afternoon

July 10 – Dickinson Research Extension Center – morning livestock tour

July 10 – Williston Research Extension Center – late afternoon agronomy/horticulture tour

July 11 – Williston Research Extension Center – morning irrigation tour

July 15 – Agronomy Seed Farm – late afternoon tour

July 16 – Carrington Research Extension Center – morning and afternoon tours

July 17 – North Central Research Extension Center – morning tour

July 18 – Langdon Research Extension Center – morning tour

Entomology

SCOUT FOR WHEAT MIDGE

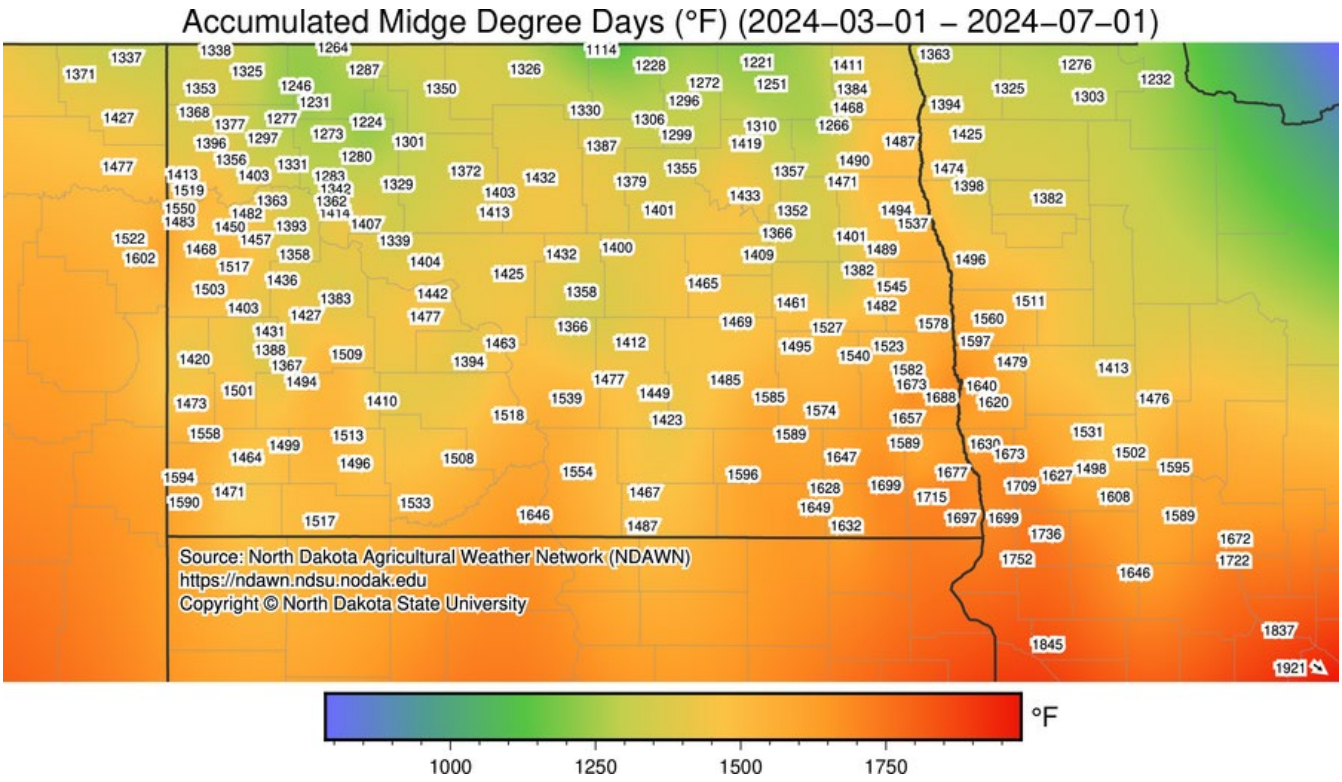
The updated accumulated midge degrees days (AMDD) indicates that the female wheat midge is at 10% emergence (or 1300 ADD) in the northern tier of North Dakota.

Recent IPM pheromone trapping for wheat midge by the IPM Scouts and trappers found increasing numbers, >100 midge males per trap per week in northeast and southeast areas. See maps on Montana State University's PestWeb site for wheat midge trapping.

Wheat midge adult (Photo courtesy of Philip Glogoza, former Extension Entomologist)

Scouting for wheat midge is important in heading to early flowering to confirm that populations are below the economic threshold level. Wheat midge scouting should be conducted at night when temperatures are greater than 59 F and the winds are less than 6 mph. Use a flashlight and slowly scan the heads of wheat plants for tiny orange flies, count the number of flies per head and calculate an average number of midge per head.

Crop	Economic Threshold
Spring wheat	1 or more midge per 4 - 5 heads
Durum wheat	1 or more midge per 7 - 8 heads



TRUE ARMYWORM IN CORN

True armyworms migrate into North Dakota from the southern U.S. and usually arrive in June-July. This year, multiple moth flights occurred in early June, as we are seeing mature 2-inch long larvae (or caterpillars) now!

Mature true armyworm larvae have been observed feeding on corn leaves/whorls in Grand Forks County between Northwood and Emerado (source: Huso Crop Consulting). Rye cover crop served as the common denominator for each field that was infested. Living cover crops like rye and other grass crops are attractive to the female moth for egg laying. In northwest Minnesota, large numbers of true armyworms also were captured in pheromone traps in the perennial ryegrass crop grown for seed (source: Dave Grafstrom, UMN). Dr. Grafstrom found that peak moth capture was May 20-26 and June 6-12, which were associated with low-level jet streams and thunderstorms that tend to drop the migrant moths back into fields. Dr. Varenhorst of SDSU Extension, also reported true armyworm larvae feeding in winter wheat and other small grains in South Dakota this past week (Pest and Crop Newsletter: July 1, 2024)

Mature larva of true armyworm in corn (Courtesy of Mark Huso)

True armyworm moths in pheromone trap (Courtesy of Dave Grafstrom, UMN)

You can identify true armyworm moths by its light brownish gray color with a small white spot on each front wing. When expanded, the wings are about 1½ inches across.

True armyworm moths (Courtesy of Gerald Fauske, NDSU)

Larvae have a pale orange stripe with white border that runs longitudinally along its sides and a dark band on each proleg (4 prolegs total), and a brown network of lines on its light-colored head capsule. Larvae pass through six instars (or stages) and complete feeding in 3 to 4 weeks.

Larva of true armyworm in corn showing orange stripe with bands on prolegs and brown network on head (Courtesy of Adam Varenhorst, SDSU Extension)

Armyworm larvae chew on foliage, sometimes completely defoliating leaves and clipping heads of small grains. During the daytime, armyworms hide under vegetation, or loose soil, or in soil cracks. Larvae consume increasing amounts of vegetation as they grow. Because they feed at night and hide during the daytime, armyworms often cause considerable damage before being discovered. Armyworm infestations often are sporadic, so scout and make treatment decisions on a field-by-field basis. During outbreaks, armyworms can "march like an army" in large numbers to new fields.

Treatment is recommended if the following conditions are met:

- Armyworms are ¾ to 1¼ inches long
- Most larvae do not exhibit signs of parasitism (white eggs behind the head or small brown cocoons attached to the body)
- Leaf feeding or head clipping is evident.

If armyworms are more than 1¼ inches long, control is not likely to provide economic return, so no insecticide is recommended because larvae are mature and will be pupating (nonfeeding, resting stage).

Economic Thresholds for true armyworm:

Small Grains (wheat, barley, oats)

- ***Preheading:*** Four or more larvae per square foot
- ***Heading (head clipping):*** Two or more larvae per square foot

Corn

- ***Seedling corn:*** 10 percent of the plants are damaged and larvae are less than ¾ inch
- ***Whorl stage:*** 25 percent of plants have two larvae per plant or 75 percent of plants have one larva per plant
- ***Tassel stage:*** Minimize defoliation at or above the ear leaf. Protect pollinators from insecticide poisoning by spraying in the late evening or early morning in tasseling corn.

Janet J. Knodel
Extension Entomologist

plant pathology

SYMPTOMS OF BACTERIAL LEAF STREAK REPORTED ON FLAG LEAVES OF SPRING WHEAT

Bacterial leaf streak (BLS) is primarily a seed borne disease, and several of our hard red spring wheat varieties are susceptible. Conditions that favor BLS development include frequent rain, high winds, high humidity, and any other events that cause injury to wheat leaves. I have received several photos depicting early BLS symptoms (Figures 1), which include yellow to brown streaks accompanied by water soaking on the leading ends of the lesion. Bacterial ooze (sign of the pathogen) can also be observed within the lesions on a heavy dew morning. Our best management tool for BLS is host resistance. We have evaluated several plant protection products for BLS suppression, but none of the tested products provide adequate BLS control.

Figure 1. Early BLS lesion development. Notice linear and streaky lesions that are yellow with bacterial ooze within the lesions. Water-soaking is also noticeable on the leading ends of the lesion.

FUSARIUM HEAD BLIGHT (SCAB) RISK IS HIGH AND LIKELY TO REMAIN HIGH

Last week, relative humidity started to increase and statewide rain events occurred. This in combination with rain this week (and more chances of rain at the end of the week) has caused a significant jump in scab risk. As of today (July 2), I believe the National Fusarium Risk Tool is estimating risk better than the NDSU FHB model. However, both models may align in their risk estimates by the end of the week. Scab risk for susceptible varieties (rated 6 or higher) is moderate to high for most areas in the state (Figure 1). Scab risk is moderate to high for moderately susceptible (rated a 5) and moderately resistant varieties (rated 3 to 4) for several areas in North Dakota (Figures 2 and 3). It is likely that elevated scab risk will continue into early next week.

As a reminder, there are several different planting dates for small grains this year, so evaluate scab risk in each field as small grains start to head and enter flowering stages of development. Previous articles in the Crop and Pest Report have reviewed fungicide timing and selection for scab management.

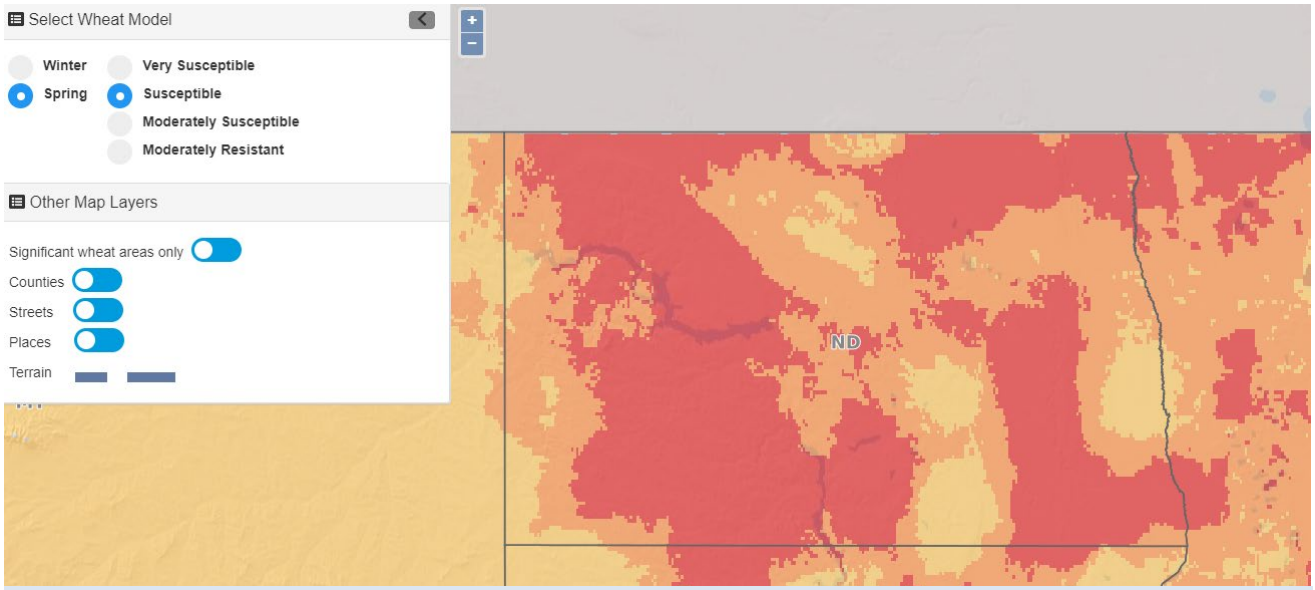


Figure 1. Scab risk for susceptible varieties according to the USWBSI National Fusarium Risk Tool. Note red = high, orange = moderate, and yellow = low.

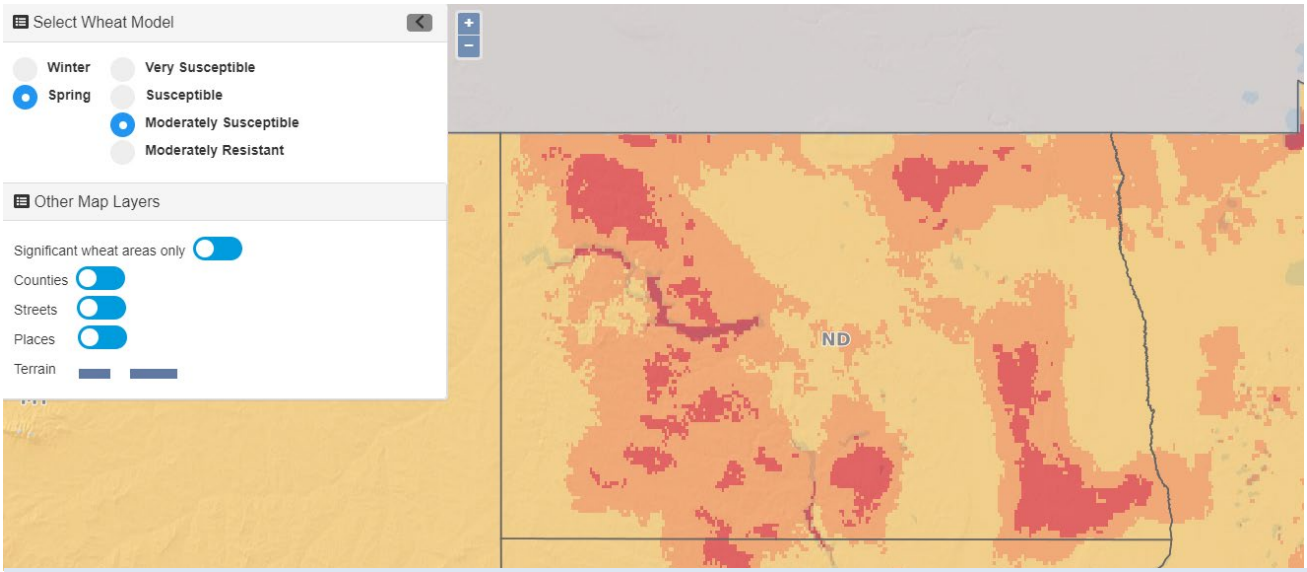


Figure 2. Scab risk for moderately susceptible varieties according to the USWBSI National Fusarium Risk Tool. Note red = high, orange = moderate, and yellow = low.

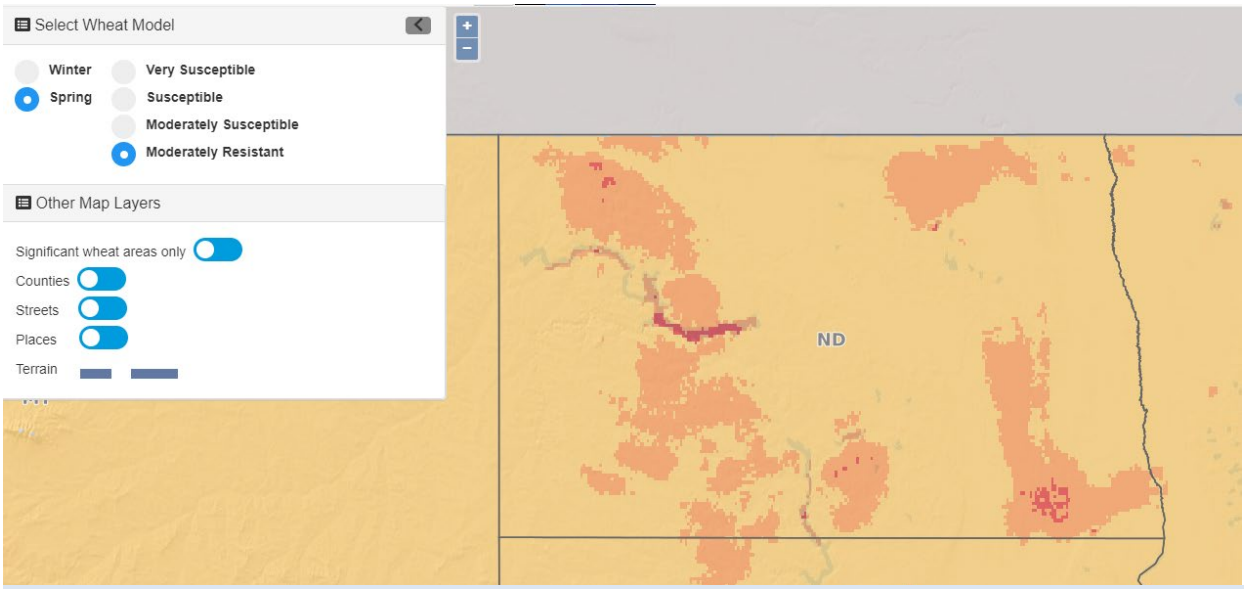


Figure 3. Scab risk for moderately resistant varieties according to the USWBSI National Fusarium Risk Tool. Note red = high, orange = moderate, and yellow = low.

Andrew Friskop
Extension Plant Pathology, Cereal Crops

SOYBEAN PATHOLOGY: RIDDLED WITH RHIZOCTONIA ROOT ROT

Pockets of dead soybeans… Wilted seedlings that never got a chance… Stunted plants that are not growing as well as they should be… If you have been seeing these symptoms in soybeans over the past few weeks you are not alone (**Fig. 1**). Soybean pathogens are awake and thriving at the moment with the excessive moisture currently occurring across the Northern Plains from Williston, ND to Western, MN.

Figure 1. Field of early soybeans with a pocket of dead soybean seedlings.

Over the past few weeks, I have gotten many calls on soybean seedlings struggling. And almost every report has involved a pathogen called Rhizoctonia. This pathogen is capable of impacting soybeans in a few ways:

1. Soon after planting, Rhizoctonia can begin to degrade soybean seeds in the ground before emergence.

2. Before seedling emergence, Rhizoctonia can lead to rotten roots that will kill of the seedlings, which is often called pre-emergence damping off.

3. After seedling emergence, Rhizoctonia can infect and kill the seedlings leading to post-emergence damping off (**Fig. 2**).

4. After emergence, Rhizoctonia can also infect and cause the development of reddish sunken lesions (often called cankers) on the hypocotyl of the soybean plant near the soil line (**Figs. 3 and 4**).

Figure 2. Soybean post-emergence damping off within a dead spot in the field.

Figure 3. Early development of Rhizoctonia lesions on soybean seedlings at VC.

While the first three infection timings most often lead to plant death, the hypocotyl lesions can often be non-fatal to soybean plants. These plants that do not die due to disease will be severely stunted and will have reduced yield capacity. As I like to say, the plants will survive but they will not thrive.

For the management of Rhizoctonia, one of the best strategies is to get out and scout fields to understand where issues are present. Once these areas are known, active management can be taken. When scouting, make sure to dig up the entire plant to inspect the roots of seedlings as this disease is most visible below ground.

The most effective management tool we have is the use of chemical seed treatments to protect the seeds and seedlings during the first few weeks of being in the ground. There are multiple products available labeled for control of Rhizoctonia which can be found here. As this is a seedling disease, foliar fungicide applications are not recommended for controlling this disease, even if symptoms have started to appear.

Crop rotation can also be an effective management strategy if the correct crops are used. Rhizoctonia is capable of causing disease on many other crops as well, but there are specific

Figure 4. Soybean seedling that has a visible Rhizoctonia lesion present right near the soil line. Key characteristics of this disease are the development of a sunken lesion called a canker and a reddish-brown/rusty discoloration within this canker. Photo credit: Bennett Weller

groups of this pathogen called AG types which have different preferences for each host/crop. For example, soybean root rots are often associated with AG2-2IIIB, AG4, and AG5. Many of these AG types are also associated with disease in sugar beets and dry beans, and as a result these crops are not considered effective options for crop rotations. On the flip side, corn, small grains, and sunflowers may be effective options for reducing inoculum. However, even if rotating out of a susceptible crop, the pathogen is capable of surviving in fields for multiple years.

Unfortunately, genetic resistance is not well defined in commercial varieties, but differences in susceptibility to Rhizoctonia are present.

If any fields are suspected of having issues with any seedling disease issues, I recommend sending samples into the NDSU Plant Diagnostic Lab for confirmation.

Wade Webster
Extension Plant Pathology, Soybean

BACTERIAL LEAF SPOT IN SUGARBEET

Periods of cool and wet weather can promote bacterial leaf spot in sugarbeet, caused by the bacterial pathogen *Pseudomonas syringae* pv. *aptata*. In seedlings and mature plants, this disease is characterized by irregular leaf spots with a black or brown color (Figure 1). In contrast, Cercospora leaf spots tend to be more circular and lighter in color, particularly in the center of the lesion. No stromata or other structures are visible within bacterial leaf spots. Because of the different biology of these pathogen groups, most fungicides applied to manage Cercospora leaf spot will have no impact on the development of bacterial leaf spot. Careful scouting and diagnosis is required to determine the pathogen responsible for sugarbeet leaf spots. In other words, fungicide applications should focus on Cercospora leaf spot.

Figure 1. Sugarbeet leaf with symptoms of bacterial leaf spot. Leaf margins may also be affected. Heavy wind and rain in this field also contributed to leaf damage. (Photo: Eric Branch)

Bacterial plant pathogens often need external factors to help facilitate infection. Although *P. syringae* pv. *aptata* can enter leaves through natural openings (stomata, hydathodes), mechanical damage from hail, wind, or rain also increases the risk of disease. Recent hail in the Red River Valley has prompted interest in managing bacterial leaf spot. Bacterial leaf spot is not typically economically damaging. Higher temperatures are less conducive to this disease while simultaneously supporting beet development. As a result, most outbreaks of bacterial leaf spot in sugarbeet resolve on their own as the beets outgrow earlier symptoms. Even in more serious outbreaks, management strategies at the field level are not typically recommended. The best management strategy may simply be taking care to manage other weeds, diseases, and insect pests in hail-damaged fields.

Cercospora leaf spot (CLS) is still the most prevalent foliar disease in sugarbeet and is much more damaging in regards to yield, quality, and recoverable sugar per acre than bacterial leaf spot. Low temperatures have minimized infection risk over the past week (NDAWN Sugarbeet Cercospora), but proactive fungicide applications (at or near row closure) for CLS

are still the best tool to maintain healthy foliage as the season progresses. Additionally, hail-damaged fields will also benefit from fungicide applications to protect yield potential.

Eric Branch
Extension Plant Pathology, Sugarbeets

INCREASING PROTEIN IN SPRING WHEAT

Spring wheat fields in many areas of the state are looking like yields might be greater than anticipated. Although N rate is not a factor in higher yields if the values from the N calculator is followed, higher yield sometimes results in lower protein than anticipated. Growers should have an idea whether their wheat variety choices tend to be higher or lower in protein due to genetics. If the variety tends to be higher in protein than 14% as a rule, the chances of achieving profitable protein increase is much less than varieties that struggle to reach the 14% standard in normal conditions.

If a grower wants to increase spring wheat protein, here is the well-researched 'recipe' for doing so:

- The application should be made for best effect immediately post-anthesis. If there are a large number of white anthers still active in the field, it is too early for maximum effect, and damaging flag leaves at this point would not be wise. If only an occasional anther is still active, it is time to pull the trigger on application.
- Apply 30 lb N as 10 gallon 28% (UAN), diluted with 10 gallon water.
- Alternatively, the 30 lb N can be made with a urea solution to deliver 30 lb N- no additional water is necessary if using a straight urea solution. It takes heat to make a urea solution since dissolving urea is endothermic and the side of the mixing tank will frost up considerably if hot water is not used.
- Apply in the cool of the day (very early morning until late morning). In the evening after a hot day, the plants may still be recovering from the hot conditions and be more susceptible to burning. With the cooler temps we have been experiencing (in the 70's), spraying all day would be fine.
- Apply using flat fan nozzles (not stream-bars).
- Expect some burning, but this has been shown to be superficial and has not resulted in yield loss in numerous trials.
- When the wheat berries show 'milk', it is time to stop. There will be no economic benefit to N application at this point.

There is no experiment from NDSU studies in support of the use of low rates of 'very efficient' N fertilizers. Experiments using a number of these products show that it still takes 30 lb N from them to achieve similar results as 30 lb N from UAN. A summary of studies at NDSU on immediate post-anthesis N application can be accessed on my webpage at https://www.ndsu.edu/fileadmin/snrs/2020_Website_Revamp/postanthesiscompilation.pdf
A white-paper on use of high-efficiency foliar N fertilizer can likewise be accessed on my webpage at https://www.ndsu.edu/fileadmin/snrs/2020_Website_Revamp/foliarNreport.pdf

Growers in the state must guess whether the agronomics of immediate post-anthesis N application to spring wheat would be justified or not. Thanks to support from the North Dakota Wheat Commission, there is a publication on the use

of red-edge wavelength active optical sensors combined with wheat variety protein tendencies for use in the future. The procedure is calibrated to the Holland Scientific Crop Circle red-edge active sensor.

- **Spring wheat flag-leaf timing active-optical ground-based sensor algorithms to direct post-anthesis N application.** 2022 D.W. Franzen, H. Bu. NDSU Ext. Circ. SF1176-7

Dave Franzen
Extension Soil Specialist
701-799-2565

BRADY GOETTL JOINS EXTENSION SOIL SCIENCE

As I approach the one-month mark since I joined NDSU Extension as a Soil Science Specialist alongside Dr. Dave Franzen, I wanted to take this opportunity to introduce myself. Growing up on a Wisconsin dairy farm, agriculture has always been a major part of my life. After several years of working as an agronomist developing whole-farm nutrient management plans, I moved to North Dakota where I worked as the NDSU Extension Soil Health Research Technician. With my experience at the confluence of soil fertility, soil health, and farmer outreach, I look forward to the opportunity to continue serving the stakeholders of North Dakota in my new role.

If you would like to receive timely information throughout the year relating to new Extension soil science publications, upcoming soil field days and workshops, and other information relating to soil management in North Dakota, please SUBSCRIBE to the new NDSU Extension Soil Listserv and stay up to date on all things soils.

Brady Goettl
Extension Soil Specialist

SPRAY APPLICATION TECHNOLOGY FOR FUSARIUM HEAD BLIGHT SUPPRESSION

Fungicide applications for Fusarium Head Blight (FHB) suppression are well underway across the state. Sprayer configuration, whether spraying by air or by ground, influences the efficacy of these applications. See below for a summary of recommendations for ground applications and a link to an archived NDSU Extension publication for aerial applications.

First, please consider this essential point: *Fungicide application settings are important for FHB suppression, but product selection and application timing have a greater influence*. Selection of an effective fungicide product and applying it at the proper time must be the foundation of a successful FHB suppression program. Consider proper spray application settings to be the "cherry on top."

Ground application

I am working on a new publication summarizing spray application recommendations for ground application of fungicides for FHB management. Although this new publication is not yet ready for dissemination, I can share this summary of recommendations:

- use a dual angled spray, with a steeper angled forward-facing spray (e.g. 30 degrees from vertical) and a shallower backward-facing spray (e.g. 70 degrees from vertical)

  - an angled spray is essential to optimize coverage
  - an asymmetrical dual spray provides better coverage than a symmetrical dual spray or a single forward-facing spray
- use a coarse spray quality (i.e., droplet size)
  - relative to finer sprays, the larger droplets from a coarse spray better maintain their momentum and better resist evaporation
  - these larger droplets are better able to keep their desired trajectory, hit the targeted head, and move past the awns to deposit on the spikelets
- use 10 to 20 gallons water volume per acre
  - there is a consistent coverage benefit to higher water volumes
  - 10 gpa is the minimum acceptable water volume
  - water volumes of 15-20 gpa will optimize coverage
  - water volumes of 12-13 gpa may offer a more acceptable balance between coverage and operational efficiency
- position spray nozzles as low as possible above the grain heads without dragging through the crop
  - ideally 9-12 inches above the heads
  - no higher than 24 inches above the heads
  - excessive boom height will greatly decrease coverage
- ground speeds up to 12-15 mph are acceptable as long as proper boom height, boom stability, and spray pattern are maintained
  - spray deposit will be slightly less uniform between the front and back of the head at these speeds, but with no negative impact on overall coverage
  - these recommendations assume a coarse spray; finer sprays would be negatively impacted by these faster ground speeds

These recommendations are a deviation from past NDSU recommendations, which were to (i) use a single forward-facing nozzle angled 45 to 60 degrees from vertical (with 60 degrees preferred), that (ii) produces a fine-to-medium spray quality, and (iii) at 10 gpa water volume. However, past recommendations were based on research conducted at 6 mph ground speed. At ground speeds more typical of operational conditions on North Dakota farms (e.g. 8-15 mph), the recommendations outlined above should be used. Also, these new recommendations will facilitate better coverage under breezy conditions.

Aerial application

Archived NDSU Extension publication AE-1327: Aerial Application of Fungicide for the Suppression of Fusarium Head Blight in Small Grains outlines recommended aerial application spray protocols for FHB suppression. This publication is considered inactive since it has not been updated within the past five years. However, the science underlying the publication remains sound and its recommended fungicide application techniques remain relevant.

Rob Proulx
Agriculture Technology Systems Specialist

around the state

NORTHEAST ND

It's wet in the region again with rain totals ranging from 1.48 to 3.37 inches in the last seven days. Hail damage has been reported in some areas of various counties. Small grains are looking great with some farmers expecting 100-bushel wheat. Majority of the small grains are at boot or flowering stages. Considering higher risk for scab in this area, farmers are spraying fungicides. Leaf rust, stripe rust, tan spot and bacterial leaf streak have been reported in small grains. Peas and canola are at flowering stages and are doing well except in the drowned-out spots. Soybeans, dry beans and corn are struggling in their growth with lack of degree days, excess moisture and cold soils. IDC is showing up in soybeans in many areas. Grasshoppers are not bad in the region except for some hotspots in Rolette County. Pastures are lush and green. Similar to issues with weed control and timely herbicide spraying, it is proving to be a challenge to harvest and hay alfalfa this year.

Standing water in wheat and canola fields in Cavalier County. Photo: Anitha Chirumamilla, LREC

Heavy rains and winds caused lodging in a wheat field in Grand Forks County. Photo: Katelyn Landeis, NDSU Extension ANR Agent, Grand Forks County.

Foxtail barley in a wheat field Photo: McKenna Schneider, IPM Scout, LREC

Canola flowering in Cavalier County. Photo: Anitha Chirumamilla, LREC

Soybeans showing early IDC symptoms at Langdon Research Extension Center. Photo: Anitha Chirumamilla, LREC

Weed control delayed in a soybean field in Benson County. Photo: Scott Knoke, NDSU Extension ANR Agent, Benson County

Anitha Chirumamilla
Extension Cropping Systems Specialist
Langdon Research Extension Center

NORTHWEST ND

Weather in the northwest in the past week has been a combination of sunny and rainy. There were days when the sun was out and provided heat, but temperatures didn't really go beyond 80°F. There were scattered thunderstorms throughout the past week most notable was on last Sunday and Monday when most of the northwest received some rain. Williston received 0.61 inches just in the past seven days as per NDAWN records. June has been wet and cool for most of the northwest. In the Williston area, a total of 3.46" of rain came down just in June with highest temperature recorded at 84°F on June 15, and lowest nighttime temperature was 41°F on June 19. Sunlight and heat for corn, soybean, and sunflower are much needed in order for these crops to take off.

Small grains starting to flower, pulses (field pea, chickpea, lentil) are starting to produce flowers with pea much further along than chickpea or lentil, corn and sunflower is from V4 to V7, soybean is from 2 to 6 trifoliate. Most of the crops are in good to excellent condition but there are also spots where crops were stunted due to waterlogged or flooded conditions.

With the humid weather, disease is likely in small grains especially now that the crops have heads fully out and starting to produce flowers. Producers have been active the past two weeks and are makig fungicide and herbicide applications when they can. Scouting efforts detected tan spot in region. Tan spot is fungal leaf disease that when left unmanaged may significantly reduce the flag leaf capability to photosynthesize thereby reducing yield. The flag leaf contributes to

about half of wheat yield. NDSU publication PP1249 discusses tan spot and other fungal leaf diseases in wheat with much more detail. Another disease to watch out for is wheat scab or Fusarium head blight (FHB). Application timing of fungicides to reduce severity from this disease is crucial. It is recommended to apply at early flowering for wheat and durum (and up to seven days after), and at full head in barley (and up to seven days after) to reduce severity from the disease. For more information on FHB and its management in small grains please see the NDSU publication PP804. To know more about the importance of the Deoxynivalenol (DON), the toxin associated with FHB please see publication PP1302. Finally, please refer to present and past articles in the Plant Pathology section of the Crop and Pest Report for more information on FHB risk and management.

Prolonged periods wet conditions in the region have led to the development of fungal leaf disease in small grains. Above picture show Tan Spot in McKenzie county. Photo taken 7/02/2024.

Oat heads starting to fully come out. Small grain crops in the regions are in great condition. Producers in region have been active in putting down fungicides in a timely fashion. Photo taken 7/02/2024 in Williams County.

Chickpea starting to flower. Photo taken 7/02/2024 in Williams County.

Charlemagne "Charlie" Lim
Extension Cropping Systems Specialist
NDSU Williston Research Extension Center

SOUTH-CENTRAL/SOUTHEAST ND

The region received 0.59 inch of rain near Jamestown in Stutsman County to 2.4 inches of rain near Steele in Kidder County this past week with an approximate average for the region of 1.4 inches! Emmons, Kidder, Eddy, and Richland Counties received the greatest rainfall over the past week in the region. Ponded areas exist in all parts of the region. Rainfall for June for the region ranged approximately from 2.69 inches near Brampton in Sargent County to 7.1 inches near Jamestown in Stutsman County with an approximate average of 4.3 inches. Binford, Jamestown, McHenry, McKenzie, Mooreton, and Steele all received greater than 5.2 inches for June! The 4-inch bare soil temperature stayed below normal over most of the region again this past week. The 4-inch bare soil temperature near Cooperstown in the month of June averaged 63 degrees Fahrenheit, 6.7 degrees Fahrenheit below the normal at this station since 2015- and 3.2-degrees Fahrenheit below the past record set in 2019! Hail occurred last Friday in Griggs, Steele, and Traill Counties with crops being completely destroyed in parts of these counties!

Winter wheat looks good in much of the southern part of the region. Hard red spring wheat development ranges from tillering up to milk stage in the region with most areas having at least headed out or beginning to flower. Hard red spring wheat looks good to excellent across most of the region with most farmers having hard red spring wheat yielding above the county average across the region as long as we keep Fusarium Head Blight out of the region. Cereal aphids and some leaf diseases are showing up now with most being below threshold. One report (a few plants) of barley yellow dwarf was found in the region as well. Much of the region, however will be at moderate to high risk for Fusarium Head Blight in the region if the forecast holds out for the next ten days. Annual grasses are surviving Group 1 and/or 2 herbicides mostly due to antagonism when herbicides, fungicides, and insecticides are being applied together, but also likely due to increasing densities of herbicide-resistant grass species.

Corn in the region ranges from emerging where it was replanted in the southern part of the region up to 10 collars (V10) with most in the 5th (V%) to 6th (V6) collar stage, way behind last year in which the most advanced corn in Griggs County was at the 13th collar (V13) stage! As of July 2nd, Cooperstown was 14 Growing Degree Days (GDD) below the normal and 346 GDD below 2023! Corn condition declined drastically across most of the region due mostly to wet weather, but also low temperatures, and postemergence corn herbicide injury! Weed control in corn is looking really good across most of the region.

Soybean and dry beans are the poorest looking crops in the region at this time with Griggs County reporting greater than 50 percent of soybean acres being fair to very poor. Soybeans are struggling throughout most of the region due to cool soils, reduced sunshine, excessive rains, and preemergence herbicide injury. Dry beans look fair or less due to these same conditions in addition to clopyralid carryover in the soil. Soybean growth stage in the region ranges from emergence to R1 (flowering beginning) with most soybeans being at about V3 (third trifoliate). Despite the reduced daylength, most soybean have not started flowering yet because they have not reached the minimum V4 growth stage in the region. Last year in Griggs County most soybeans were at the V7 (seven trifoliates) and R1 (beginning bloom) growth stage. Weed control in soybeans is across the board from very good where multiple herbicide sites of action of preemergence herbicides were applied to poor and struggling if the soybeans were planted early and postemergence herbicide applications couldn't be made due to wet and winding conditions. Iron Deficiency Chlorosis is extremely prevalent across the region where large amounts of rainfall have occurred.

Weeds continue to be of a concern particularly in soybean and dry beans.

Ponded water and IDC soybeans in Griggs County.

Severe hail damage to two to three trifoliate soybeans in Griggs County.

Excellent quality hard red spring wheat in the region.

Barley yellow dwarf disease in hard red spring wheat in the region.

Cereal leaf aphids being found now in hard red spring wheat in Griggs County.

Corn at 8-collars (V8).

Soybeans just beginning bloom (R1) stage.

Jeff Stachler
Griggs County Extension Agent

SOUTHWEST ND

Another week of very active weather in Southwest North Dakota. Last week's storm brought peak wind gusts at 10 ft of around 67 mph and scattered hail, with Fairfield in Billings County and New England in Hettinger County getting hit the hardest. Reports indicate 1.5 inches of hail in Fairfield, ND, causing significant crop damage (**Figures 1 and 2**). The wind gusts led to lodging in a few trials at the Dickinson Research/Extension Center, but the plants are expected to recover.

Total rainfall for the last week ranged from 0.05 inches in Bowman to almost 3 inches in Billings County, most of which fell in just one day. Parts of Bowman, Slope, and Golden Valley counties continue to experience moderate drought conditions.

There has been an increase in disease sightings during scouting trips, including loose smut and tan spot in wheat and covered smut in barley (Mercer County). Cool and wet conditions have kept pest populations relatively low, although stem sawfly numbers are steadily increasing.

Overall, crops are progressing well. However, the cool and wet weather has caused some farmers to report that their corn and soybeans are lagging due to a lack of growing degree units. In contrast, small grains have benefited from these cool weather conditions.

Figure 1. Corn field with visible defoliation caused by hail in Fairfield, Billings Cty., ND. Photo credit: Victor Gomes, NDSU Cropping Systems Specialist.

Figure 2. Wheat field that had completed heading damaged by hail in Fairfield, Billings Cty., ND. Photo credit: Victor Gomes, NDSU Cropping Systems Specialist.

Victor Gomes
Extension Cropping Systems Specialist
Dickinson Research and Extension Center

weather

WEATHER FORECAST

The July 4 to July 10, 2024 Weather Summary and Outlook

June was a mix of both above and below average rain across North Dakota into northwestern Minnesota (Figure 1). Taken as a whole you could say the month was pretty average for rain, although, typical of our climate, very few areas were near that average. Temperatures were near average in southeastern North Dakota last month but much of northern and especially northwestern North Dakota recorded well below average temperatures. The North Dakota Agricultural Weather Network (NDAWN) stations at Portal, Noonan, Battleview and Peace Garden did not even record a high of 80° or above last month. A testament to the chilly conditions in that part of the state.

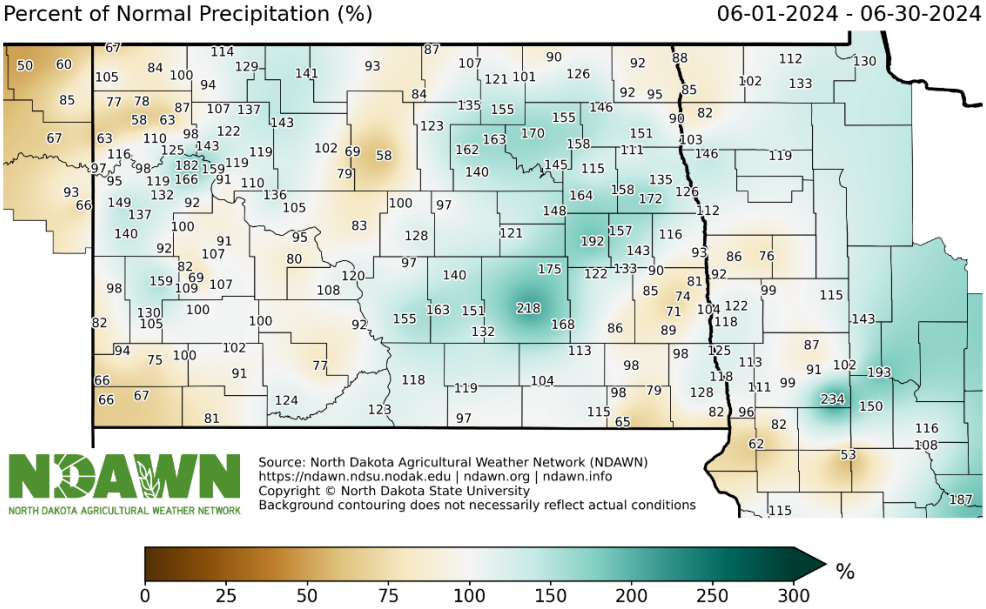


Figure 1. Percentage of Average Rainfall for June 2024 at NDAWN stations.

The most asked question of me by far is when will we see a stretch of above average temperatures? Right now the answer is as we get into the middle of July. Meaning we may have to wait another week. The 8 to 14 day temperature outlook from the Climate Prediction Center is forecasting a fairly high probability of above average temperatures (Figure 2). I would also agree with that forecast which would also mean a stretch of drier weather as well. What I'm not confident in at this time is will that stretch of warmer temperatures be the start of a longer stretch of normal or above normal temperatures.

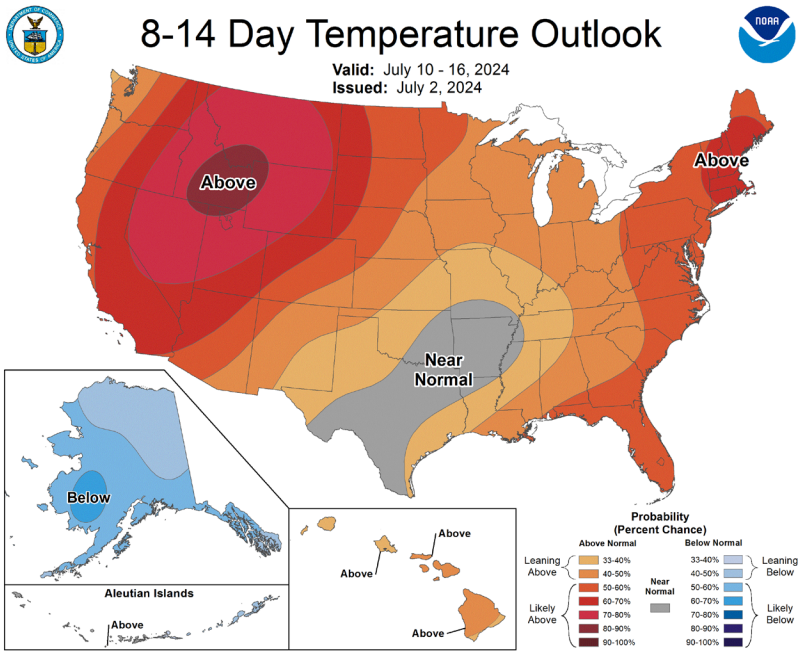


Figure 2. The 8-14 Day Temperature Outlook from the Climate Prediction Center for the Period of July 10-16, 2024

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.

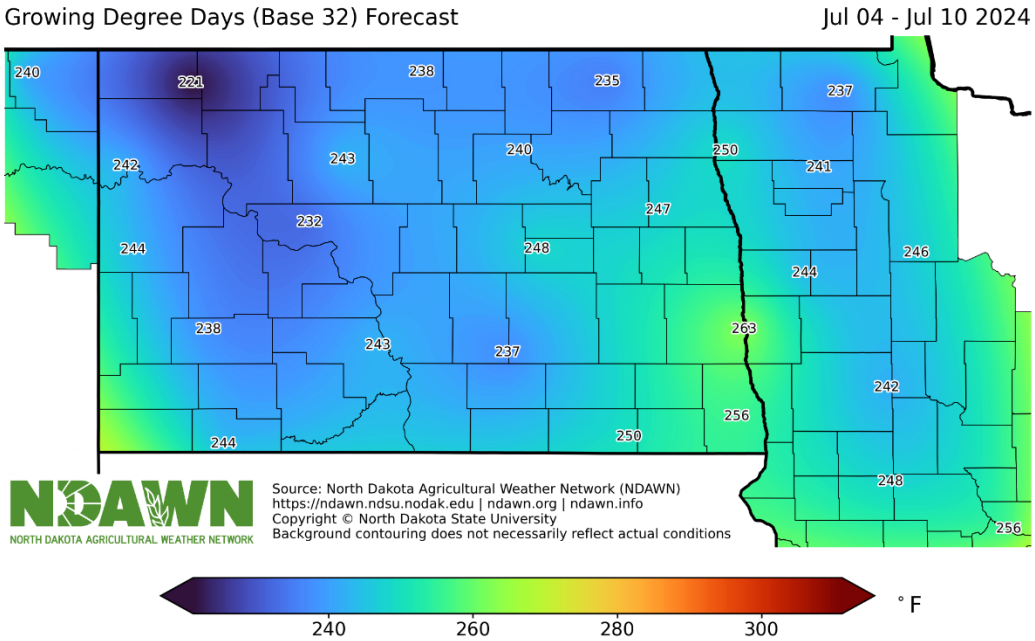


Figure 3. Estimated Growing Degree Days Base 32° for the Period of July 4 to July 10, 2024.

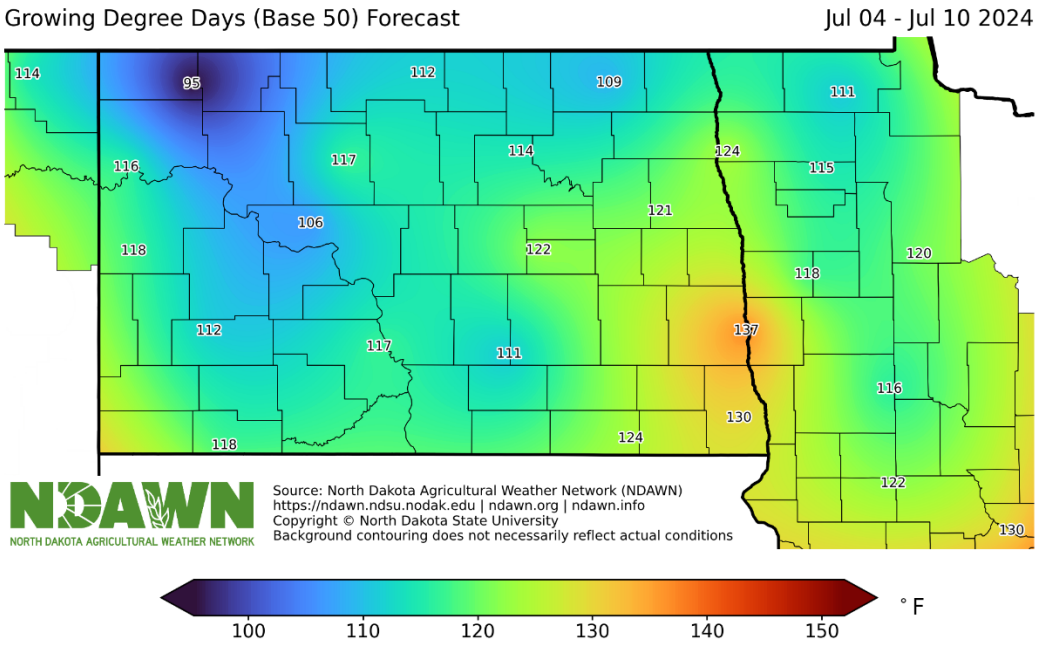


Figure 4. Estimated Growing Degree Days Base 50° for the Period of July 4 to July 10, 2024.

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

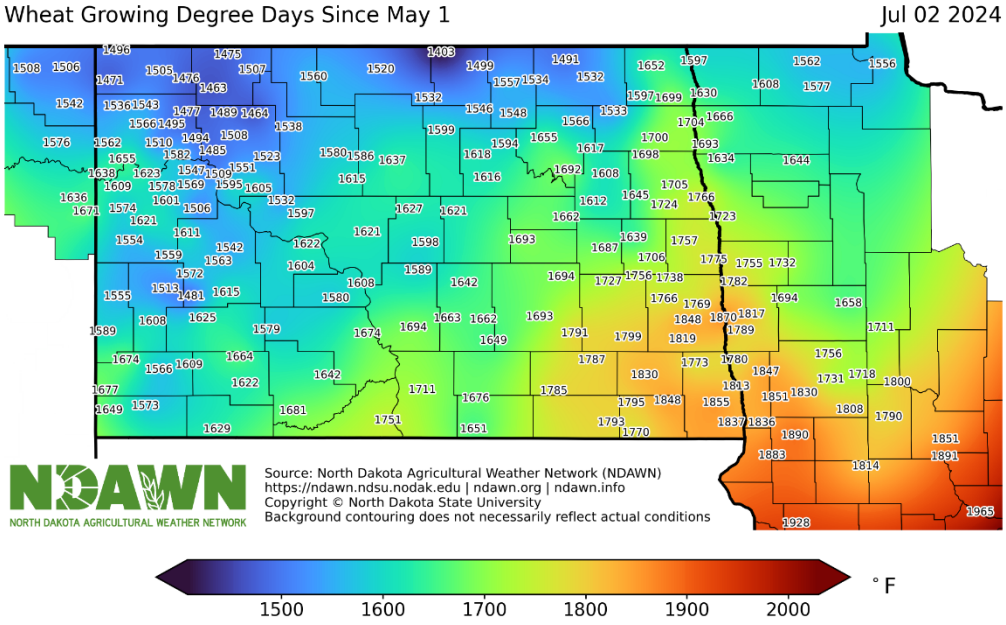


Figure 5. Wheat Growing Degree Days (Base 32°) for the period of May 1 through July 2, 2024

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.

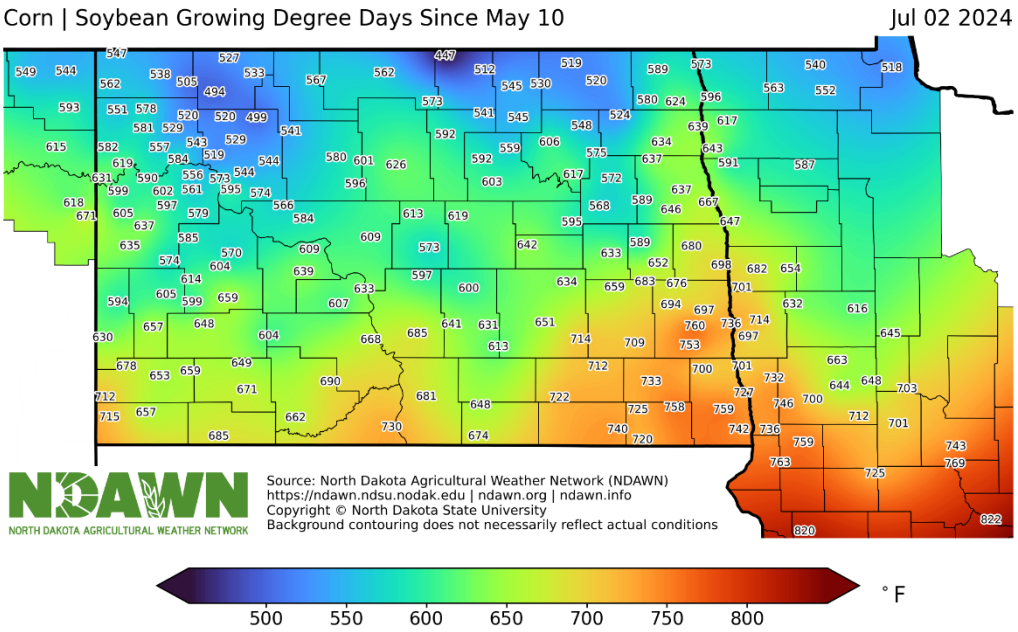


Figure 6. Corn Growing Degree Days (Base 50°) for the period of May 10 through July 2, 2024

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.

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

North Dakota State University
CROP & PEST REPORT
NDSU Dept. 7660; PO Box 6050
Fargo, ND 58108-6050

Crop and Pest Report is on Facebook!
Ctrl + Click image below or go to www.facebook.com/ndsuextcpr to 'Like' us and receive notifications and other information.

Not on the List to receive this report?
Sign up now with your smart phone using the code to the right:

Janet Knodel
Co-Editor

Entomology
701-231-7915

Plant Sciences
701-231-7971

Soils
701-231-8881

Sam Markell
Marcia McMullen
Co-Editors

Plant Pathology
701-231-7056

Weeds
701-231-7972

Ag Engineering
701-231-7261

NDSU EXTENSION

EXTENDING KNOWLEDGE ❯❯ CHANGING LIVES

This publication will be made available in alternative formats for people with disabilities upon request (701) 231-7881.
This publication is supported in part by the National Institute of Food and Agriculture, Crop Protection and Pest Management - Extension Implementation Program, award number 2021-70006-35330.