

No. 11 July 18, 2024

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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 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

July 30 - **NDSU Horticulture Research and Demonstration Gardens** - 3 to 6 p.m. at the NDSU Horticulture Research and Demonstration Gardens.

The gardens are located on the NDSU campus at the corner of 18th Street and 12 Avenue North in Fargo, North Dakota. Free parking is available on the north side of the garden. Overflow parking will be diverted to the lot adjacent to the new Peltier Complex on 18th Street N.

See article in the Horticulture section of CPR.



IPM INSECT UPDATE

The IPM scouting maps can be observed on the NDSU Extension [IPM website: https://www.ndsu.edu/agriculture/ag-hub/ag-topics/crop-production/diseases-insects-and-weeds/integrated-pest-management](https://www.ndsu.edu/agriculture/ag-hub/ag-topics/crop-production/diseases-insects-and-weeds/integrated-pest-management)

Wheat:

Cereal aphids continued to be observed with an average of 1-15 aphids per stem. About 20% of the wheat and barley fields scouted had cereal aphids present over the last two weeks. The hot spot is still the southwest area, Slope County. Crop stages vary from Zadoks 30 (stem elongation) to 76 (milk development).

The first **wheat stem sawflies** were observed in Williams County with 2-6 sawflies collected per 20 sweeps in the northwest area. Percentage of fields infested was low and decreased from 13% to 8% this past week.

Wheat stem maggot was observed in 19% of the wheat fields surveyed this past week. Incidence ranged from 1-26% of plants with white heads. The highest incidence was found in McKenzie County (26%) and in Slope County (12%) of North Dakota. Other positive counties for wheat stem maggot include Ransom (1%), Barnes (1%), Mountrail (2%) and Williams (6%) Counties. Wheat stem maggot is generally not an economic insect pest of wheat.

Soybean: Crop stages varied from V6 to R2 (full bloom).

Soybean aphids were observed in only 3 fields in North Dakota and 0 fields in Minnesota out the 117 fields scouted last week. Positive counties were Barnes 80% incidence and an average of 37 soybean aphids per plant, Cass 15% incidence and an average of 2 soybean aphids per plant and Richland at 10% incidence and an average of 1 soybean aphid per plant. It's a good time to scout soybeans! Soybean aphids are usually a late season insect pest and there are many acres of late-planted soybeans this year.

Bean leaf beetles were observed causing defoliation in 38% of the soybean fields scouted last week, mainly in Minnesota. However, defoliation increased only slightly, ranging from 1-20%. Treatment thresholds are based on defoliation and crop stage:

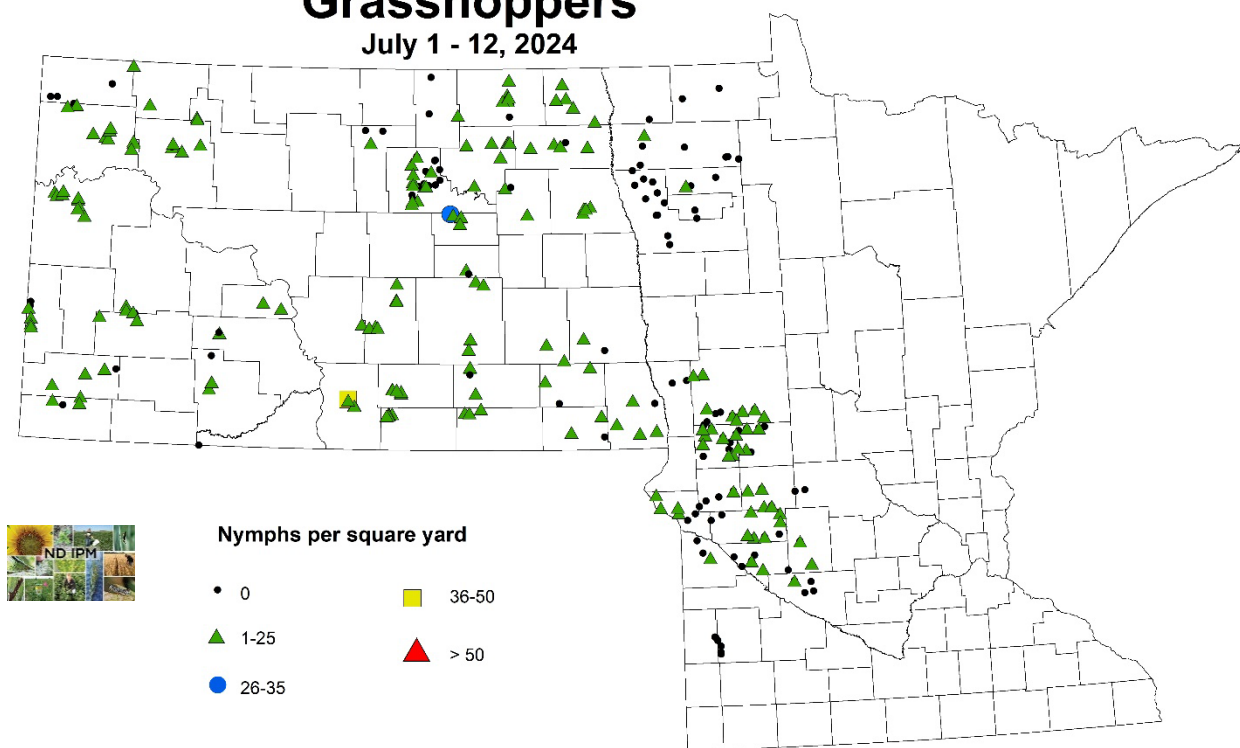
- 30% defoliation during vegetative (V) stages,
- 20% defoliation from beginning bloom (R1) to beginning seed (R5) and
- 10% defoliation during full seed (R6).

Grasshoppers continue to be the most detected insect pest in field crops this year. IPM Scouts found that 82% of fields scouted (wheat, barley, sunflower and soybean) were infested with grasshopper nymphs last week. The previous week had 70% of fields scouted infested with grasshopper nymphs. However, grasshopper nymph densities decreased from last week and were generally low 1 to 13 nymphs per square yard on field margins. The higher grasshopper nymph counts were in Emmons County and Benson County in North Dakota.

The grasshopper nymph economic threshold is **>50 nymphs per square yard on field margins and >30 nymphs per square yard in field.**

Grasshoppers

July 1 - 12, 2024



IPM INSECT TRAPPING NETWORK

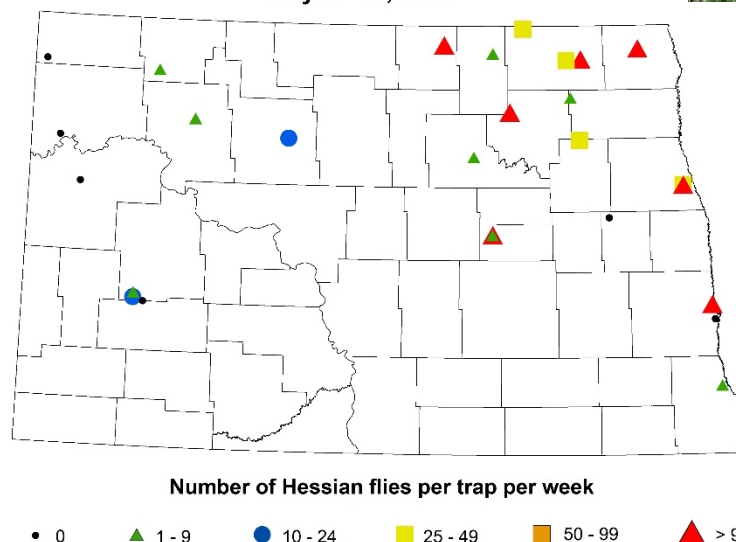
Hessian fly trapping is revealing high numbers, >100 flies per trap per week, in the NE and EC areas of North Dakota. We will have an article next week on what this means for wheat growers.

Wheat midge: The hot weather increased the accumulated midge degree days (AMDD) and it is between 1475-1900 accumulated midge degree days in northern North Dakota. Observations in North Dakota indicate that by about 1,800 AMDD, adult numbers decline to the point where field activity is below economic threshold levels. However, in areas where reduced or minimum tillage is common, significant adult activity has been reported and observed up to about 1,900 DD.

See the NDAWN AMDD map and PESTWEB insect trapping map on next page.

Hessian Fly Trapping Network

July 8 - 12, 2024



Some insect trapping sites observed higher cumulative midge counts in Ward, Burke and Pembina counties. Burke County had 425 midges per trap per week followed by Williams and Ward Counties in the 80s midges per trap per week.

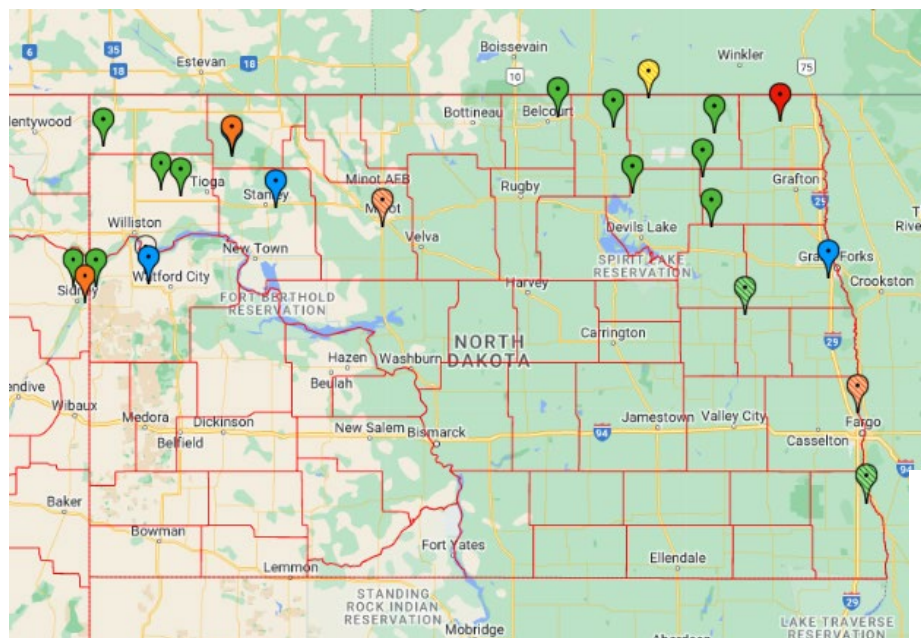
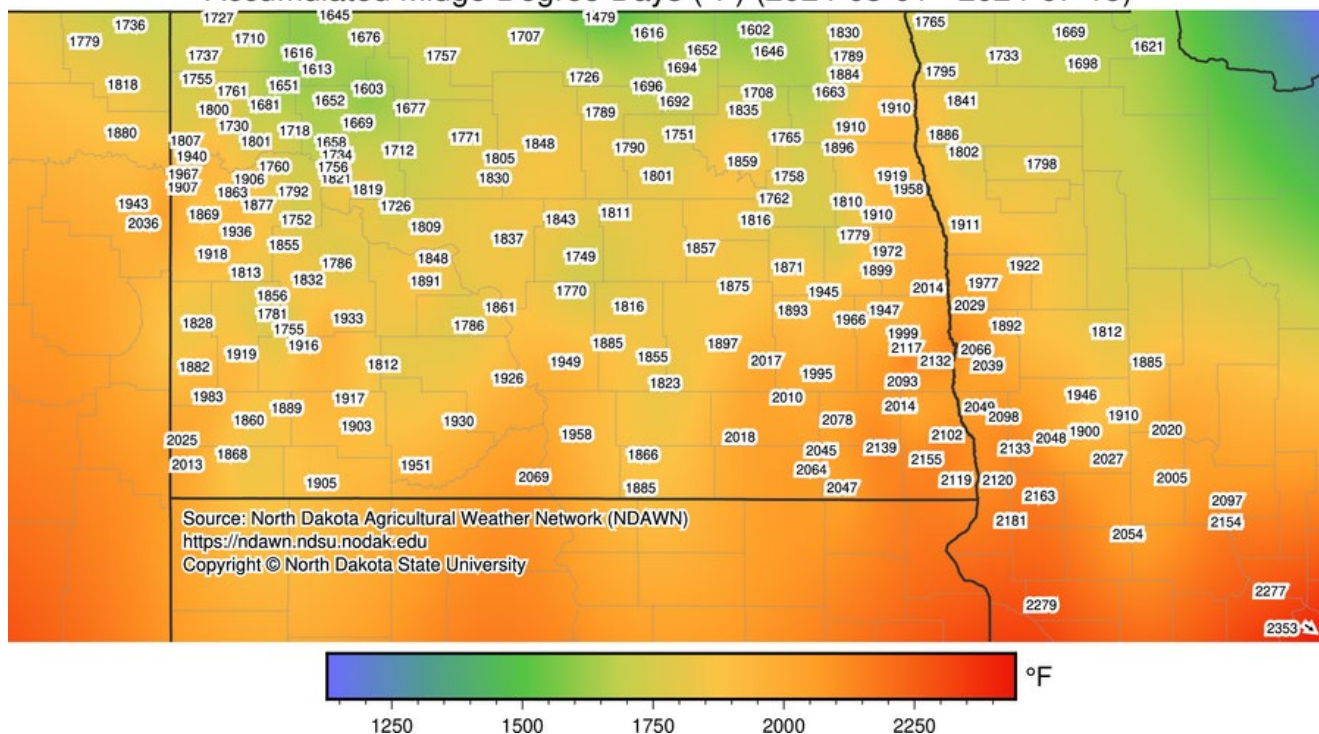
If your wheat is in the susceptible stage, heading to early flowering, now is the time to scout to determine if fields are at risk for wheat midge.

Economic Threshold Levels:

Hard Red Spring Wheat = one or more wheat midge for every four or five heads

Durum Wheat = one or more wheat midge for every seven or eight wheat heads

Accumulated Midge Degree Days (°F) (2024-03-01 - 2024-07-15)

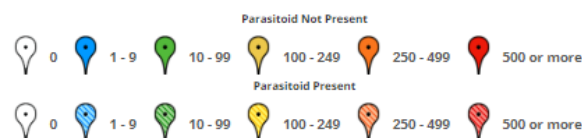


PestWeb – Wheat Midge maps

Montana State University

<https://pestweb.montana.edu/Owbm/Home/Index>

Cumulative Midge Counts



Bertha armyworm trap captures continue to be at LOW risk at all trapping sites based on <300 cumulative numbers of moths captured this past week. The top two sites were in Ward and Cavalier Counties with 26 and 21 cumulative moths per trap per week, respectively.

Diamondback moth trap captures also continue to be low. The current trap levels are low (range of 0-56 moths per trap per week) at all trap sites this year. If high numbers of moths are captured in the traps (>100 moths per week per trap), this is an early warning that significant larval infestation may follow. Fields should then be monitored for larvae to assess the numbers of larvae present.

The most susceptible crop stages to these Lepidoptera insect pests are blooming through early pod. This is good news for North Dakota canola growers since canola is blooming now!

Sunflower Insect Trapping:

The first detections of **banded sunflower moth** and/or **Arthuri sunflower moth** were made last past week at Cass, Stark and Divide Counties. Numbers were low, except for 86 banded sunflower moths at Cass County. **Sunflower head moth** also was detected for the first time only at the Cass County trap site. Sunflower crop stages were V4 to V10, so sunflower fields are not susceptible until flowering. Moths will go to wild sunflowers that are already blooming in the field ditches and natural areas, and feed on pollen.

[Janet J. Knodel](#)

Extension Entomologist



SMALL GRAIN DISEASE OBSERVATIONS

Stripe rust continues to be found by IPM scouts, crop consultants, and agronomists in the state. Frequent reports have been received from southwest and northwest North Dakota. Bacterial leaf streak is also being reported in the state, and additional reports will likely come in during the next two weeks. Root rots are being reported in eastern North Dakota (Figure 1). This comes as a little bit of a surprise as we generally see wheat roots during hot and dry years. We are suspecting most samples to be *Fusarium* crown rot, and will confirm as we process samples. In the NDSU Hard Red Spring Wheat Variety Performance Trials, it is fairly common to find leaf rust, stripe rust, bacterial leaf streak and stem rust (Figure 2).

Fusarium head blight (FHB) reports on early planted wheat and barley (ie: mid to late April) range from very low to higher than expected. It is



Figure 1. Root rot of wheat. Notice a pocket of white heads with white stems (photo on left). When these plants are gently pulled, the entire plant is easily removed, with a poor root system, and brown discoloration is observed on the stem (photo on right).

still too early to tell the impact FHB will have on small grains planted in May, and our IPM survey efforts will help unravel the FHB situation in the coming weeks.



Figure 2. Stem rust found on a susceptible hard red spring wheat variety (far left). Stripe rust and bacterial leaf streak on the same leaf (middle). Leaf rust and stripe rust on a wheat leaf (far right).

[Andrew Friskop](#)

Extension Plant Pathology, Cereal Crops

UNDERSTANDING SOYBEAN WHITE MOLD RISK IN YOUR AREA

Across the state right now, soybeans are ranging from V2 (two fully developed leaflets) to R2 (full bloom). As we begin to enter into these flowering stages it is important to bring white mold back into our minds. White mold risk varies across the state, making it crucial to assess local conditions when considering fungicide applications. Proactive management may be necessary if your risk is high, depending on crop growth stages. Below is a summary of factors influencing white mold risk:

- **Weather and Microclimate**

Soil Moisture: Adequate soil moisture is essential for starting the disease cycle which includes the germination of sclerotia to form apothecia (Figs. 1 and 2), which then release puffs of ascospores into the soybean canopy. Generally, 1-2 inches of rainfall roughly 1-2 weeks before flowering is the minimum required.

Temperature: Optimal white mold infection and development occur at cooler temperatures, typically when daily high values are in the 60s and 70s. White mold apothecia and ascospore dispersal can still occur at higher temperatures, but longer periods of leaf wetness will be needed to allow for infections to occur.

Canopy Wetness: Prolonged wetness during bloom (due to rain, fog, or heavy dew) favors white mold development. The ascospores released by the pathogen require this moisture to germinate and to properly infect the soybean plant tissue.

Canopy Density and Closure: These factors significantly affect the field microclimate. If the crop canopy is closed, there is much less airflow occurring leading to higher humidity and cooler temps, both of which favor white mold infection. Further, the development of *Sclerotinia* apothecia requires highly specific light wavelengths which are present only after canopy closure. Due to the necessity for canopy closure, fungicide applications will be impacted by their spray timing and droplet size.

- **Growth Stages**

Susceptibility: Many economically important broadleaf crops in North Dakota become susceptible to white mold once blooming begins, as the pathogen needs flowers as a food source to cause infection. These include soybeans, canola, and dry beans. However, corn and small grains are not susceptible hosts.

Fungicide Application Timing: The optimal time for fungicide application is during these bloom stages. Work from Carrington REC has found that applications should be applied either at R2 (full flowering) or at canopy closure for optimal control, whichever comes first. Later applications, when flower tissues are no longer present, miss the critical window to prevent economically significant infections.

- **Crop and Field History**

Field History: Fields with a history of white mold are more prone to developing epidemics. The white mold sclerotia can survive for many years, so past epidemics may still influence the current season's crop. Recent dry years won't eliminate the risk, although severe epidemics may be less likely.

Crop Rotation: Short rotations among susceptible broadleaf crops increase white mold risk, while fields with no history of the disease and/or long rotations are less prone; however, crop rotations are often ineffective because the sclerotia, the pathogen's survival structures, can persist in the soil for many years, maintaining the risk of infection even after several non-host crops have been grown.

Genetics: While soybean varieties do not currently have high levels of white mold resistance, some are less susceptible than others. Further soybean varieties with higher maturity groups are generally more susceptible due to longer flowering periods, the susceptibility window of infection.

Understanding these factors can help you manage white mold risk effectively and make informed decisions about fungicide applications.

Management practices for controlling white mold in North Dakota have been studied extensively by Michael Wunsch, and the results can be found [here](#). Other product efficacy data can be found [here](#).



Figure 1. White mold sclerotia present in soybean grain after harvest.



Figure 2. White mold apothecia developing on the soil surface. A dime is included to show the size of apothecia.

[Wade Webster](#)

Extension Plant Pathology, Soybeans

[Michael Wunsch](#)

Plant Pathologist
Carrington REC



KEEP SCOUTING SMALL GRAINS TO KEEP TRACK OF DEVELOPMENT

Winter wheat is turning color and ripening quickly with the hot temperatures experienced the past few days. Cooler temperatures in the forecast will likely slow down ripening, but as long as humidity is low and we have sunny days, I expect the winter wheat dry down to continue at a good clip. The spring wheat crop across the state is at different stages depending on when it was planted. For fields seeded in April, they are done flowering and in the late milk to soft dough stages. Some are even starting to turn color. For fields seeded after the rains of early and mid-May kept most people out of the fields until late May or early June, those fields are flowering now. I recommend growers and consultants scout their fields and keep an eye on growth stages as risk of head scab remains elevated in much of the state, and even more so for the more susceptible varieties. Something to note is the wide variability in maturity of the commercially available spring wheat cultivars being grown in the state: we've noticed a good 10-14 day difference in the flowering time of varieties included in this year's NDSU hard red spring wheat variety trial. Some of the latest varieties are just starting to flower whereas the early ones finished flowering over a week ago. Growers should keep an eye on the days to flower ratings of the varieties they select and make sure those picks fit in with the timing of other field operations on their farm. We've observed a fair amount of stripe rust in variety trials at Casselton, Prosper, and Grand Forks and a little bit of stem rust at Casselton. Keep an eye out for these diseases as well, but remember, protecting the flag leaf should be the goal of foliar disease management in wheat at this time in the season.

[Clair Keene](#)

Extension Agronomist Small Grains and Corn

CHECK FOR NODULES ON SOYBEAN ROOTS

This past week, we had a few questions regarding soybean nodulation. Here is some helpful information to keep you updated!

Soybeans have high nitrogen requirements, needing about 3.5 to 5 pounds of nitrogen to produce a bushel of grain. For instance, a 50-bushel soybean takes 175 to 250 pounds of nitrogen. If we had to fertilize to reach this amount of N, our production cost would skyrocket. Fortunately, soybean is a legume; this means (among other things) that the plant has a symbiotic relationship with an N-fixing bacteria (specifically *Bradyrhizobium japonicum* in the case of soybeans). In other words, the plant and the bacteria have a mutual agreement in which the plant provides energy to the bacteria, and the bacteria, in turn, gives N fixed from the atmosphere to the plant (Figure 1). The bacteria will provide the plant with ~40-70% of the total N soybeans required. For this to happen, we need to ensure good nodulation.

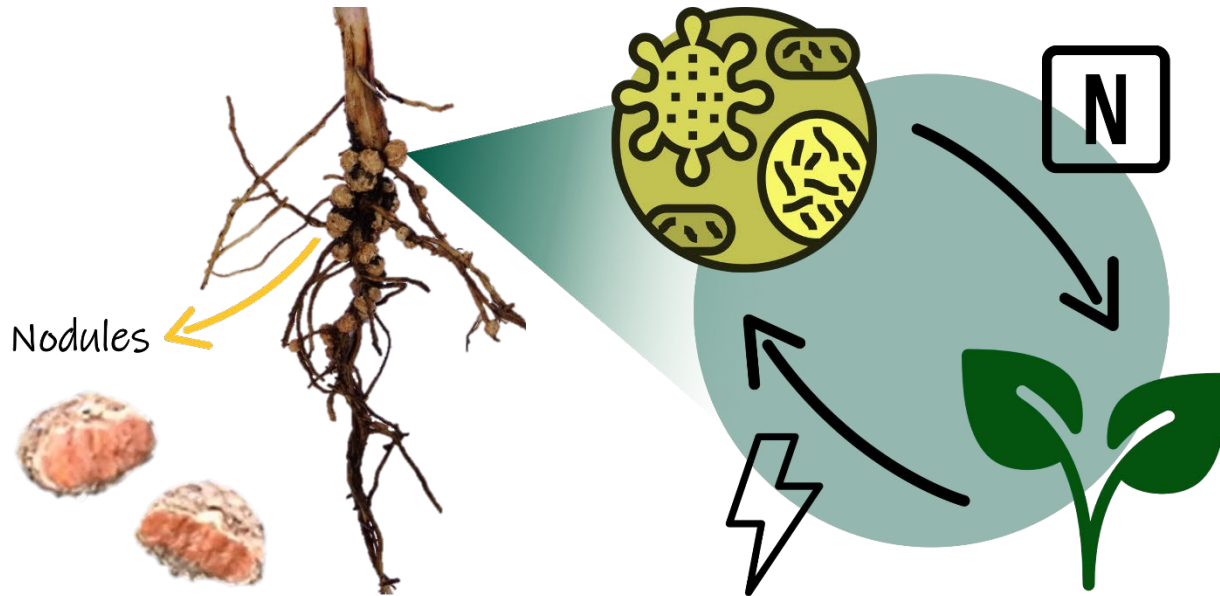


Figure 1: Soybean roots with nodules (small swellings). Nodules that are fixing N are pink or red inside. The bacteria in symbiosis with the soybean plant (*Bradyrhizobium japonicum*) is inside the nodules; in turn the bacteria provide N that was fixated from the atmosphere, the plant gives energy to the bacteria. The icons included in the figure were obtained from flaticon.

What causes a bad nodulation?

The formation of nodules starts as early as the soybean has two trifoliolate leaves (V2) and peaks at the reproductive stages. During the early stages, when the bacteria is infecting the roots, several things that could interfere with the nodule establishment:

- pH below 6.5.
- Inoculant that has been heated, frozen, exposed to direct sunlight or it is expired.
- Excessive wet (saturated) or dry soil conditions.
- Compacted soils that limit available oxygen.
- High N content in the soil.
- Presence of root rots
- Severe IDC
- Limited availability of bacteria (e.g., no soybean production in past two years)

Also, to ensure good nodulation, as with any other product, when applying inoculants, read the label and follow any guidelines provided; there are seed treatments (insecticides and fungicides) that might decrease the survivability of the bacteria. We do not recommend the application of N fertilizer in the beginning of the growing season as soybean plants will use this N and delay the nodulation.

Let's check some nodules!

When the soybeans reach the V4-V6 growth stage (four to six trifoliated leaves expanded), it is a good time to examine the roots for nodules. Carefully unearth the plants to avoid dislodging the nodules and rinse them with water. An appropriate level of nodulation at this stage is between 7 to 14 nodules per plant. It is crucial to inspect multiple areas across your field.

It's important to note that the presence of nodules doesn't necessarily mean they are actively functioning. Actively working nodules (fixing atmospheric nitrogen) will appear pink or red when cut open (see Figure 1). If nodules are mushy and brown, they are not fixing nitrogen.

Additionally, the location of the nodules indicates when they were formed. Nodules on the taproot developed early in the season when the tissue was still soft (likely due to inoculation treatment), while nodules on lateral roots formed from later infections. If you only have lateral nodules, this suggests that favorable conditions for nodulation might not have been present early in the growing season (and they probably originated from the existing bacteria population in the soil).

Take-home message

Soybeans require a significant amount of nitrogen per bushel compared to other row crops. Fortunately, they can rely on nitrogen fixation provided by *Bradyrhizobium japonicum*, making this crop economically viable. It's important to ensure good nodulation to prevent significant yield loss, which can occur if inoculum is not applied. The cost of applying inoculum is relatively low (around 2% of soybean total production cost) compared to the potential yield loss. By applying inoculum, we aim to promote the growth and yield potential of soybeans by producing well-nodulated roots with active nodules.

Do you want to know more about inoculation? Check this video by emeritus agronomist Hans Kendel [Soybean Nodulation and Inoculation \(youtube.com\)](#) or read this article [Nitrogen and Soybean Nodulation | NDSU Agriculture](#)

[Ana Carcedo](#)

Extension Broadleaf Agronomist



horticulture

NDSU SETS CAMPUS GARDENING EVENT FOR JULY 30

The North Dakota State University Department of Plant Sciences will host a public event called Plants, Local Foods & Outdoor Spaces on July 30, from 3 to 6 p.m. in the NDSU Horticulture Research and Demonstration Gardens.

The gardens are located on the NDSU campus at the corner of 18th Street and 12 Avenue North in Fargo, North Dakota. Free parking is available on the north side of the garden. Overflow parking will be diverted to the lot adjacent to the new Peltier Complex on 18th Street N.

The event will feature walking tours of the annual and perennial flower gardens. The gardens are an official All-American Selections bedding plant display garden.

Each spring, Barbara Laschkewitsch, garden manager, starts over 200 species and cultivars of annual bedding plants in the greenhouse for transplanting in the garden. She then evaluates the plants for vigor, bloom and growth habit.

This is NDSU research that directly benefits the gardening public. The public can observe stellar flowering plants in the garden and then purchase them next year for their own landscapes. Conversely, we have plants that fail to thrive due to our winds, climate and alkaline soils. The public can learn which plants aren't good choices for our region and avoid wasting money at the garden center.

The star of the gardening event is the NDSU Historic Daylily garden which should be close to peak bloom. The daylily garden is the largest public collection of daylilies in the country with close to 2000 cultivars. A special announcement will be made at the beginning of the event concerning the daylily collection.

In addition to garden tours, Julie Garden-Robinson, NDSU Extension Food and Nutrition Specialist, and Joseph Zeleznik, NDSU Extension Forester, will give talks under the big tent. Garden-Robinson will give a presentation entitled, Fresh Preserving and Serving Ideas for Your Summer Bounty. Zeleznik will talk about the weather-related challenges that trees faced over the winter.

Children's activities will include hunting for insects in the garden. Adults and children alike are also invited to take part in a daylily scavenger hunt. A tractor trailer tour of fruit and vegetable research plots will start at 6:00 p.m.

Extension Master Gardeners will be on site to accept donations of fresh garden produce and canned goods to benefit the Fargo Emergency Food Pantry. "If you have excess cucumbers, beans and other fresh produce, consider bringing them to the event to fight food insecurity," McGinnis says. Extension Master Gardeners also will be on hand to answer plant questions.

Ice cream truck, Chatty Bell's Treats, will be on site selling pre-packaged summery treats.

New this year, tours will be held of NDSU's Peltier Complex at 2:15 p.m. and 3:45 p.m. The Peltier Complex is NDSU's newest agricultural research and teaching facility to support food science, meat science, food safety, nutrition, and consumer sensory traits. Tours are limited to a maximum of 25 individual. Please register to reserve a tour spot:

<https://www.signupgenius.com/go/4090C4EAAA828A4F94-50286240-ndsu>

PLANTS, LOCAL FOODS & OUTDOOR SPACES NDSU Research and Demonstration Gardens Corner of 12th Avenue and 18th Street North, Fargo, ND July 30, 3:00 p.m. – 6:00 p.m.		
LOCATION	ACTIVITY	SPEAKER
3:00 p.m.		
Big Tent	Welcome	Dr. Greg Lardy, VP of Ag Affairs
	What's a Daylily Museum?	Dr. Esther McGinnis
3:30 p.m.		
Big Tent	Fresh Preserving and Serving Ideas for Your Summer Bounty	Dr. Julie Garden-Robinson
Garden Tour - meet by tent	Tour of the Flower Beds	Barb Laschkewitsch
4:00 p.m.		
Big Tent	Winter in July—Not What you Think	Dr. Joseph Zeleznik
4:30 p.m.		
Meet by the Big Tent	Children's Insect Activity	April Johnson
Garden Tour - meet by tent	Tour of the Flower Beds	Barb Laschkewitsch
5:00 p.m.		
Big Tent	Leaf Cutter Bees	Dr. Meredith Johnson
Turfgrass Plots – meet by tent	Turfgrass Species and Mixes for North Dakota	Dr. Alan Zuk

5:30 p.m.		
Big Tent	Not Your Grandma's Daylilies	Joan Zettel
6:00 p.m.		
Tractor Trailer Tour of Fruit and Vegetable Research Plots		

Activities going on throughout the event:

- Extension Master Gardener Diagnosticians booth
- Veggies for the Pantry collection
- Vote for your favorite annuals!
- Ice cream truck

[Esther McGinnis](#)

Extension Horticulturist



around the state

NORTHEAST ND

We are halfway through the season as majority of the crops are either flowering or nearing flowering. Majority of the small grains are entering into grain development stage. Foliar diseases like bacterial leaf streak is showing up in some wheat fields along with tan spot. Scab is already showing up in some fields. Peas are forming pods and soybeans are nearing or at flowering stages. Canola fields are looking beautiful with many of them at 50-75% of flowering. Corn is catching up in growth with increased degree days in the past week.



Suspected bacterial leaf streak in wheat
Photo: McKenna Schneider, IPM Scout LREC



Wheat at soft dough stage in Grand Forks County. Photo: McKenna Schneider, IPM Scout LREC



Soybeans at flowering in Grand Forks County

[Anitha Chirumamilla](#)

Extension Cropping Systems Specialist
Langdon Research Extension Center

SOUTH-CENTRAL/SOUTHEAST ND

Less rain finally fell across the region over the past week! Rainfall ranged from 0 inch near Linton in Emmons County to 1.73 inches near Sonora in Richland County this past week with an approximate average for the region of 0.7 inch, less than last week again! Barnes, Kidder, Steele, and Richland Counties received greater than 1 inch of rainfall over the past week. The 4-inch bare soil temperature finally reached near normal for the region this past week. This was the warmest week on average.

Winter wheat is reaching maturity in the southern part of the region. Hard red spring wheat development ranges from flag leaf emergence through the soft dough stage with color starting becoming less green in the region with most areas at the watery-ripe stage. The majority of hard red spring wheat looks good to excellent for the most part across the region, however root rots, fusarium head blight, wheat stem maggot, wheat stem sawfly, and barley yellow dwarf virus are being observed in the region. For the most part cereal aphids and grasshoppers are non-existent. At least in Griggs County wild oat, green foxtail, and foxtail barley are coming up over the hard red spring wheat canopy now. Broadleaf weed control looks really good yet from the road, but I did see one waterhemp plant coming out of one hard red spring wheat field.

Corn in the region ranges from 6 collars (V6) up to near tasseling in the southern part with most corn at the 12th collar stage (V12). As of July 16th, corn growing degree days are ranging from 876 GDD's at Robinson in Kidder County to 1082 GDD's at Sonora in Richland County. Corn GDD's are ranging from 12 GDD's above the normal in Kidder County to 21 GDD's below the normal in McIntosh County. Corn GDD's are way below 2023 by 219 to 287 GDD's! Corn condition improved immensely across most of the region with the above normal temperatures last week, however standing water still exists and corn has died or is less than 18 inches in height. No disease or insect issues have been observed so far. Weed control in corn continues looking good across most of the region.

Soybean and dry beans conditions improved immensely as well due to the above average temperatures, but not all plants and fields have improved. It is disturbing to see the number of fields with lost stands or reduced growth from continued rains. Soybean growth stage in the region ranges from third trifoliate (V3) to full flower (R2) with most soybeans beginning to flower stage (R1). Phytophthora root rot is becoming more prevalent across the region. Weed control is highly variable in soybean fields from near perfect where multiple preemergence herbicide sites of action with some choosing not to apply postemergence herbicides to fields having weeds surviving vertical tillage prior to planting and not applying any preemergence herbicides and applying postemergence herbicides later than desired due to excessive precipitation. There are still fields where postemergence herbicides have not been applied. Many dry bean fields sprayed with herbicides last week in the heat are showing significant injury and waterhemp likely will survive the herbicides if they were large due to surviving tillage prior to planting.



Average hard red spring wheat maturity at milk stage and spikelet with three developing kernels.



Hard red spring wheat plants dying prematurely from root rot most likely.



Individual spikelet having Fusarium head blight (scab) in earliest planted wheat



Corn at 12-collar (V12) stage in Griggs County.



Poor corn stands due to excessive water and high salinity levels.



Excellent quality of soybean at full flower stage (R2) stage.



Large kochia and foxtail barley surviving vertical tillage that have not been sprayed with postemergence herbicides yet.



Severe dry bean herbicide injury during heat of last week.



Large kochia and foxtail barley plants surviving vertical tillage and not sprayed with postemergence herbicides yet.

[Jeff Stachler](#)

Griggs County Extension Agent

SOUTHWEST ND

Over the last 7 days, very little rainfall was recorded in Southwest ND, with the greatest precipitation in Werner, Dunn County (0.76 inches). A storm occurred on July 13th near Cedar Lake in Slope Co., with 85 mph wind gusts, but except for some lodged plants, no major crop damage was reported. Besides that, temperatures rose well into the upper ranges in parts of the Southwest last week. A considerable portion of the area south of I-94 remains either abnormally dry or under moderate drought conditions, with reports of crops struggling in Bowman County.

Concerning crop progress, winter wheat fields in the region continue to turn color, and spring wheat fields range from booting to kernel water ripe stages. Canola fields are finishing blooming with some fields going into podding. With the increase in temperatures, soybeans have entered the reproductive stages, and many fields are flowering. Most field peas are at full pod and will begin to mature soon.

Spraying for small grain head diseases has been intense over the last couple of weeks. Despite these efforts, scab disease has been spotted at low levels across Southwest ND. Stripe rust remains the prevalent disease this growing season, with incidence levels of up to 70% reported last week in Slope County.

[Victor Gomes](#)

Extension Cropping Systems Specialist
Dickinson Research and Extension Center

**WEATHER FORECAST**

Hello CPR readers, Patrick Beauzay here filling in for Daryl Ritchison this week. Average air temperatures trended above normal across ND over the past week (Figure 1). Rainfall was below normal for the past week (Figure 2), except along a track extending from Renville County southeastward to Richland County. Heat and humidity, coupled with low pressure systems moving out of Canada, resulted in severe thunderstorms. [July 12](#), there were several reports of 1 inch to 1.75 inch hail in Mountrail, Mercer, Oliver and Morton Counties, and reports of 2.5 inch to 2.75 inch hail in the Oakdale and Killdeer area of Dunn County. A brief tornado touched down in Dunn County. [July 13](#) saw severe storms develop in extreme eastern ND, with a damaging tornado in the Barney area of Richland County. Severe storms fired up again on [July 14](#) and hail impacted Williams, Mountrail, Bottineau County, McHenry and Pierce Counties. Click on the dates above for complete storm reports from the National Weather Service [Storm Prediction Center](#).

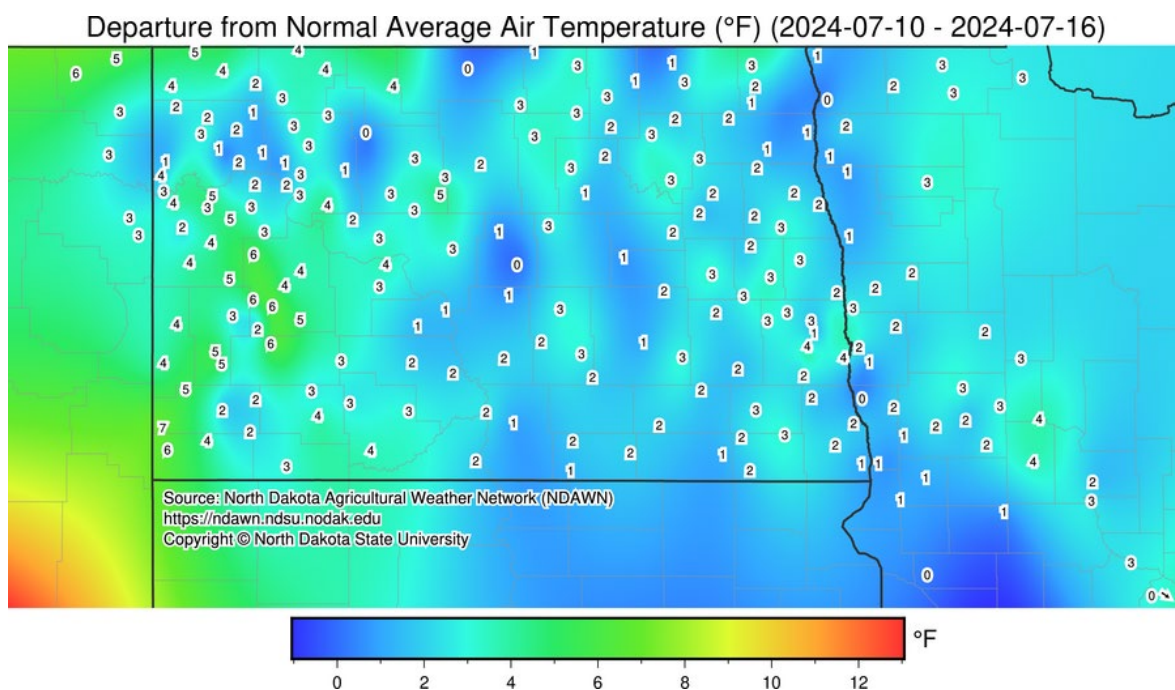


Figure 1. Average air temperature departure from normal from July 10 through July 16.

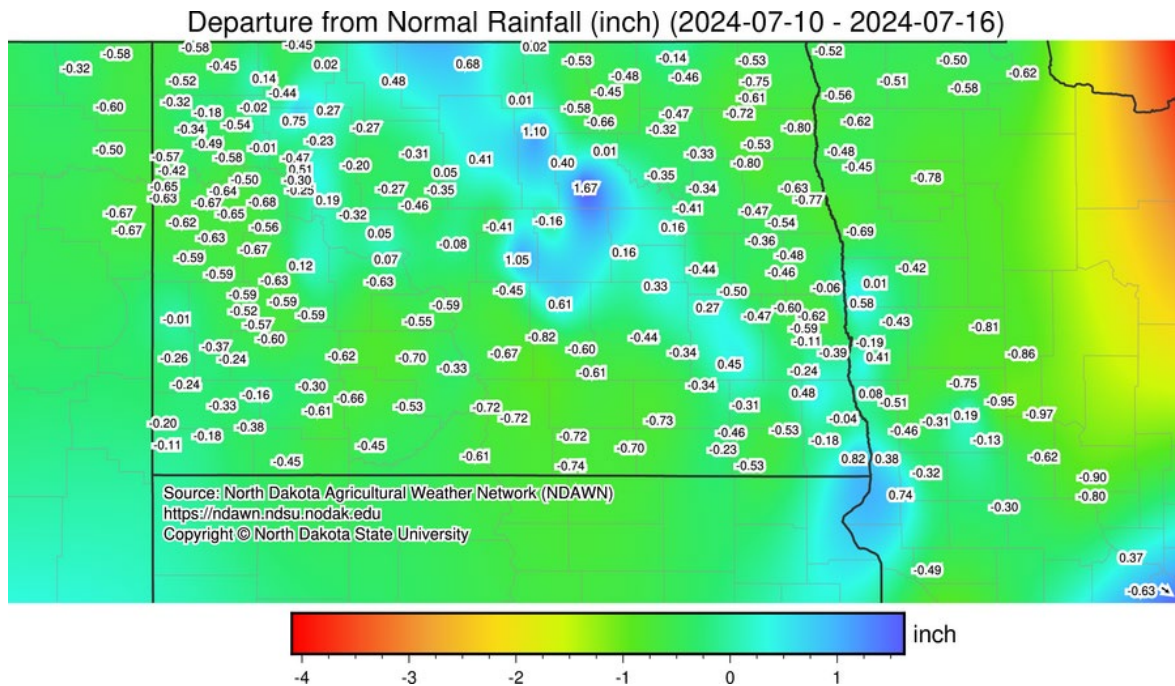


Figure 2. Rainfall departure from normal from July 10 through July 16.

Copious spring rainfall makes it difficult to give a comprehensive summary of crop growing degree days to date due to a wide range of planting dates for all crops across the state. The [Growing Degree Day pages](#) at the [NDAWN INFO](#) website have a range of preselected planting dates for corn/soybean, wheat, sugarbeet, canola and sunflower, along with a degree day forecast for the coming week using base temperatures of 32F and 50F. Click the links above to explore! Overall, accumulated crop growing degree days are slightly below normal for all crops across the state regardless of planting date, with the greatest departures in northcentral and northwestern ND (Figures 3 and 4 for corn/soybean and wheat, respectively).

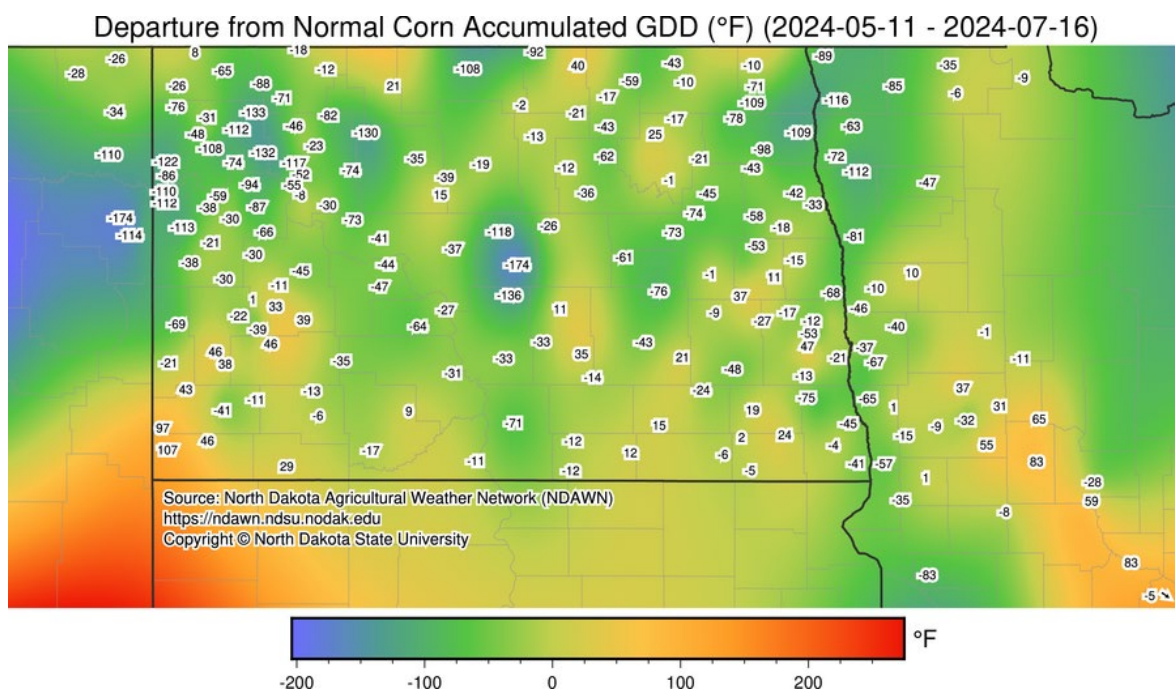


Figure 3. Departure from normal for corn/soybean accumulated growing degree days using May 10 planting date.

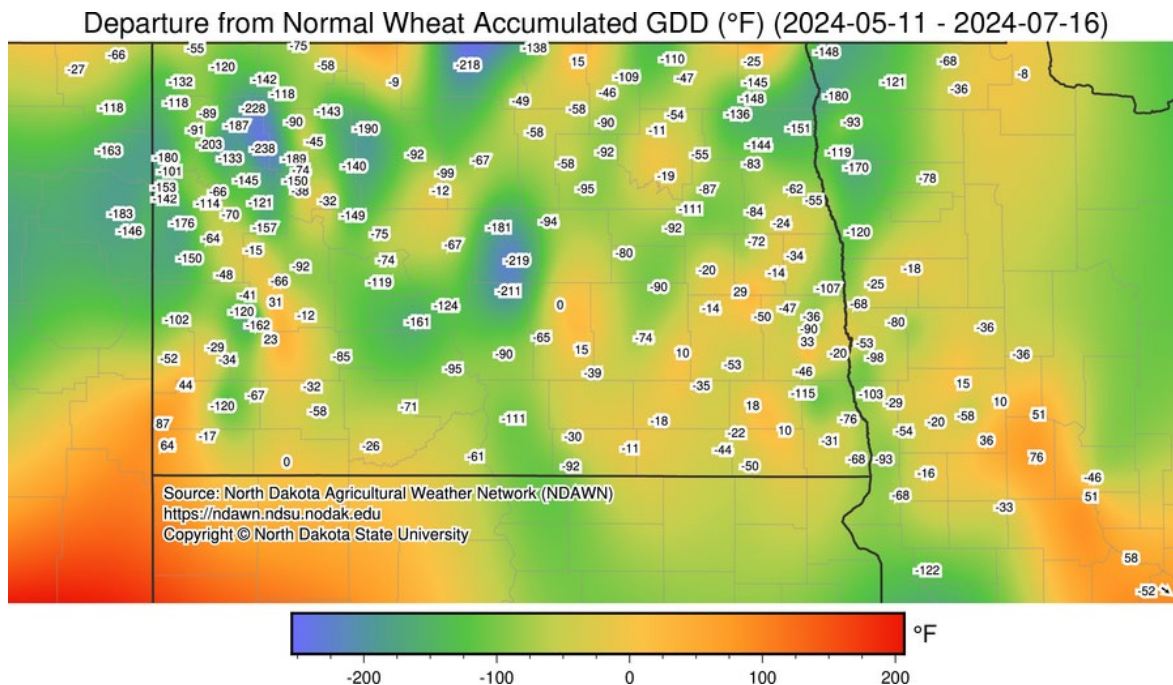


Figure 4. Departure from normal for spring wheat accumulated growing degree days using May 10 planting date.

Forecast for the Week Ahead

Air temperatures will be near to slightly above average, with lows in the upper 50s F to mid 60s F and expected highs in the low to upper 80s F, with a few low 90s F in southwestern ND. A high pressure ridge will move eastward over our area in the coming week which will keep temperatures above average and rainfall below average (Figure 5). Beginning Relative humidity values look to remain around 50% during the days, with dewpoints reached during the overnight and early morning hours except in southwestern ND where somewhat lower values will occur during the days. Keep in mind that recent rainfalls and evapotranspiration can have a strong impact on local humidity values, especially in croplands. The 6 to 10 day forecasts from the National Weather Service show above normal temperatures and below normal precipitation (Figures 6 and 7).

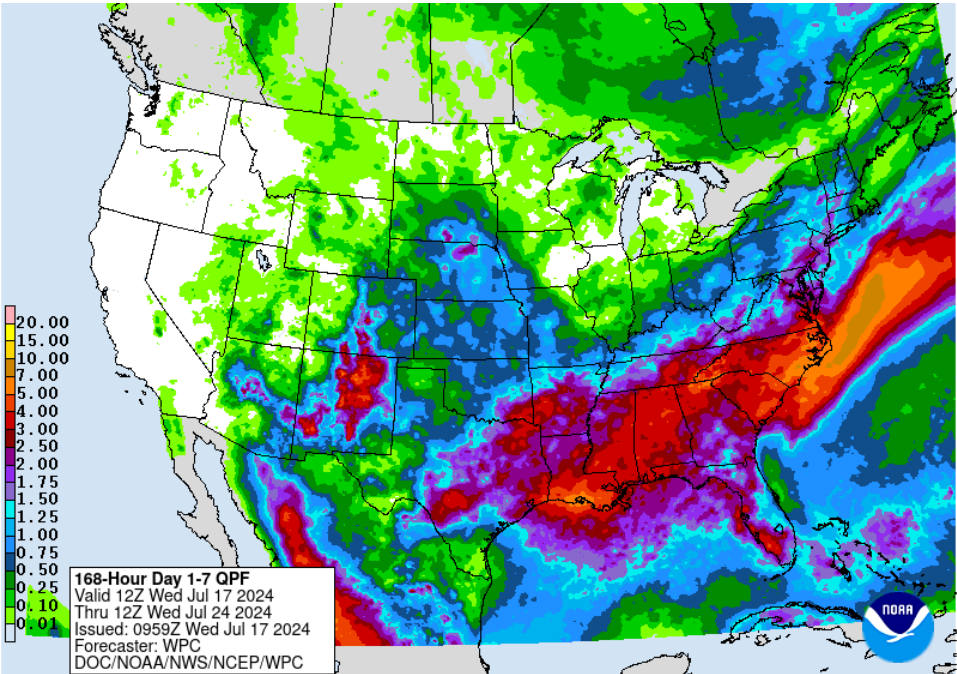


Figure 5. Precipitation forecast for the continental United States from 7:00 a.m. July 17 through 7:00 a.m. July 24.

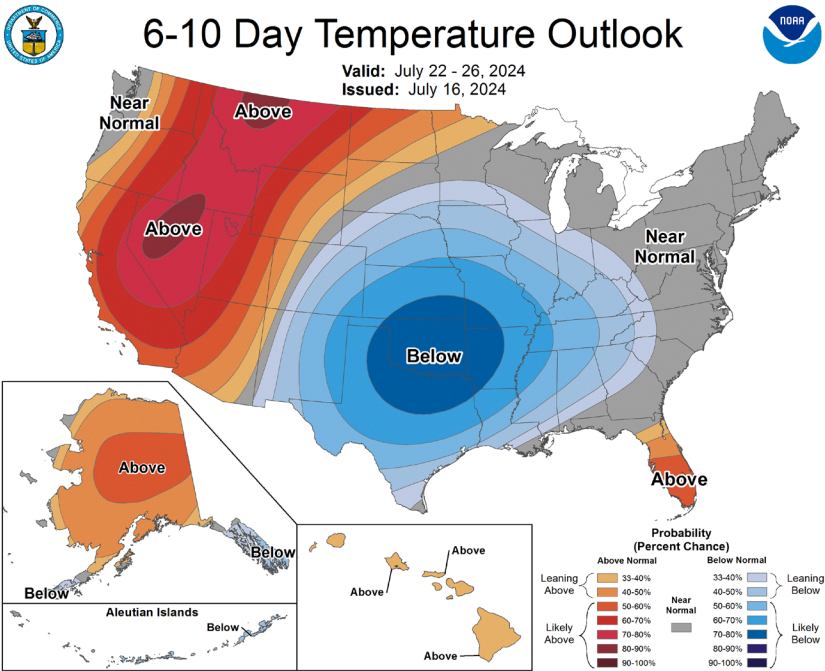


Figure 6. Temperature outlook for July 22 through July 26 for the United States.

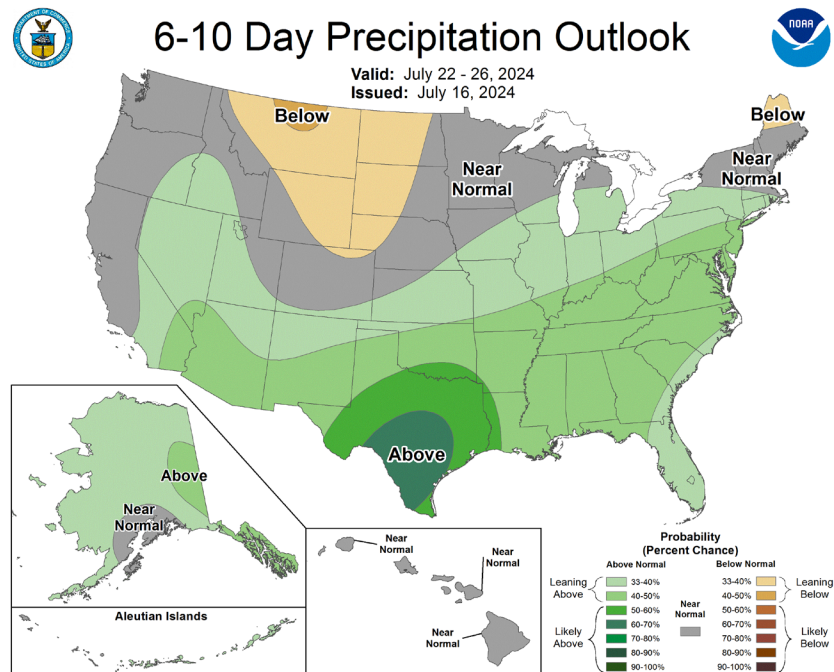


Figure 7. Precipitation outlook for July 22 through July 26 for the United States.

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