

Inside this Issue...

| | |
|---|----|
| 2024 NDSU Annual Field Days | 1 |
| Collecting Leafy Spurge Flea Beetles | 2 |
| Cutworm Scouting | 3 |
| First Cereal Aphids in ND..... | 4 |
| Continue Scouting for Canola Flea Beetles | 5 |
| Fusarium Head Blight (Scab) Risk in ND | 6 |
| Stripe Rust Reports in ND | 6 |
| Fighting Phytophthora in Soybeans Pt. 2..... | 7 |
| Does It Make Sense to Switch to Earlier Maturing Wheat Varieties? | 8 |
| Soybean Iron Deficiency Chlorosis | 10 |
| Project Safe Send Waste Pesticide Collections Slated for July | 11 |
| Know Your Nozzle | 13 |
| Northeast ND..... | 14 |
| Northwest ND..... | 15 |
| South-Central/Southeast ND..... | 16 |
| Southwest ND | 19 |
| Weather Forecast | 20 |



24 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

COLLECTING LEAFY SPURGE FLEA BEETLES

Leafy spurge is flowering and land managers may be interested in obtaining leafy spurge flea beetles (*Aphthona* species) for biocontrol of this noxious weed. Leafy spurge flea beetles are an effective means of controlling leafy spurge in North Dakota. This group of flea beetles is host-specific to the leafy spurge plant, which makes them an ideal biological control choice.



Aphthona species flea beetles are about the size of flax seed (about 0.10 inches long) and vary in color and shape depending on species. Shown are *A. flava* (left, copper to gold in color), *A. nigriscutis* (center, brown with a black dot) and *A. lacertosa* (right, black with brown femurs).

Source: [Leafy Spurge Control Using Flea Beetles \(*Aphthona* spp.\) W1183 \(Revised\)](#)

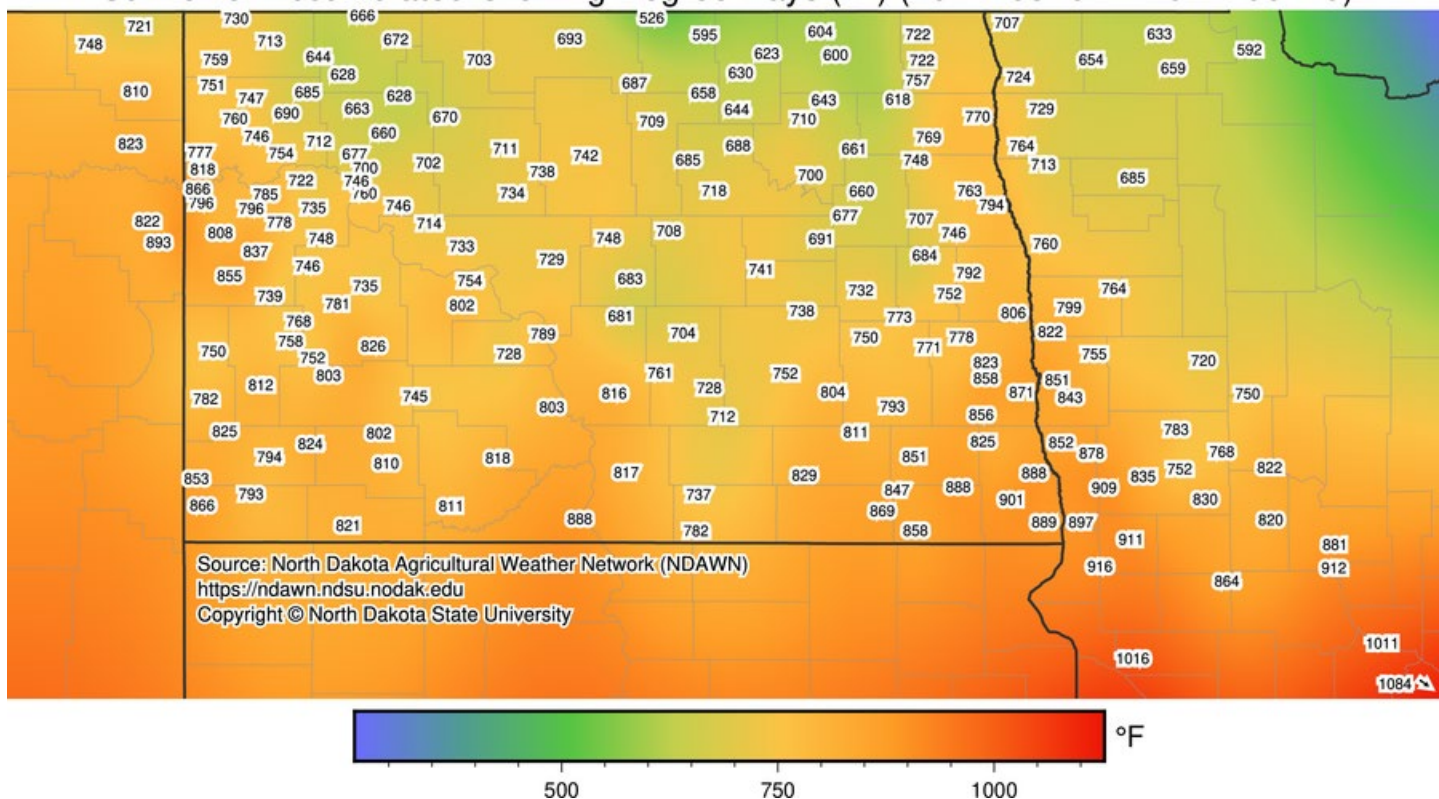
The accumulated growing degree days (AGDD) for sunflower (base of 44 F) can be used as a guide to determine when to begin scouting for adult flea beetles. **Begin scouting for adult flea beetles when the AGDD approaches 1,000. Flea beetles should be collected between 1,200 and 1,600 AGDD using the sunflower GDD model from NDAWN.** Adult flea beetles can be easily collected with a 15-inch sweep net.

It is still early to start scouting/collecting for leafy spurge flea beetles and collection sites. All NDAWN weather stations indicate that the AGDD are between 525 AGDD in northern areas to 881 AGDD in southern areas of North Dakota (see map on next page). Use the [sunflower degree days/growth stage application](#) on NDAWN website. Select 'Map' and then enter "2024-03-01" for the planting date and select "degree day" for map type. See map below.

After late July (or 1,600 AGDD), flea beetles begin to lay eggs and should not be moved or collected. Leafy spurge flea beetles typically take three to five years to establish and impact leafy spurge infestations.

To find collecting sites for leafy spurge flea beetle, contact your [local county weed office](#) (see [ND County Weed Board online directory](#)). Leafy spurge flea beetles also are available commercially for purchase at [WeedBusters BioControl](#) in Montana. For more information, see the NDSU Extension publication on [Leafy Spurge Control Using Flea Beetles \(*Aphthona* spp.\) W1183 \(Revised\)](#).

Sunflower Accumulated Growing Degree Days (°F) (2024-03-01 – 2024-06-10)

**CUTWORM SCOUTING**

Most field crops are in the most susceptible stage for cutworm feeding damage - early crop development stages - **seedling through 4-6 leaf stage**. So, it is time to start routine scouting for cutworms. Cutworms damage plants in the larval stage (caterpillar) and cause plant injury by cutting stems near the soil line, chewing on the foliage and reducing plant stands. Cutworms often will move down a row as they continue to feed on plants.

Routine scouting for cutworm larvae is best in the evening, since they feed at night and hide underneath clumps of soil and debris during the day. If you find cut off plants, dig around these plants about two or more inches deep, and search for cutworms. When disturbed, cutworms curl up into a 'C-shape.' You could see blank spots in a row where plants are completely gone or just random holes in foliage where climbing cutworms ate.



Dingy cutworms on left and redbacked cutworms on right (Courtesy of John Gavloski, Manitoba Agriculture, Food and Rural Initiatives)

Row crops, such as soybean, canola, lentils, field peas and sunflowers, are more susceptible to cutworm damage than small grains, because cut plants do not grow back (grains compensate by tillering). Continue scouting until early July for late season cutworms or until crops have advanced beyond the susceptible period (seedling through 4-6 leaf stage).

All cutworm species are lumped together for the action thresholds. If cutworms are at or above the action thresholds listed below for different field crops, then a 'rescue' foliar insecticide application is warranted. An evening application is recommended to target the peak feeding of cutworms at night, but be sure to monitor for temperature inversion and do NOT spray during an inversion.

- Alfalfa – 4 or more larvae per square foot (new stands – only 2 larvae per square foot)
- Canola – 1 larva per square foot
- Corn - 3-6% of the plants are cut and small larvae (<3/4 inch) present
- Peas / Lentils – 2 to 3 larvae per square meter
- Small grain – 4 to 5 larvae per square foot
- Soybean - 1 larva per 3 feet of row or 20% of plants are cut
- Sugarbeet - 4-5% cutting of seedlings or 3-5 larvae per square foot
- Sunflower - 1 larva per square foot or 25-30% stand loss



*Defoliation from climbing cutworm feeding injury in sunflowers
(J. Knodel, NDSU Extension)*

You can often find both small and large larvae of the same or different species of cutworms while scouting. **If the majority of the larvae are small, $\leq \frac{3}{4}$ inch, they still have most of their crop feeding to do before maturity, so an insecticide treatment will be necessary when you are at or above the action threshold.** If you are finding a mixture of some small cutworms, many large cutworms and some pupae, it may be too late for a foliar insecticide application since the majority of the larvae are mature (done feeding) and/or pupating (a non-feeding life stage).

Remember most cutworms are difficult to kill, so they require the mid- to high labeled rates of an insecticide for effective control. A low rate of insecticide may not provide the efficacy or residual needed to get past the susceptible early crop stages. You may need to respray a field again for late emerging cutworms. Another advantage of using the mid- to high labeled rates of insecticides is that you get a longer residual of 7-10+ days for most pyrethroid insecticides.

Link to 2024 ND Field Crop Insect Management Guide for insecticide products by crop:

<https://www.ndsu.edu/agriculture/extension/publications/north-dakota-field-crop-insect-management-guide>

FIRST CEREAL APHIDS IN ND

IPM scouts found cereal aphids at low densities on spring wheat in Grand Forks, Towner and Traill Counties in the northeast area and in Stark County in the southwest area of ND. Aphids migrate into North Dakota on the upper trajectory winds and can arrive early or late depending on the winds.

Small grain aphids are small, pear-shaped and green insects. Three species are common in North Dakota including the greenbug, bird cherry oat aphids and English grain aphid. Greenbugs are pale green with darker stripe down back. Bird cherry oat aphids are olive green, brownish patch at the base of cornicles. English grain aphids are bright green with long black cornicles.



Field scouting should begin at stem elongation and continue up to the early dough stage of wheat. The English grain aphid is the most common aphid seen in small grains. Aphid populations grow rapidly under moderate temperatures. The bird cherry oat aphid feeds primarily on leaves in the lower part of the small grain plant. Aphids can vector barley yellow dwarf virus with their piercing-sucking mouthparts. When aphid populations are high, the disease can spread quickly through small grain fields. **The later planted fields are at greatest risk, which attract migrating aphids.**

To protect small grains from yield loss due to aphid feeding, the economic threshold uses the average number of aphids per stem and crop stage (see yellow box).

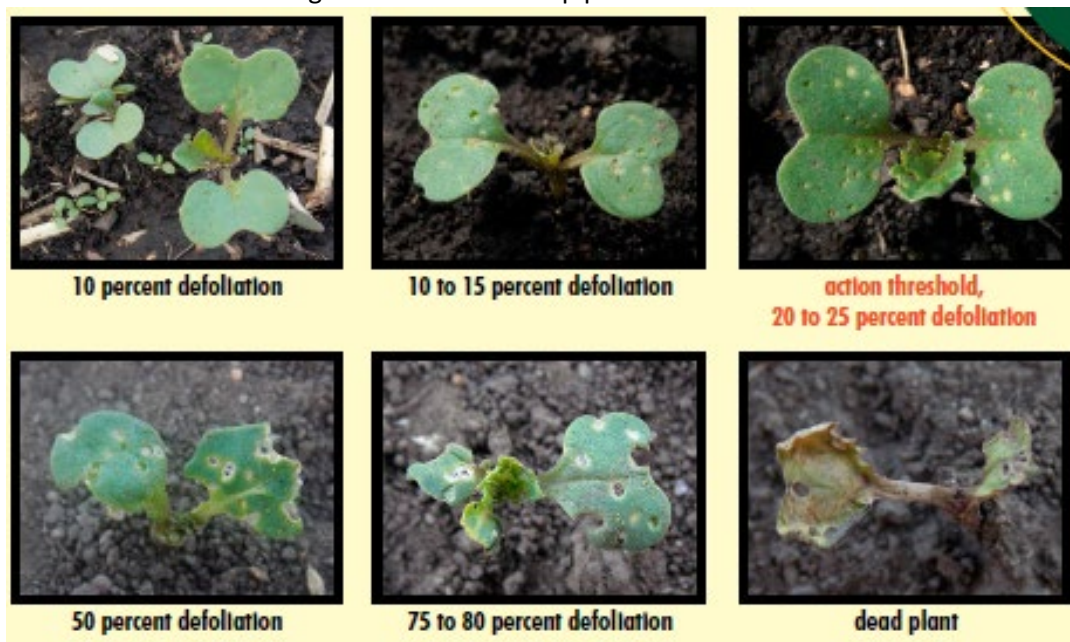
Economic Thresholds for Small Grain Aphids in Wheat, Barley or Oats

- Vegetative through head emergence - 4 aphids per stem
- Complete heading through the end of anthesis - 4-7 aphids per stem
- End of anthesis through medium milk - 8-12 aphids per stem
- Medium milk through early dough - >12 aphids per stem

CONTINUE SCOUTING FOR CANOLA FLEA BEETLES

About 63% of the planted canola is emerged according to *USDA Ag News Release, NAAS – ND Crop Progress and Condition* for June 10, 2024. Flea beetles will continue to be active until late June, so please continue to scout for flea beetles 2-3 times a week, especially in any late-planted fields. For early-planted canola, the effectiveness of the insecticide seed treatment is plummeting due to little residual at 14-21 days after planting. With the cool, wet and windy weather, flea beetle feeding injury has been suppressed! Good news for canola growers. Temperatures are expected to warm up this week, so flea beetle feeding activity could increase. Scout!

If more than 20-25% defoliation is observed in canola fields, a foliar insecticide spray is warranted to prevent yield loss through the 6-8 leaf crop stage. For insecticides registered for control of flea beetles for canola, please refer to past Crop & Pest Report articles in [May 16 issue 2](#) and [May 23 issue 3](#) and the [2024 North Dakota Field Crop Insect Management Guide](#). Please avoid tank mixing two pyrethroids together, since that could promote the development of pyrethroid resistant flea beetles. Instead use a high labeled rate to help prevent insecticide resistance.



[Janet J. Knodel](#)
Extension Entomologist



FUSARIUM HEAD BLIGHT (SCAB) RISK IN ND

Winter wheat growth stages range from heading to flowering in the state. Right now, both the NDSU and National Scab Risk models indicate elevated scab risk for very susceptible varieties in northeast ND (Figure 1). Although most of the state has received above average rain in the past few weeks, daily relative humidity values (which drive the models) have generally remained below 80%. Additionally, we have infrequently observed several days with high relative humidity (ie: high wind days following rain). To access the Scab Risk models, please use the links below:

NDSU Small Grain Disease Forecasting Model (<https://www.ag.ndsu.edu/cropdisease>)

USWBSI Fusarium Risk Tool (<https://www.wheatscab.psu.edu/>)

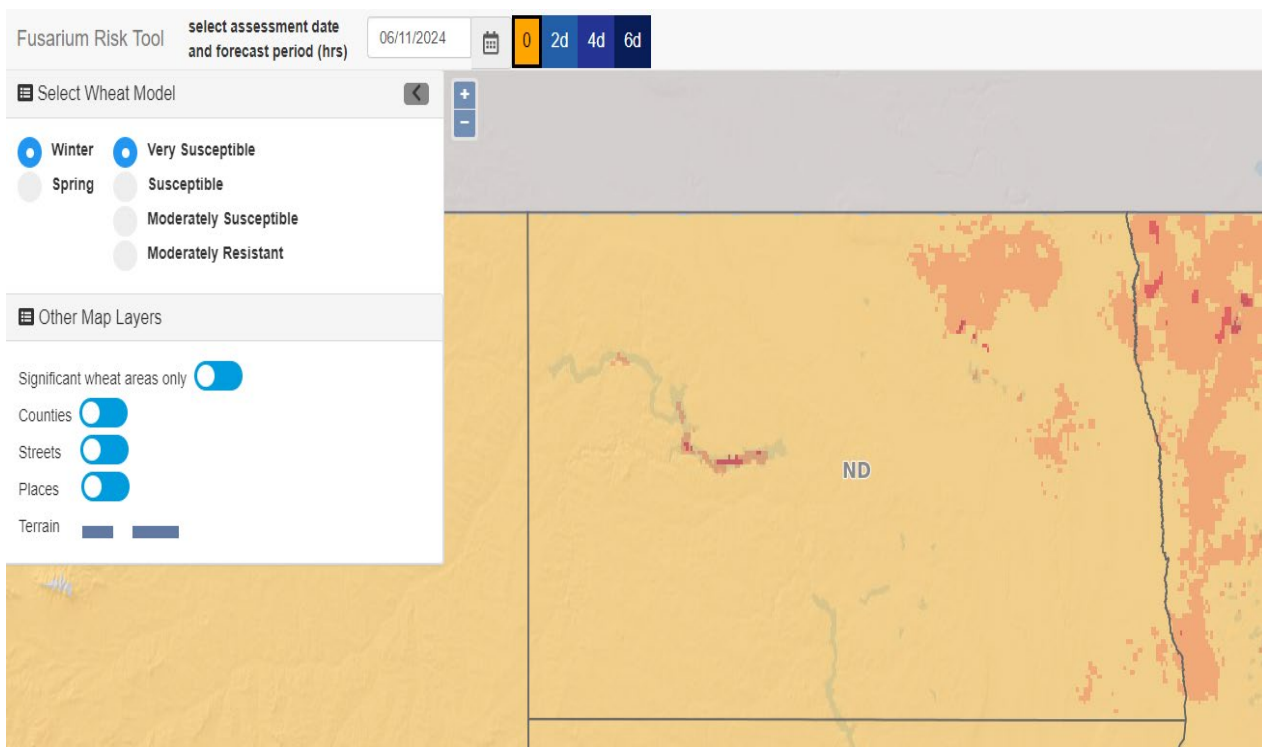


Figure 1. Fusarium head blight risk for very susceptible winter wheat varieties on June 11 according to the USWBSI Fusarium Risk Tool.

STRIPE RUST REPORTS IN ND

Stripe rust was reported in ND last Thursday (June 6) in winter wheat research plots near the NDSU campus (Figure 1). Additional stripe rust reports were received from Slope County (Figure 2), Hettinger County, and the Agronomy Seed Farm (Casselton, ND). Given the growth stages of spring wheat, this would be considered an early onset



Figure 1. Stripe rust on the flag leaves of winter wheat near Fargo.

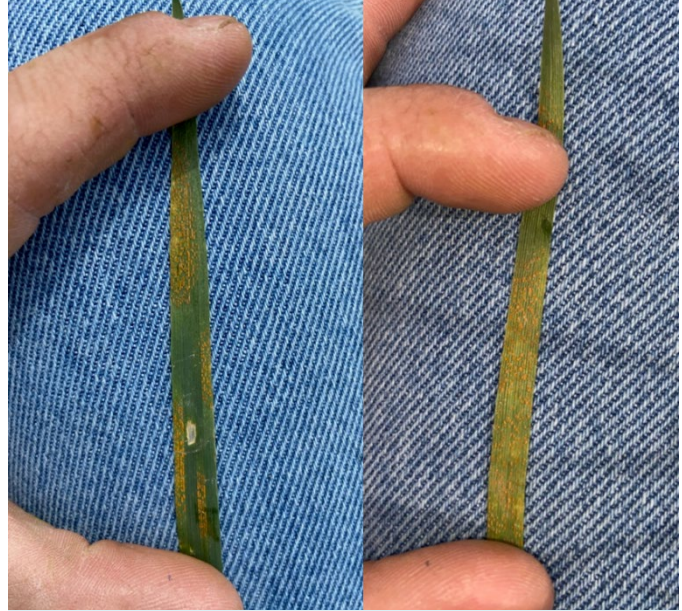


Figure 2. Stripe rust found on the lower leaves of spring wheat in Slope County (Image credit – Eddy Nortje, Dickinson REC IPM Scout)

of the disease, which may increase our yield loss risk on susceptible varieties. The future forecast looks favorable for stripe rust development (cool and wet), so we may see additional reports in the coming week. For more information on stripe rust management, please refer to the Crop and Pest article from last week.

[Andrew Friskop](#)

Extension Plant Pathology, Cereal Crops

FIGHTING PHYTOPHTHORA IN SOYBEANS PT. 2

In last week's Crop and Pest Report, we dove into the biology of *Phytophthora sojae*, the causal agent of Phytophthora root and stem rot in soybeans. This week, we will focus on management strategies to mitigate the impact of this pathogen on your crops. Effective management combines cultural practices, genetic resistance, and chemical treatments in an integrated pest management approach.

Cultural Practices

Proper water management is critical in reducing the potential risk of Phytophthora root and stem rot developing. By ensuring fields are well-drained can significantly lower soil moisture levels, which inhibits the germination and movement of Phytophthora zoospores. When possible, installing drainage tiles can help remove excess water from the soil, especially in low-lying or poorly drained areas. Preventing soil compaction is also important, as compacted soils slow or prevent water drainage and increase the likelihood of standing water, creating ideal conditions for Phytophthora development. Using appropriate water management practices and avoiding field work when soils are wet can help maintain good soil structure and reduce compaction issues.

Variety Selection

Soybean varieties with *Rps* (Resistance to *Phytophthora sojae*) genes can provide effective resistance against specific races of the pathogen. These genes allow for a high level of protection by preventing the pathogen from establishing infection. Therefore, it is essential to select varieties with the appropriate *Rps* genes based on the dominant races of *Phytophthora sojae* in your region. In addition to complete resistance, partial resistance or commonly referred to as field

tolerance can provide an extra layer of protection. Soybean varieties with partial resistance are less susceptible to Phytophthora and can limit the degree to which disease develops even if infection occurs. Combining varieties with both complete and partial resistance can offer high level of protection and help manage disease pressure throughout the entire growing season.

Seed Treatments

Chemical seed treatments are another critical component of managing Phytophthora root and stem rot. Active ingredients like metalaxyl and mefenoxam are widely used to protect soybean seeds and seedlings from Phytophthora, inhibiting the growth of the pathogen and reducing seedling damping-off and root rot. Ethaboxam provides a broad spectrum of activity against oomycetes, including Phytophthora. Picarbutrazox, a newer active ingredient, offers excellent protection against Phytophthora and other oomycete pathogens. Oxathiapiprolin is also known for its strong activity against oomycetes such as Phytophthora. The four listed actives are all options for management of the oomycetes, but they will have little to no activity on other seedling diseases such as Fusarium and Rhizoctonia. More details on seed treatments and pathogen control can be found [here](#). While these chemicals all allow for improved management of early season Phytophthora pressure, this level of protection is only effective for a few weeks allowing for good stand establishment.

Combining these management strategies—cultural practices, genetic resistance, and chemical treatments—provides the best defense against Phytophthora root and stem rot. Further we are currently conducting a statewide survey of Phytophthora populations funded by the North Dakota Soybean Council. If you are interested in learning more or if you are willing to contribute to our statewide survey, please visit the link [here](#).

[Wade Webster](#)

Extension Plant Pathology, Soybeans



DOES IT MAKE SENSE TO SWITCH TO EARLIER MATURING WHEAT VARIETIES?

The simple answer is 'Probably Not'. We'll try to explain below why.

Most spring wheat varieties that are grown in Minnesota and North Dakota are day length insensitive. . That means that their growth and development are temperature-driven. As heat units are accumulated each day, the crop advances in its development. This is a linear function from emergence through the end of the grainfill period. The earliest maturing varieties need about 5% less and the latest maturing varieties need about 5% more heat units to reach each point in their development. We will start collecting more heat units per day as the season progresses. After all, average daytime highs and nighttime low temperatures should increase if summer is to be.

As a result, the crop will need fewer days to reach the same growth stage compared to a crop that was seeded much earlier. Using the 30-year average daytime high and nighttime low temperatures in Fargo, we calculated the number of days it takes the crop to reach physiological maturity starting on April 15 and every two weeks after that up to June 30 (Figure 1). The bottom curve in green shows that it takes the spring wheat crop about 78 days to reach physiological

maturity when seeded on April 15 while a crop seeded on June 15 and June 30 reaches physiological maturity in 54 and 53 days, respectively.

Because the relationship between the number of accumulated heat units and crop development is linear, the differences between early and late maturing varieties get smaller as seeding is delayed; a 10% difference of 78 days is larger than a 10% difference of 53 days. Simply put - the maturity differences get compressed and you are not gaining as many days as the reported differences in heading dates suggest. Notable exceptions are CP 3099A, PFS Buns, and MS Ranchero. These varieties are day length sensitive. This means that when they are seeded early they tend to reach heading and physiological maturity later at our latitudes relative to day length insensitive varieties. These varieties will head much sooner than you would otherwise expect when seeding is delayed and day lengths have already reached the length to trigger the transition to reproductive growth.

But will the crop have enough days to dry down after it reaches physiological maturity? Once the crop has reached physiological maturity differences in maturity do not matter any longer. The remaining canopy and mature grain need to lose enough moisture to allow for mechanical harvest. Unfortunately, the number of days favorable for dry-down dwindles as the planting dates get later and approach fall (after all, the return of winter is a certainty in both Minnesota and North Dakota). To give you an idea, I used the same climate data and calculated the number of days with daytime high temperatures above 68F from the day the crop reached physiological maturity until the end of the month of September. The choice of 68F was somewhat arbitrary but shows the trend well. The top curve in red shows the later seeded crop will have fewer days to dry down and the decline in 'drying days' accelerates as seeding is delayed (Figure 1).

As you go north in the Red River Valley the number of days to reach physiological maturity takes longer over the whole range of planting dates and the number of 'drying days' decreases faster compared to Fargo (Figure 2). Using the NDAWN station in Humboldt, the difference in reaching physiological maturity was about 4 days at the latest seeding date. The decline in the number of 'drying days', however, was 11 days or nearly a third

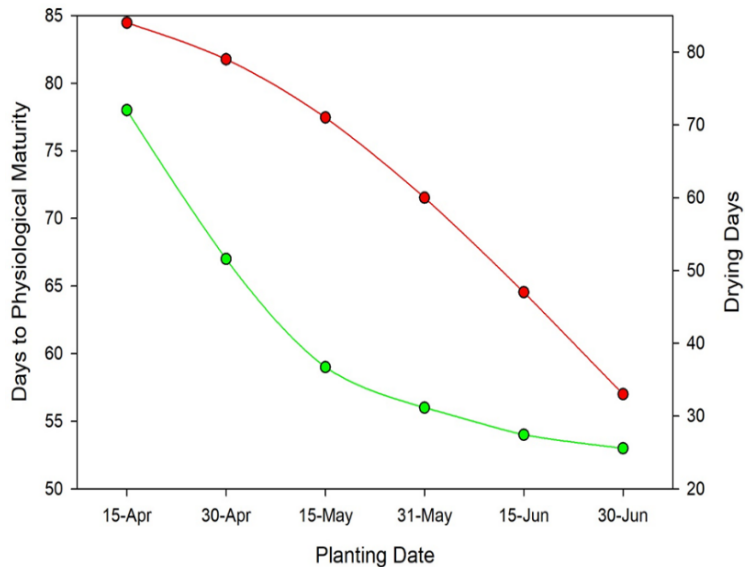


Figure 1 - Number of days from seeding to physiological maturity and the number of drying days (defined as the number of days with daytime high temperatures above 68F) from physiological maturity to the end of the month of September in Fargo for six different planting dates using the climate normal average daytime high and nighttime low temperatures.

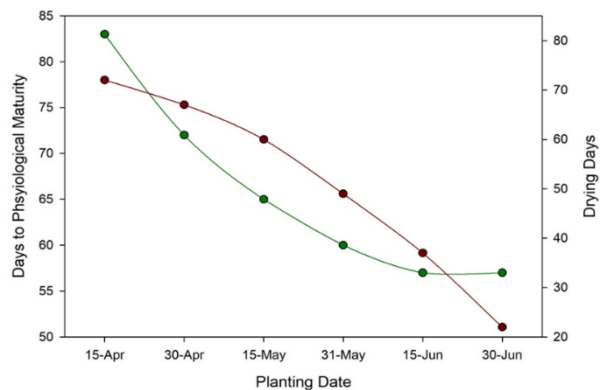


Figure 2 - Number of days from seeding to physiological maturity and the number of drying days (defined as the number of days with daytime high temperatures above 68F) from physiological maturity to the end of the month of September in Humboldt for six different planting dates using the climate normal average daytime high and nighttime low temperatures.

when compared to Fargo. Again, that shouldn't come as a surprise as average daytime highs and nighttime lows are just a few degrees less when compared to Fargo. But again, switching to an earlier maturing variety does not allow you to make up as much as you would like to think or need.

[Greg Endres](#)

Extension Cropping Systems Specialist
NDSU Carrington Research Extension Center

[Jochum Wiersma](#)

Small Grains Specialist
University of Minnesota



SOYBEAN IRON DEFICIENCY CHLOROSIS

In some fields yellowing of soybean leaves due to Iron Deficiency Chlorosis (IDC) is appearing. Soybean varieties have genetic differences for the expression of symptoms, and some have tolerance to IDC. No soybean variety is immune to chlorosis, but large differences in yellowing and subsequent plant stunting and subsequent yield reduction occur between the most tolerant and most susceptible varieties. Field choice and selecting a variety with tolerance to IDC are the important management decisions producers make in avoiding or reducing the negative yield effect of chlorosis. Although most soils in North Dakota have sufficient iron, with the presence of soil carbonate, which manifests itself most commonly in pH greater than 7, IDC is possible. With soil and environmental conditions of elevated salt concentrations, excess moisture, cool temperatures, and high soil nitrate, IDC is more severe. Plant leaves with IDC symptoms are yellow with green veins (Figure 1). Yellowing, browning and stunting of the plants during the early vegetative stages will result in less photosynthesis in these plants, compared with healthy green plants, causing reduced soybean yields.



Figure 1. IDC on the first trifoliolate leaves near Fargo.

The yellowing of the leaves usually becomes pronounced when the plants reach the two- to seven-trifoliolate leaf stages. Soybean plants may grow out of IDC symptoms and turn green at the end of the vegetative growth stages but due to early season IDC, yields will still be reduced (Figure 2). Data used in Figure 2 was generated in fields with known IDC symptoms to evaluate the yield reduction with increased severity of IDC. In most fields the IDC is occurring in some areas of the field and with other parts of the field showing no IDC symptoms. The variability is mainly due to the distribution of soil carbonates throughout the field. The rating scale NDSU scientist use for IDC is shown in Figure 3.

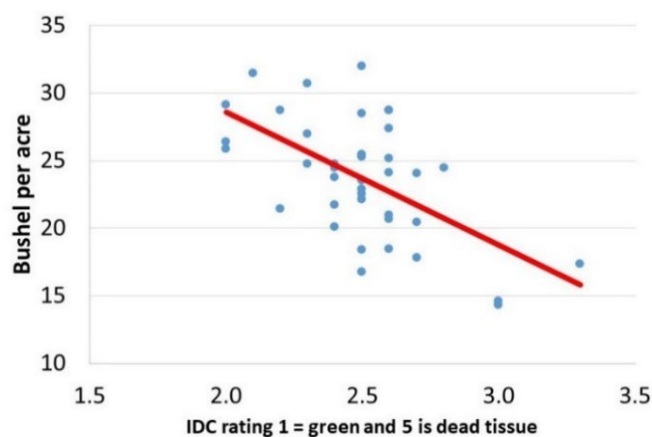


Figure 2. IDC rating vs soybean yield, from a NDSU soybean variety trial, using the combined data from Hunter, Leonard, and Colfax sites.

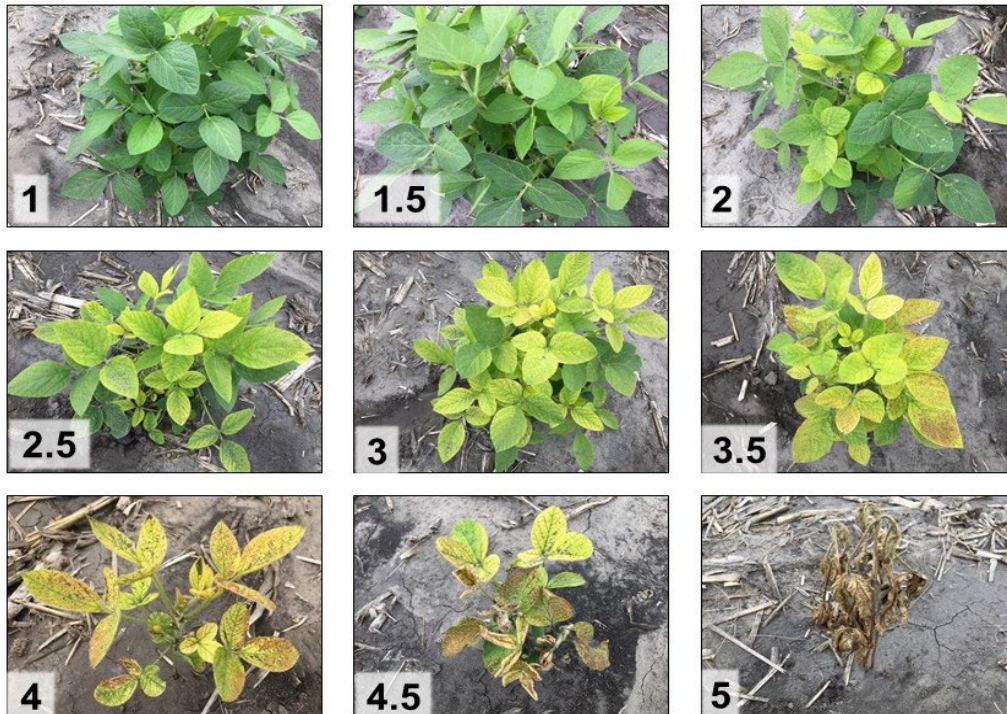


Figure 3. Rating scale used by NDSU scientists to score soybean IDC severity.

The number one management strategy in the region to reduce IDC is field selection. Fields that have a pH of 7 and below are preferred. The lower the salt (EC) values, the better.

The second most important strategy is variety selection. NDSU publishes relative IDC scores of all varieties tested (Figure 3). It is important to note the IDC severity in current soybean fields and select, if needed, more tolerant varieties for the next time soybean are grown in these fields.

Hans Kandel
NDSU Extension Agronomist, retired

[Dave Franzen](#)
Extension Soil Specialist
701-799-2565



PROJECT SAFE SEND WASTE PESTICIDE COLLECTIONS SLATED FOR JULY

Farmers, ranchers, pesticide dealers and applicators, government agencies and homeowners with unusable pesticides can bring them to any of the Project Safe Send Sites in the table below.

Project Safe Send is a safe, simple and non-regulatory program that helps people safely and legally dispose of unusable pesticides free of charge. Since 1992, more than 11,300 people have brought in over 5.9 million pounds of pesticides to Project Safe Send.

The program accepts old, unusable or banned pesticides, including herbicides, insecticides, rodenticides and fungicides. For a list of accepted items, click on [Accepted Pesticides](#). The collected pesticides are shipped out of state for incineration. Project Safe Send is funded through product registration fees paid by pesticide manufacturers.

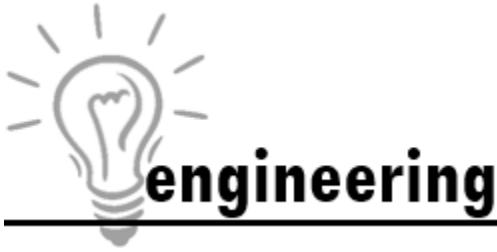
People are urged to check their storage areas for any unusable pesticides and safely set them aside for Project Safe Send. If the containers are deteriorating or leaking, pack them in larger containers with absorbent materials. Free heavy-duty plastic bags are available from the North Dakota Department of Agriculture.

PLEASE NOTE: If bringing more than 1,000 lbs., preregister with Dylan Zubke at dbzubke@nd.gov or 701-425-3016. A maximum of 5,000 lbs. of pesticide per participant will be accepted. Each participant limited to one shuttle.

All collections begin at 8:00 a.m. and conclude at 12:00 p.m. local time.

| Date | Location | Address |
|--------------------------|-------------|------------------------|
| Tuesday, July 9, 2024 | Valley City | 1524 8th Ave SW |
| Wednesday, July 10, 2024 | Bismarck | 218 S Airport Road |
| Thursday, July 11, 2024 | Beulah | 205 Hwy 49 S |
| Friday, July 12, 2024 | Dickinson | 1700 3rd Ave W Ste 101 |
| Monday, July 15, 2024 | Tioga | 425 2nd St SE |
| Tuesday, July 16, 2024 | Minot | 1305 Hwy 2 Bypass E |
| Wednesday, July 17, 2024 | Rugby | 603 1st St NE |
| Thursday, July 18, 2024 | Larimore | 1524 Towner Ave |

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



KNOW YOUR NOZZLE

As the postemergence spraying season begins in earnest, here's a friendly reminder to ensure that your chosen sprayer nozzle matches the requirements of your spraying operation. This is especially important given the widespread adoption of over-the-top (OTT) dicamba (XtendiMax, Engenia, Tavium) applications to soybean.

Last fall, I spoke with five representatives from four chemical companies about common application issues leading to complaints of inadequate product performance. They all reported the inappropriate use of "dicamba nozzles" as a major cause of performance complaints. The reason why: proper pesticide performance requires proper spray coverage, and *Proper Spray Coverage = Proper Spray Quality + Proper Water Volume*.

OTT dicamba product labels require specific nozzles to be used, within specific operating pressure ranges, generating a spray water volume of at least 15 gallons per acre. Following these requirements will generate Extremely Coarse (XC) to Ultra Coarse (UC) spray quality. The high proportion of relatively large droplets generated by XC or UC sprays is undesirable for achieving excellent weed control, as large droplets are more prone to miss small weeds or bounce off weed leaves, but is necessary for drift reduction. *The label requirement for spray water volumes of 15 GPA or greater helps to offset the downsides associated with these larger droplets, enhancing coverage through increased spray volume.*

Using "dicamba nozzles" that generate XC or UC sprays with lower water volumes (e.g., 10 GPA or less), or with active ingredients that require a Medium to Coarse spray quality (such as glufosinate), is a surefire way to reduce herbicide efficacy due to insufficient spray coverage. In our current environment, where the evolution of herbicide-resistant weed species is challenging the effectiveness of our available chemistries, *we must maximize the efficacy of our herbicide applications*. Configuring your sprayer to generate the proper spray quality and water volume is an important piece of the puzzle.

Consider these resources for additional information:

- [Sprayers 101 | Mode of Action and Spray Quality](#)
- [Sprayers 101 | Selecting the Right Water Volume](#)
- [Sprayers 101 | Spray Quality and Volume Matrix](#)

[Rob Proulx](#)

Agriculture Technology Systems Specialist



around the state

NORTHEAST ND

Wind gusts from 30-40 mph has caused top soil blowing in many areas of the region causing dust clouds. Heavy winds lead to re-plantings in some wheat and sunflower fields in Cavalier County. Heavy crusting issues in soybean fields have been reported in Ramsey County. Wheat is approaching the stem elongation stage at 1-2 visible nodes. Cereal aphids are observed in low numbers in Grand Forks County wheat fields. Tan spot has been reported in many wheat fields with low to medium severity. Farmers are still planting their fields using the few dry days in between the rain events. Canola is approaching the two-leaf stage with less flea beetle pressure compared to the previous years. Grasshoppers are emerging and nymphs have been reported by the IPM scouts. Diamondback moths are seen in volunteer canola. Early arrival of these moths might lead to heavy populations in canola crop by the flowering time. Corn is pushing towards V4-V6 stages.



*Cereal aphid spotted in spring wheat field in Grand Forks County
Photo: Anitha Chirumamilla, LREC*



*Green lacewing adult (predator on aphids) and egg spotted in spring wheat field
Photos: Anitha Chirumamilla, LREC*



*Soil crusting in soybean field in Ramsey County
Photo: Lindsay Overmyer, Extension ANR Agent, Ramsey*



High winds causing severe soil erosion in Cavalier and Benson Counties

Photos: Bailey Reiser (Extension Agent, Cavalier County) and Scott Knoke (Extension Agent, Benson County)

[Anitha Chirumamilla](#)

Extension Cropping Systems Specialist
Langdon Research Extension Center

NORTHWEST ND

It has been mostly windy in the past 7 days (June 4 through 11) in northwest. Last week from Tuesday (June 4) through Thursday (June 6) day, winds during the day averaged more than 20 mph, at some point reached 28 mph, and gusts as strong as 48 mph as per NDAWN records. Tilled soils and exposed no till fields with little residue cover were prone to soil erosion during these days, as visibility in some areas with exposed fields were limited to just a few hundred feet due to the blowing and swirling dusts. Average daytime temperatures are in the low 70s°F and night time temperatures in the mid 40s°F to early 50s°F. In Williston, warmest temperature recorded so far was 83°F yesterday (June 11) and rain showers brought down 0.13" last Monday (June 10).

Latest crop stage I've seen so far is booting to heads starting to come out in winter wheat, 3-5 tillers in spring wheat, 6-9 leaf lentils, V7 corn, 2-3 trifoliolate soybean, and bolting to early flower canola. For the most part crops are looking good to excellent. Insect trapping efforts to monitor insect pests in the northwest indicate that the economically important insects are coming out. True armyworm moth has been detected in Divide and Mountrail counties. There were also increased activity in chemical application in the fields mostly for weed control in-crop in small grains.



Just some of the crops in Williams County. Canola at bolting to early flower [A]. Corn at V7-V8 [B] in an irrigated conventional till field south of Missouri river. Normal healthy soybean [C] in a conventional till irrigated field and soybean in another field [D] showing injury from what looks like symptoms caused by a group 4 herbicide. I suspect more of the active ingredient clopyralid contained in herbicides like Stinger usually used in the preceding small grain crop and can be carried over to soybean. Clopyralid can also cause similar looking symptoms due to application drift from an adjacent small grain field. Especially in dryland conditions, as per label, soils with less than 2% organic matter AND rainfall less than 15 inches during 12 months following clopyralid application, rotation to soybeans is restricted 18 months. Pictures taken 6/11/2024.

[Charlemagne "Charlie" Lim](#)

Extension Cropping Systems Specialist
NDSU Williston Research Extension Center

SOUTH-CENTRAL/SOUTHEAST ND

The region received 0.06 inches of rain at Brampton in Sargent County to 1.78 inches of rain at Carrington in the past week! Griggs, Kidder, and Foster receive the greatest rainfall over the past week in the region. Strong winds occurred last Wednesday and Thursday. The greatest daily average wind speed was at Edgley in LaMoure County at 13 miles per hour. Most places averaged greater than 8.8 miles per hours. Griggs County broke the record for the greatest average daily wind speed for the past week at greater than 0.6 miles per hour over the record for the past week in 2015. Soil temperatures in the region are way below normal. At Cooperstown in Griggs County the average daily 4-inch bare soil temperature was only 60 degrees Fahrenheit which is a new record by 6.1 degrees Fahrenheit set in 2015. This explains why the crops are behind schedule

At least in Griggs County the earliest hard red spring wheat is at the beginning of flag leaf emergence and some barley is at the boot stage already. This is way ahead of last year where the average stage for the past week was only three tillers! Corn, soybean, dry bean, and sunflowers are way below normal development as of last week compared to last

year where the corn was already at V4 (4th collar) compared to V2 this year and fully expanded first trifoliolate of soybeans to most at the unifoliolate stage this year. Dry beans are behind last year as well.

Most counties in the region are still planting and most counties will have some prevent planted acres, but the exact amount is unknown at this time. One farmer in Griggs County has quite planting and will have about 15% of his acreage as prevent plant. Some counties will be worse like Eddy County. Hard red spring wheat, barley, and corn are looking mostly good to excellent in the region, but the remaining crops are looking pretty tough at the moment.

Some of the most frequent pest issues in the area are weeds and getting them sprayed timely due to wet soil conditions and wind. Many farmers were unable to apply preemergence herbicides to all soybean acres. This will make postemergence herbicides difficult, particularly kochia and waterhemp. At this time most herbicides have been applied timely based upon the slow growth. Not all grass species are being controlled in the earliest planted hard red spring wheat. Scout fields to determine the need for a second postemergence application and make sure the wheat is not too advanced in growth to apply the grass herbicides.

Other pest issues include alfalfa weevil, but most of it is not at threshold and some alfalfa is starting to bud, so cutting the alfalfa is the cheapest way to control the alfalfa weevil. Some small grasshopper nymphs have been observed, but populations are minimal.

The wind damage is variable across the region, but one field of corn in Griggs County was severely injured by the wind and the corn also is suffering from carryover of Reflex from dry beans last year.

That covers many topics for the week. Check out the information below:

Don't forget to register for the NDSU Extension Annual Crop Management Field School being held Friday, June 28 from 8:30 AM to 2:45 PM at the Carrington REC. 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**

Preregistration is required, and 50 participants will be accepted on a first-come, first-served basis. Certified crop advisers will receive 4 continuing education units in crop pest and soil management.

For more details and preregistration information, visit 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.



Most advanced wheat stage in Griggs County is at flag leaf emergence.



Average stage and condition of hard red spring wheat in Griggs County



Seedling blight of soybeans is showing up sporadically. Likely phythophthora.



First sign of alfalfa weevil in Griggs County. Way below threshold at the moment.



Severe wind and fomesafen carryover damage.

[Jeff Stachler](#)
Griggs County Extension Agent

SOUTHWEST ND

Most of the Southwest region has received some much welcome moisture over the course of last week, with the greatest amount falling in the Golden Valley County (0.63 inches). Even then, parts of Slope and Bowman Counties are still under Moderate Drought conditions.

Stripe rust disease in spring wheat has been identified in Slope County. Temperatures between 50-64°F coupled with intermittent rainfall are major factors favoring the disease. The best way to manage this disease is to plant resistant varieties.

Grasshopper and cereal aphid populations have been identified in most counties, however, with very low populations. We will keep an eye on those and see how these population levels develop.

Other than that, crops seem to be progressing well with wheat and barley anywhere between emerging and jointing stage, canola between emerging and 2 - 3 leaves, soybeans in the cotyledon stage and some sunflowers just emerging from the ground.



*Stripe rust symptoms in wheat identified in Slope County.
Photo credit: Eddie Nortje, IPM Scout*

[Victor Gomes](#)

Extension Cropping Systems Specialist
Dickinson Research and Extension Center



WEATHER FORECAST

The June 13 to June 19, 2024 Weather Summary and Outlook

One small thunderstorm complex impacted McKenzie and Mountrail Counties where several North Dakota Agricultural Weather Network (NDAWN) stations recorded over 1 inch of rain. Otherwise, most other locations recorded very little precipitation this past week (Figure 1). Early next week looks to be the best time frame for widespread rainfall over North Dakota these next 7 days. It will probably be a mix of above and below rainfall totals during this forecast period as forecasting placement of thunderstorms that far out is difficult. June is the rainiest month of the year by quite a margin, so the areas that need drying out may find it difficult in the next couple of weeks.

Total Rainfall Past 7 Days (in)

Jun 12 2024 12:51 PM

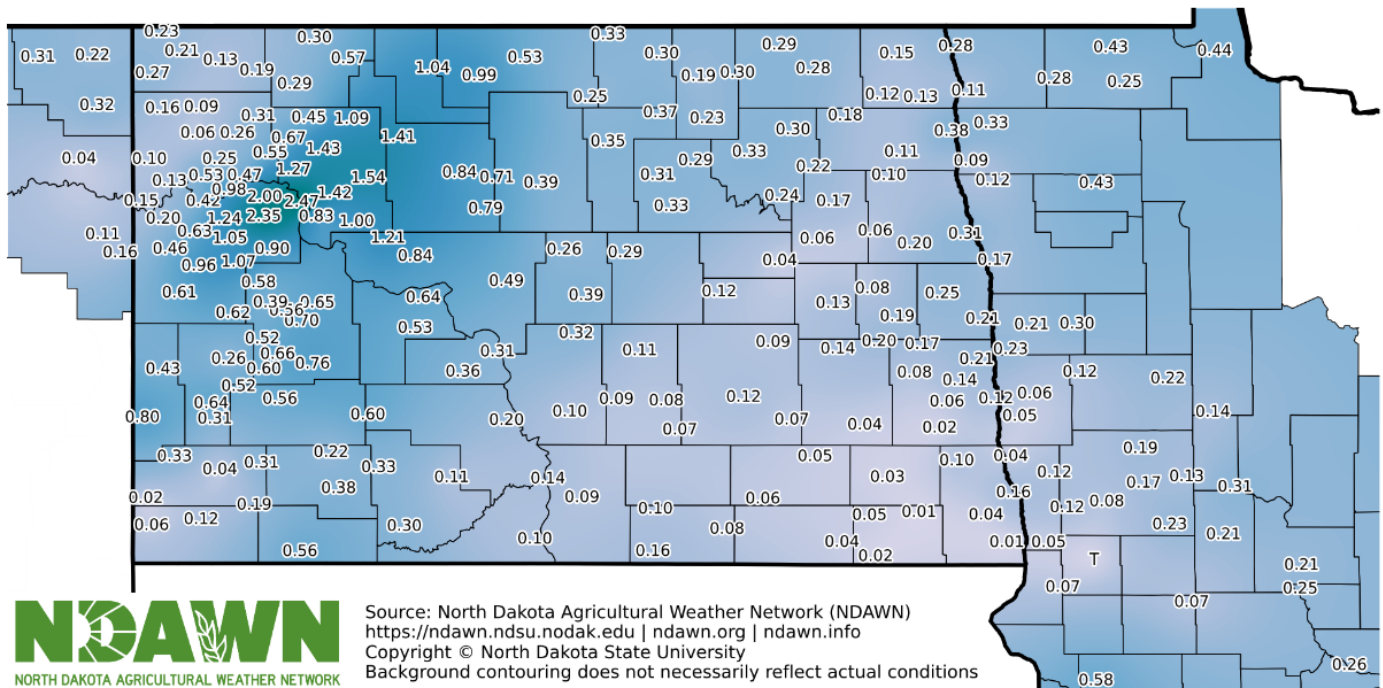


Figure 1. Total Rain at NDAWN Stations for the 168-hour (7 day) period ending at 12:51 PM on June 12, 2024.

Temperatures this past week were either close to average, or a bit below average. Although, the map below (Figure 2) does not include the very warm temperatures many of you recorded yesterday. It appears this forecast period will also see temperature close to average with southeastern North Dakota having the best potential to record above average temperatures.

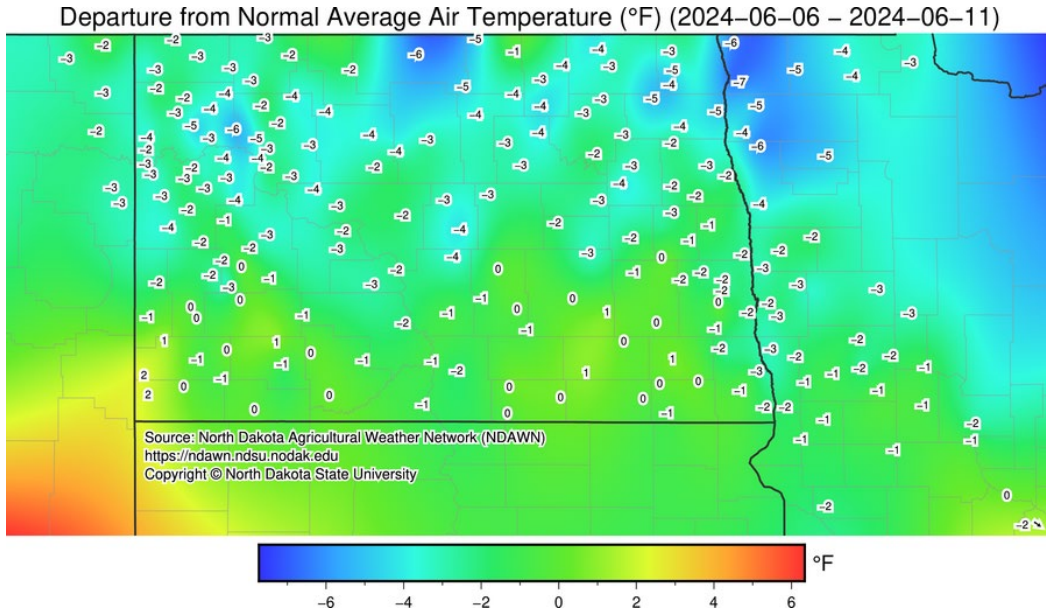


Figure 2. Departures from Average Air Temperatures at NDAWN stations from June 6 through June 11, 2024.

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. With temperatures expected to be near average these next 7 days, GDDs should be similar or slightly higher than what was recorded last week.

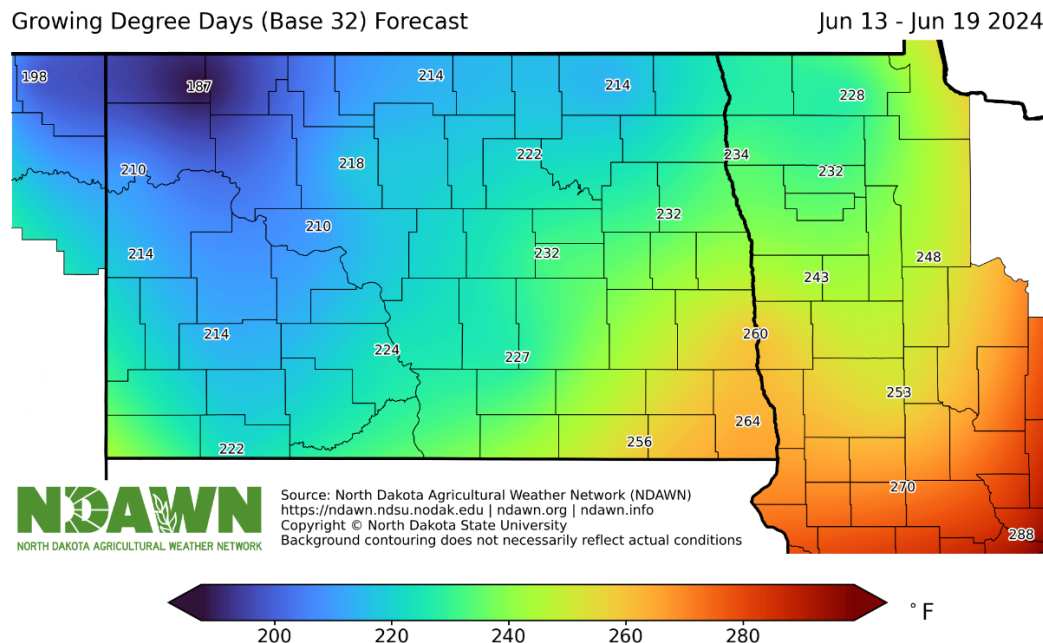


Figure 3. Estimated growing degree days base 32° for the period of June 13 to June 19, 2024.

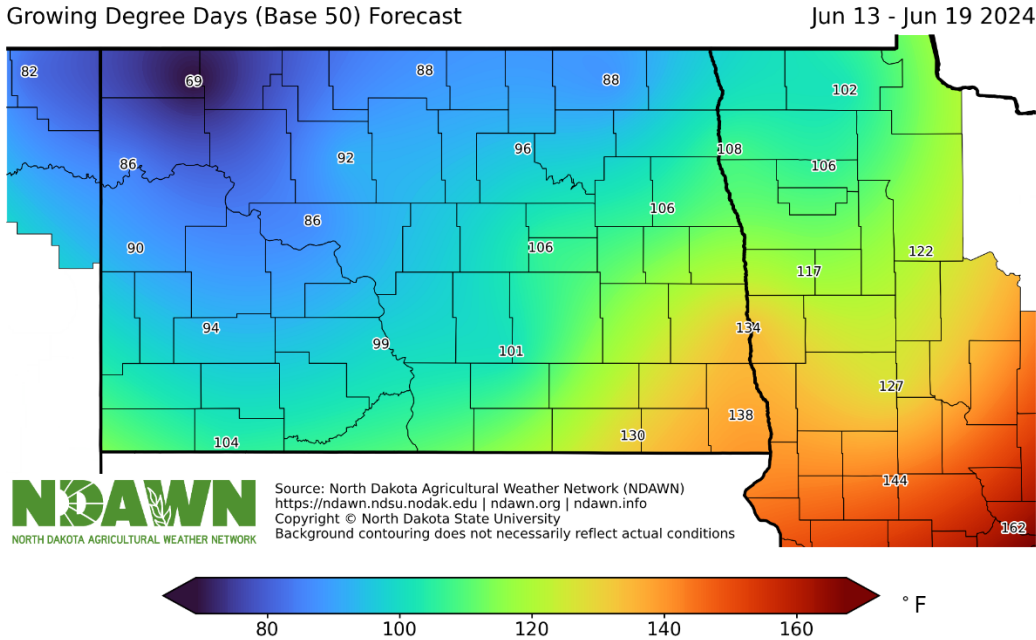


Figure 4. Estimated growing degree days base 50° for the period of June 13 to June 19, 2024.

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>

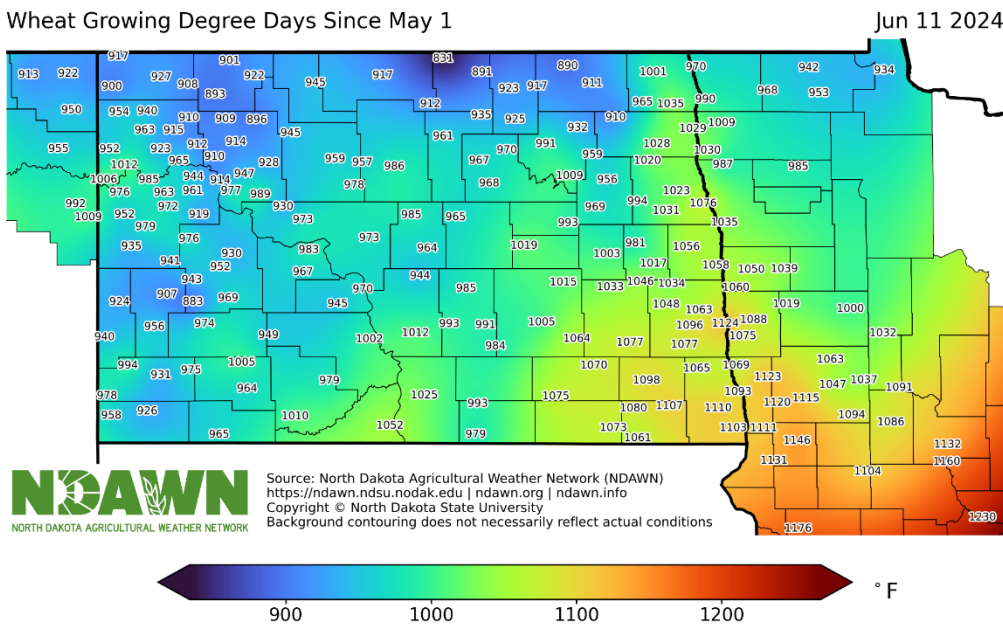


Figure 5. Wheat Growing Degree Days (Base 32°) for the period of May 1 through June 11, 2024

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>.

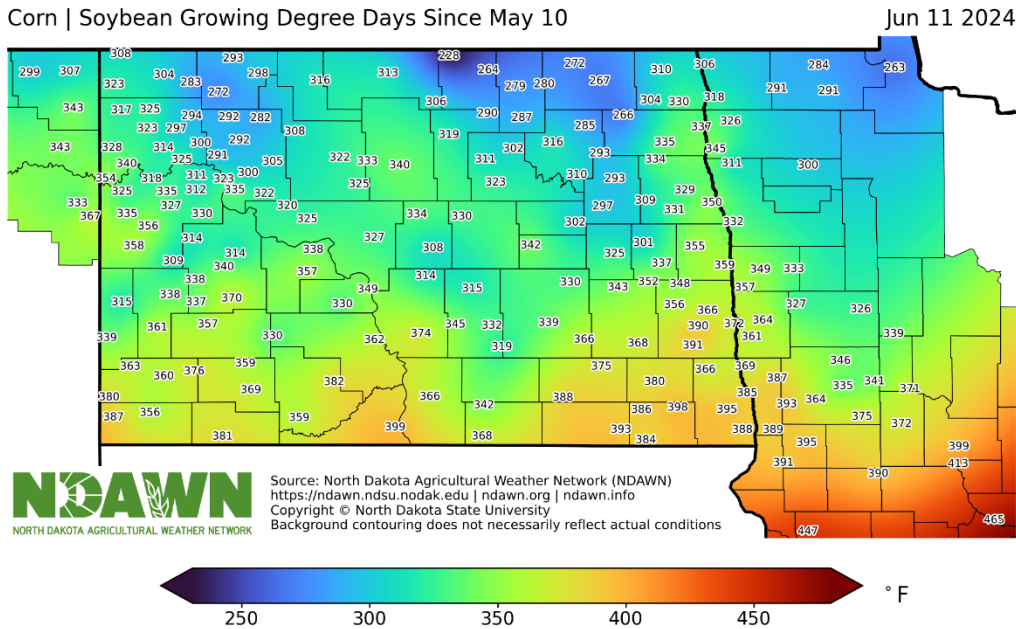


Figure 6. Corn Growing Degree Days (Base 50°) for the period of May 10 through June 11, 2024

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>

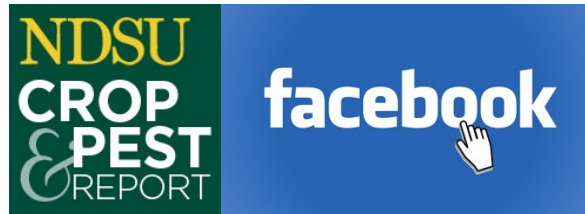
[Daryl Ritchison](#)

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

NDSU

EXTENSION

EXTENDING KNOWLEDGE >> CHANGING LIVES

Sam Markell
Marcia McMullen
Co-Editors

Plant Pathology
701-231-7056

Weeds
701-231-7972

Ag Engineering
701-231-7261

The information given herein is for educational purposes only. References to a commercial product or trade name are made with the understanding that no discrimination is intended and no endorsement by the North Dakota Extension is implied.

NDSU encourages you to use and share this content, but please do so under the conditions of our Creative Commons license. You may copy, distribute, transmit and adapt this work as long as you give full attribution, don't use the work for commercial purposes and share your resulting work similarly. For more information, visit www.ag.ndsu.edu/agcomm/creative-commons.

North Dakota State University does not discriminate on the basis of age, color, disability, gender expression/identity, genetic information, marital status, national origin, public assistance status, race, religion, sex, sexual orientation, or status as a U.S. veteran. Direct inquiries to the Vice President for Equity, Diversity and Global Outreach, 205 Old Main, (701)231-7708.

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.