North Dakota State University
CROP & PEST REPORT
NDSU EXTENSION

No. 14 July 9, 2026

Inside this Issue...

2026 NDSU FIELD DAYS

2026 NDSU Field Days

A place to showcase N.D. Agricultural Experiment Stations' research in action.

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.

2026 FIELD DAY LOCATIONS & DATES

Location	Date	Time
Central Grasslands	July 7	10 a.m. - 3 p.m. CDT
Hettinger	July 8	5-8 p.m. MDT
Dickinson	July 9	4:30-9 p.m. MDT
Williston	July 10	9 a.m. - Noon CDT
Agronomy Seed Farm	July 13	5-7:30 p.m. CDT
Carrington	July 14	9 a.m. - 3 p.m. CDT
North Central	July 15	9 a.m. - Noon CDT
Langdon	July 16	8:15 a.m. - 12:30 p.m. CDT
Nesson (WREC)	Aug. 5	9 a.m. - 1 p.m. CDT
Oakes (CREC)	Aug. 6	9 a.m. - 1 p.m. CDT

Entomology

SECTION 18 – VERTENTO® INSECTICIDE FOR SEED WEEVILS IN SOUTH DAKOTA

Because pyrethroid-resistant red sunflower seed weevils have caused significant yield losses in South Dakota, the EPA has approved a **Section 18 Emergency Exemption** for the use of **Vertento® insecticide** in sunflowers to manage pyrethroid-resistant populations. This exemption is **valid only in South Dakota**.

Vertento® insecticide contains the novel active ingredient isocycloseram (IRAC Group 30), developed by Syngenta Crop Protection. Under the emergency exemption, Vertento® may be applied **only between July 15 and August 31, 2026**.

Field efficacy trials conducted by NDSU and SDSU Extension Entomology have demonstrated **good control** of red sunflower seed weevil with Vertento® insecticide.

To remain in compliance with EPA pesticide regulations, applicators **must have a copy of the approved Section 18 Emergency Exemption label in their possession at the time of application** and follow all label directions and restrictions.

You can review all the official requirements, dates, and restrictions through these regulatory and extension resources:

- ✓ View the latest from SDSU-NDSU Extension on Management of Pyrethroid-resistant Red Sunflower Seed Weevils.
- ✓ Access official documents and regulations via the South Dakota Department of Agriculture and Natural Resources. Vertento Section 18 Label will be posted on this website.

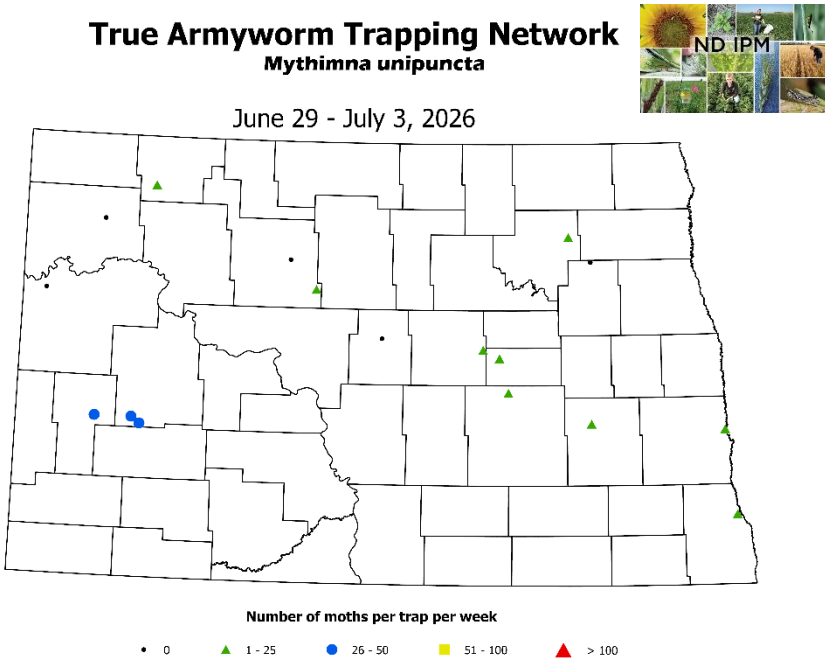
Potential Section 18 Expansion to North Dakota

In 2025, we detected reduced susceptibility of red sunflower seed weevil to the pyrethroid insecticides deltamethrin and lambda-cyhalothrin in weevil populations from southwestern North Dakota. Reduced susceptibility is often the first indication that insecticide resistance may be developing in an insect pest population.

As a result, North Dakota sunflower growers have expressed increasing concern about preserving effective management options for red sunflower seed weevil. In response, the **North Dakota Department of Agriculture, Pesticide Division**, is working with the U.S. EPA to determine whether **North Dakota can be added to the Section 18 Emergency Exemption** for Vertento® insecticide. We will provide updates as additional information becomes available.

Thanks to the National Sunflower Association and Syngenta Crop Protection for its support.

TRUE ARMYWORM DAMAGE TO WHEAT



The IPM Crop Scouts monitored 15 true armyworm trap locations in North Dakota last week. This week's count ranged from 0 to 41 moths per trap. The high trap catch locations were in southwest North Dakota. Counts increased slightly from last week, due to the next generation of moths emerging and probably more migrants arriving from southern states.

Significant wheat damage (90% defoliation) is being observed in wheat fields in central North Dakota, including Benson, Pierce and Rolette counties. *Frequent scouting is critical during stem elongation and heading-kernel development to prevent larval feeding damage.* Look for the fecal pellets, feeding defoliation on leaves or clipped heads.

The economic threshold is *4-5 armyworm larvae per square foot.* Treatment is recommended if the following conditions are met:

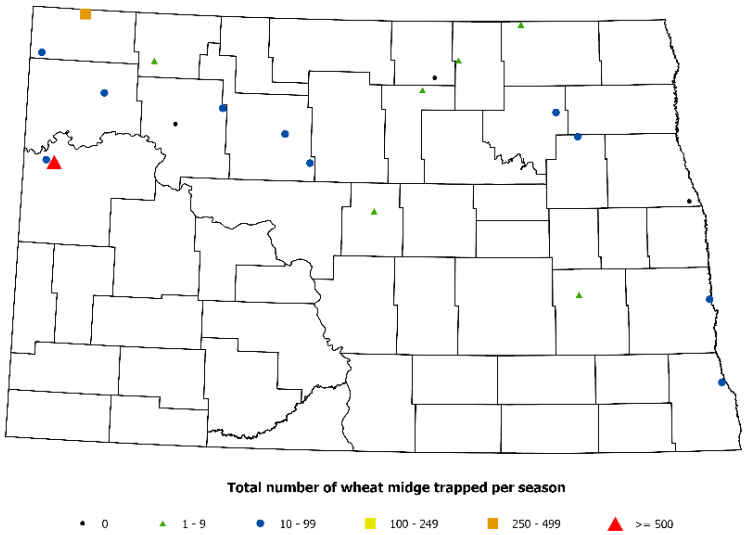
- ✓ Armyworms are ¾ to 1¼ inches long
- ✓ Most larvae do not exhibit signs of being parasitized by wasps (white eggs behind the head or small brown cocoons attached to the body)
- ✓ Leaf feeding or head clipping is evident.

If armyworms are more than 1¼ inches long, control is unlikely to provide an economic return. The use of insecticides is a common and effective method for managing economic populations of armyworm. When larvae are larger than 1¼ inches, no insecticide is recommended because they are mature and will soon pupate (non-feeding life stage). In this situation, the damage has already been done.

For more information, see NDSU Extension: The Armyworm and the Army Cutworm (E830, revised).

Armyworm damaged wheat in Pierce County near Wolford (Scott Knoke, Benson Co. Extension agent)

IPM INSECT TRAP REPORT



Here are some reports from last week's IPM trapping (June 29 - July 3, 2026).

Wheat midge flights probably peaked this last week. Hot spots were in northwest North Dakota, including McKenzie (1201 midge per trap) and Divide Counties (326 midge per trap). Wheat crop stages range from 30 (stem elongation) to 73 (early milk).

Trapping documents the distribution of the wheat midge and the parasitoids captured, and guides scouting efforts and IPM practices. Wheat midge trap counts do not predict economic population levels. Still, pheromone traps indicate the need to scout fields for wheat midge during the egg-laying susceptible period, from heading through mid-flowering (50% flowering). Effective scouting occurs at night (after 8:30 p.m.), with light winds <6 mph, and temperatures above 59 F. Visit three or four different sites in the field. Look for the tiny, orange wheat midge fly, which flutters around wheat heads. At each location, count the number of adult wheat midge on several sets of wheat heads (four to eight heads per set). Record the number of wheat midge flies and calculate your average for the field.

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

Wheat midge (Saskatoon Research Centre, Canada)

Sunflower Insect Trapping Update

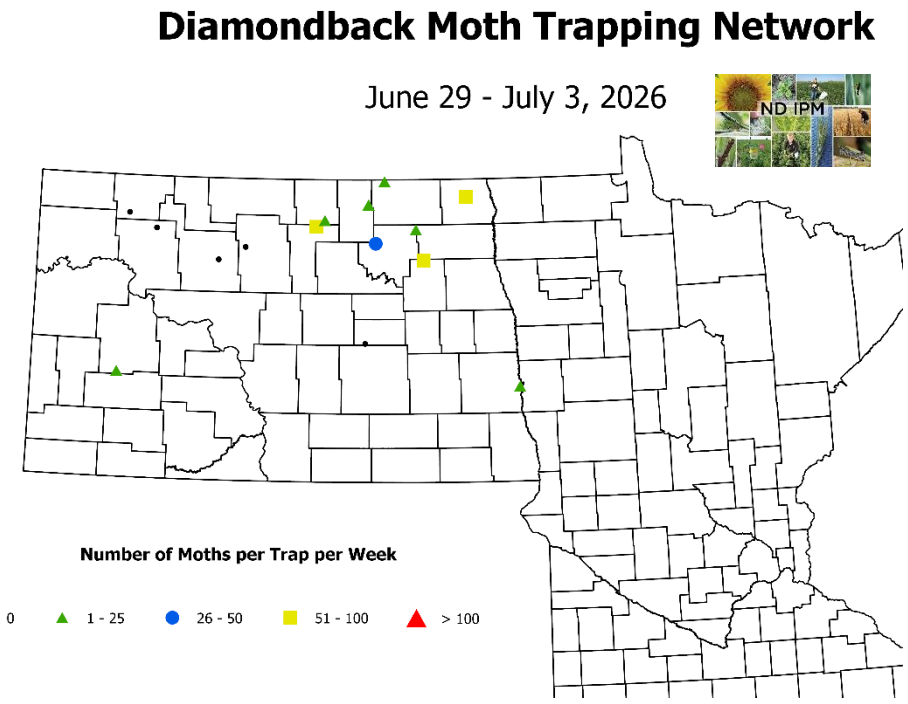
Banded sunflower moth was trapped at one site in Cass County (7 moths per trap per week). **Arthur's sunflower moths** were detected at three sites, with only 1 moth per trap: Dunn County (2 sites) in the southwest region, and Bottineau County (1 site) in the north central region. No **sunflower moths** that migrate up into North Dakota have been captured yet. The current sunflower crop is at stages V1-V12 to R1 (miniature terminal bud).

Visit the IPM trapping website to view sunflower insect trapping maps: https://www.ndsu.edu/agriculture/ag-hub/ag-topics/crop-production/diseases-insects-and-weeds/integrated-pest-management/sunflower-1

Canola Insect Trapping Update

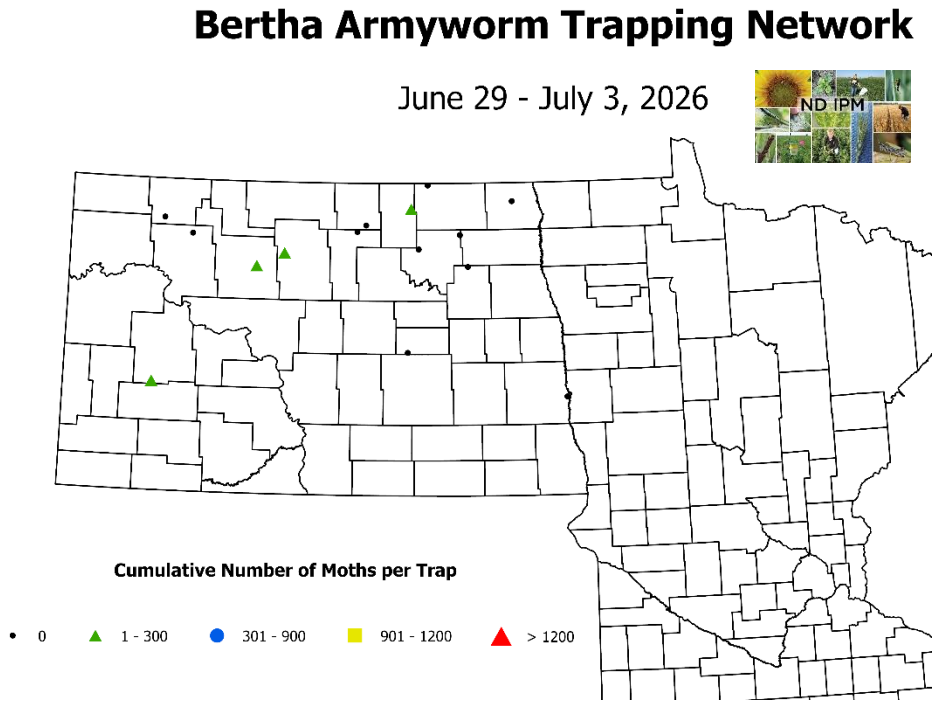
Canola crop stages ranged from 2 (rosette stage) to 4.3 (lower pods starting to fill).

Diamondback moth trap catches ranged from 0 to 94 moths per trap per week for the last week. The hot spots were in Nelson County (94 moths per trap), Pierce County (74 moths per trap) and Pembina County (52 moths per week).



Several natural factors can negatively affect populations of diamondback moths. Heavy rain occurring throughout the state can drown many larvae of the first or second generation. Humid conditions associated with rain can also favor the development of lethal fungal diseases, such as Entomophthorales. The crop is most susceptible to diamondback moth larval feeding injury from blooming to early pod development.

Bertha armyworm counts continue to be below the cumulative moth threshold of >300 moths at all trap sites. The cumulative moth count serves as a predictive risk indicator of larval infestation in the field and as a guide for when to scout fields. Early detection of adult moths through pheromone trapping also helps to determine the relative abundance of bertha armyworm in an area.



The crop is most susceptible to Bertha armyworm larval feeding injury during pod development.

Janet J. Knodel
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plant pathology

FEATURED MATCHUP: NDSU PLANT PATHOLOGISTS VS. WHITE MOLD

Players to Watch:

- *Sclerotinia sclerotiorum*

Figure 1. Sclerotinia sclerotiorum (white mold) attacking sunflower floret

Scouting Report:

- Attacks broadleaf crops; canola, dry bean, soybean, sunflower and more.
- Attacks broadleaf weeds.
- Produces tan colored lesions, fuzzy white mold and plant shredding.

Opponent's Game Plan:

- Wait… wait… wait… Attack At Bloom!
- Attack the weak link's first – the flower petals of broadleaf plants
- Move from the flowers to healthy green tissue.
- Progress through the plant and spread to other with plant-to-plant contact
- As plants mature/die, develop sclerotia (hard black structures) to survive and fight another day

Opponent's Strengths:

- Wet soil before and during bloom
- Cool to moderate temperatures
- Thick canopies, long dew periods, fog, frequent rains

Figure 2. White mold causing tan-colored and shredding lesion on canola stem

Opponent's Weaknesses:

- Crop rotation among broadleaf crops
- Improving genetic resistance in some crops
- Forecasting models and risk maps
- Optimized, well-timed, fungicide applications when risk is high

Trick Play to Watch:

- *Sclerotinia sclerotiorum* can infect some plants through their roots (especially sunflower)

Figure 3. White mold, tan lesion and black sclerotia on soybean stem and pod

Figure 4. Entire sunflower head skeltonized by Sclerotinia sclerotiorum (white mold).

Figure 5. Sclerotia and white mold on dry bean pod at the end of the season.

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WHITE MOLD UPDATE ACROSS THE STATE

Soybean

While driving back from Fourth of July celebrations, I noticed lots of sprayers out in soybean fields, most likely spraying for white mold. For most of the state, the application of fungicides in soybeans is recommended by the NDAWN risk map, with the exception of the southeastern portions of the state which is in the medium risk category, especially in the Red River Valley which is desperate for some rain. With some hot and potentially dry weather ahead in the forecast, I suspect that white mold risk may be coming back down from the high values we are currently experiencing.

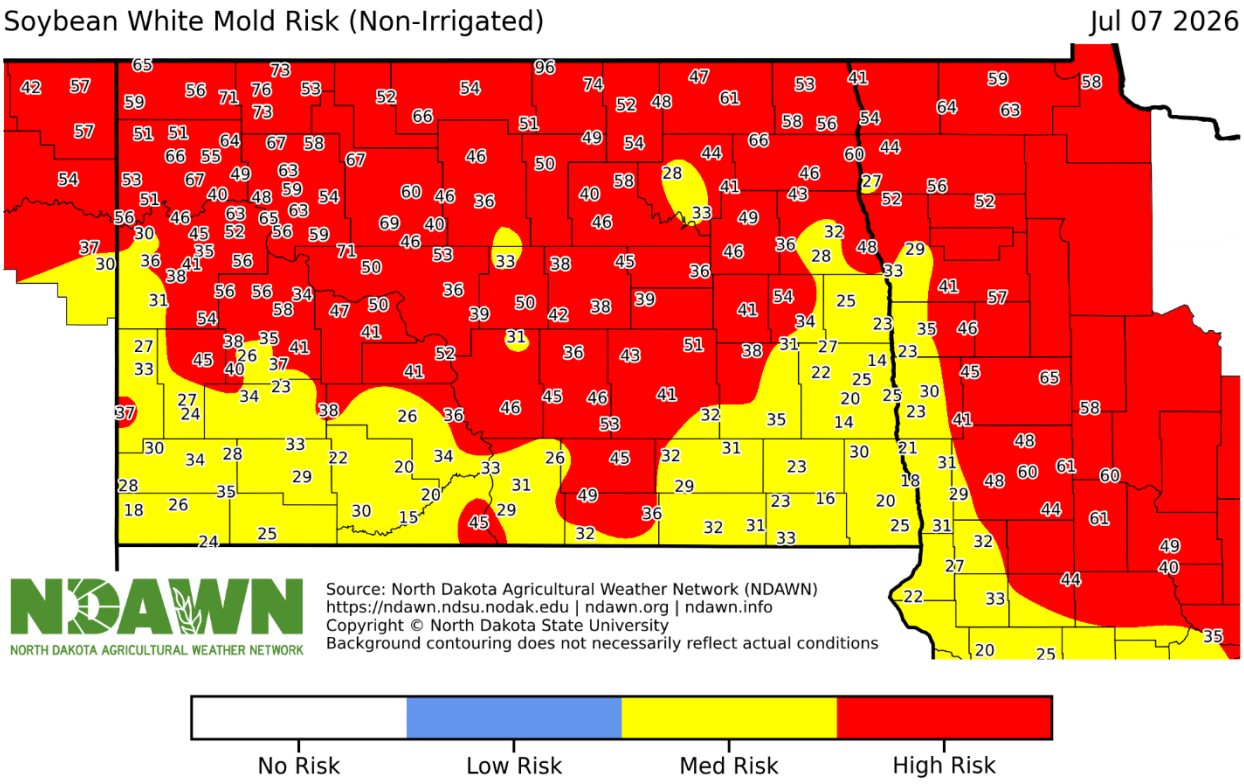

Figure 1. Soybean white mold risk maps as of July 7th, 2026.

Canola

Canola is in various stages of bloom throughout the region, making much/most of the crop susceptible to infection. Risk remains elevated for much of the canola-growing parts of the state. Like last week, hot temperatures (above 85F) are forecast in some of the state, which may reduce infection likelihood in some regions. Importantly, the 7/7/26 map does not yet reflect new rain received on 7/7 or 7/8, so it is likely risk will change by the time this article is in print (Thursday, 7/9). Please check the latest map for updates here:

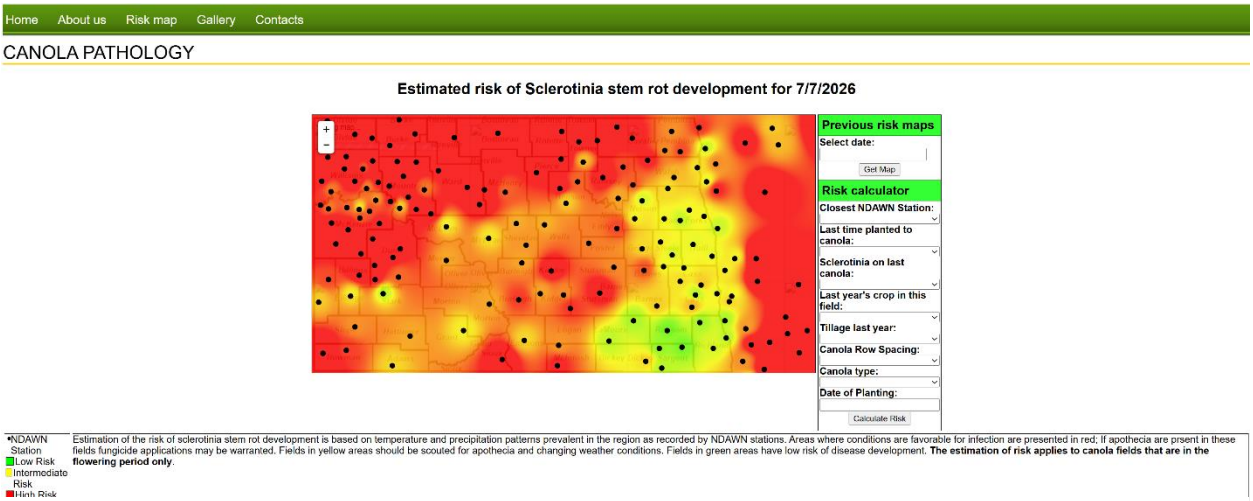

Figure 2. Sclerotinia stem rot risk in canola as of July 7th, 2026.

Dry Bean

Like canola, soybean and other crops, dry beans become susceptible when they begin flowering. Although we have no specific white mold risk map or tool for dry bean, the soybean and canola risk may be useful as they are built to forecast infection of the same pathogen. When considering the risk of white mold in your fields, to consider weather-related risk factors (soil wetness, canopy wetness, temperatures), crop condition (canopy density and closure) and production considerations (crop rotation, field history, genetics). For more information on how these factors influence risk, please refer back to the June 25th, 2026 Crop and Pest Report article 'Preparing for White Mold'.

WHY CANOPY CLOSURE MATTERS FOR WHITE MOLD DEVELOPMENT

As soybean fields across North Dakota approach flowering, many fields are also nearing canopy closure. While canopy closure is often viewed as a milestone for suppressing weeds and maximizing yield potential, it also is an important point in the development of white mold. The white mold fungus, *Sclerotinia sclerotiorum*, survives in the soil as hardened survival structures called sclerotia. Before soybean plants can become infected through flower tissue, these sclerotia must first germinate and produce small mushroom-like structures called apothecia. These apothecia have the potential to release millions of airborne spores that land on senescing soybean flowers and initiate infection.

Figure 1. Cluster of S. sclerotiorum apothecia.

For apothecia to develop, the soil surface must remain consistently cool, moist, and shaded. An open soybean canopy allows sunlight to reach the soil surface, increasing temperatures and reducing humidity. As the canopy closes, however, the environment beneath the plants changes dramatically. The dense canopy blocks sunlight, reduces air movement, conserves soil moisture, and creates the humid microclimate that favors apothecial development.

Research from across the North-Central region has demonstrated just how important canopy closure is. This work found that apothecia rarely developed until soybean canopies reached approximately 87% canopy closure, highlighting that a dense canopy is one of the key requirements for the start of the white mold disease cycle. This finding helps explain why fields with wider rows, lower plant populations, or delayed canopy closure often experience less white mold than fields that rapidly develop a dense canopy.

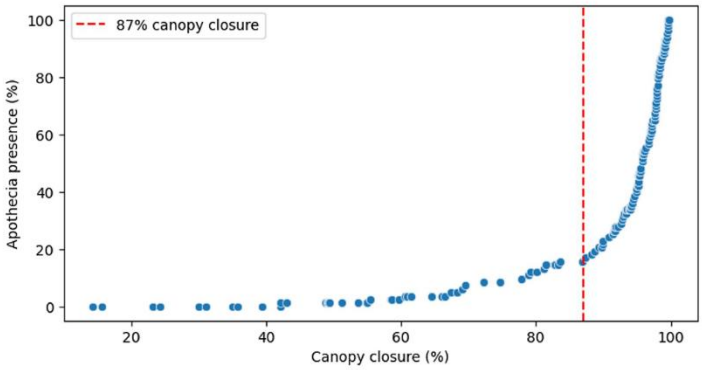

Figure 2. Graph showing the percentage of S. sclerotiorum apothecial presence as related to canopy closure (%). Credit: Check et al. 2025. Multi-Crop Sclerotinia sclerotiorum Apothecia Prediction Models for Irrigated Environments are Improved by On-Site Weather Monitoring and Supervised Machine Learning

Earlier research from Michigan State University found similar results that canopy closure strongly influenced both the timing and the abundance of apothecia. As the canopy closed, more apothecia were produced, and areas directly beneath the soybean row consistently were found with more apothecia than portions of exposed soil between rows. They also observed that the shaded environment beneath the canopy was essential, and no apothecia developed under full sunlight.

As you scout soybean fields over the next several weeks, pay close attention to canopy development in addition to the weather forecast. Fields with narrow rows, high plant populations, excellent fertility, or historically high white mold pressure are often the first to develop the dense canopy needed for apothecial production. These should be the fields that receive priority when evaluating disease risk and determining whether a fungicide application is needed this season.

FUNGICIDE CHOICE MATTERS – A CLOSER LOOK AT SOYBEAN DATA

While the decision to spray for white mold is important, which product you choose may be just as important as deciding when to spray in the first place. A recent multi-state multi-year study evaluated dozens of fungicide application programs in soybean across the North Central United States and found that not all products provide the same level of white mold suppression. Programs containing the most effective active ingredients consistently reduced disease and were more likely to protect yield than less effective products. Simply applying "a fungicide" is not enough. Selecting a product with data-driven and consistent activity against white mold is critical for maximizing the return on your investment.

Table 1. List of pesticide programs evaluated for their yield protection. Credit: Renfroe-Becton et al. 2025. Meta-Analytic and Economic Evaluation of Fungicide Programs Applied for Managing Sclerotinia Stem Rot in Soybean Across the North Central United States

Pesticide Program[a]	Number of trials evaluated	Estimated Yield Protection (bu/acre)[b]
Approach R1 fb Aproach R3	5	1.89
Cobra R1	13	-1.18
Cobra R1 fb Domark R3	5	−4.34
Cobra V4/V5	14	2.96
Cobra V4/V5 fb Domark R3	9	3.12
Delaro Complete R2	5	0.03
Delaro Complete R3	10	4.15
Domark R1	4	−0.41
Endura R1	7	1.08
Endura@R1 fb Endura@R3	18	5.64
Endura@R1 fb Priaxor R3	4	4.39
Endura R2	5	3.27
Endura R3	22	3.29
Endura Predictive Model	16	2.93
Heads Up SDTRT	9	−0.27
Heads Up SDTRT fb Domark R3	9	0.73
Omega R1 fb R3	9	1.14
Omega R1 fb Miravis Neo R3	14	0.67
Omega R3	17	2.00
Omega Predictive Model	8	4.58
Lucento V4/V5	4	0.64
Miravis Neo R2	5	−1.08
Miravis Neo R3	10	2.02
NanoStress R1	4	−2.88
Oxidate 2.0 R1 fb R3	4	0.29
Oxidate 5.0 R1 fb R3 fb R4	4	1.22
Phostrol + Topsin R3	5	1.66
Procidic R1 fb Procidic R4	4	1.98
Propulse R1 fb Delaro Complete R3	5	−2.58

[a] V4/V5 = 4 or 5 open trifoliates with no flowers present, R1 = beginning of flowering, R2 = full flowering, R3 = beginning of pod development, fb = followed by, SDTRT = seed treatment, Predictive Model = applications made if advised by risk prediction models on CPN Crop Risk Tool.
[b] Yield protection relative to non-treated plots.

Another important finding from this work is that soybean plants can tolerate a surprising amount of disease before major yield losses occur. Although measurable yield reductions begin as early as 5% disease incidence (%, number of plants severity affected by white mold), the greatest yield losses occur when white mold disease incidence was 20% or higher. In other words, a few scattered infected plants do not necessarily translate into large yield losses. This reinforces the

importance of assessing disease pressure before making management decisions rather than assuming every field with white mold requires the same response.

This work allowed us to develop and now release the new Crop Protection Network Fungicide ROI Calculators. This free, research-based tool allows anyone to estimate the likelihood that a fungicide application will pay for itself based on expected disease severity, soybean price, application costs, and product performance. Rather than relying on a single "yes or no" recommendation, the calculator helps users determine whether an application is likely to provide an economic return under their specific conditions. This work is continuing to be developed with new programs being added every few years as new data becomes available.

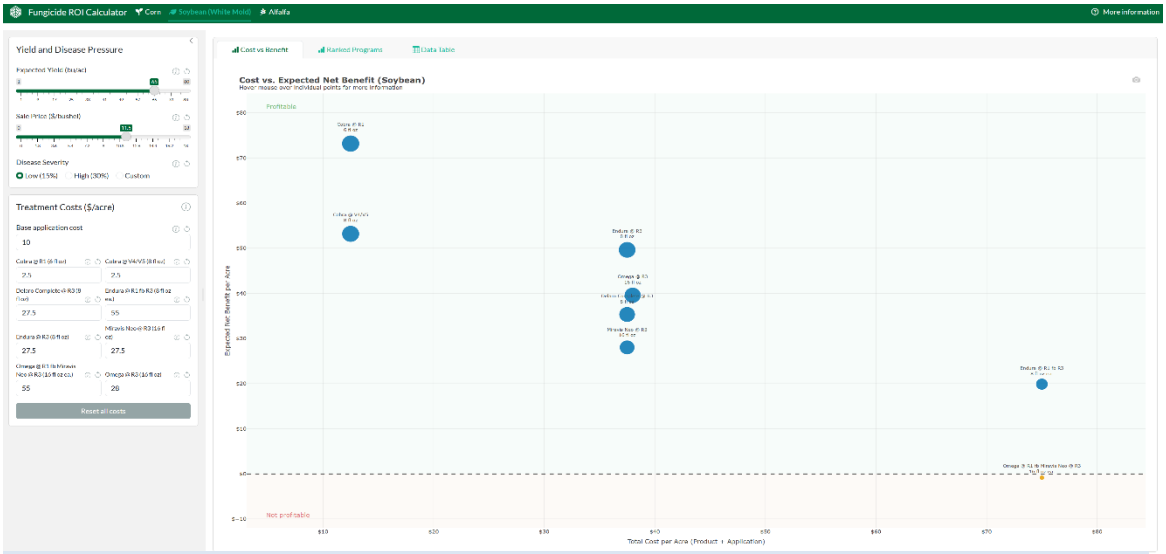

Figure 1. Example of a soybean white mold ROI calculation through Crop Protection

Another great resource for product selection is the annual Crop Protection Network Soybean Foliar Fungicide Efficacy Table which summarizes the relative efficacy of fungicides against soybean foliar diseases, including white mold. Products receiving higher efficacy ratings have consistently performed better across multiple years and locations and should be prioritized when disease risk justifies an application. These ratings are developed by unbiased University research conducted across the United States and they are updated annually.

Figure 2. Soybean foliar fungicide efficacy tables through Crop Protection Network.

OPTIMIZING THE APPLICATION MATTERS – A BRIEF SUMMARY OF DRY BEAN RESULTS

Over the last 10-15 years, Dr. Michael Wunsch at the Carrington Research Extension Center has consistently demonstrated the power of 'optimizing' the application. After all, if you are going to invest in a fungicide application, let's get the most from it we can! Dr. Wunsch's information is well-organized and available on the Plant Pathology section of the Carrington REC. Although I can't do justice to the gravity of his findings in this brief article, I will do my best to quickly summarize and direct you to the summary information he has prepared. *Please keep in mind that he often has high disease pressure!*

On the Carrington REC – Plant Pathology page, scroll down to the third header '*Optimizing the management of white mold in dry beans with fungicides*'. You will find five drop-down menus.

1. Comparative fungicide efficacy. Under this drop-down menu, you will find both detailed and summary reports from fungicide efficacy work that includes (in no particular order); Aproach, Miravis Neo, Priaxor, Badge, Endura Omega, Proline, Propulse, Quash, Rovral, Switch, Vertisan and Topsin. These are presented in various ways (some head-to-head, some rate differences). In addition to the reports, Dr. Wunsch provides a video summary of some of the work. In summary, multiple products can provide some level of management for white mold, but important differences among them exist.

2. Optimizing fungicide droplet size. Dr. Wunsch presents a high level of detail (report and video) on the topic for both pinto and kidney beans, but it is reasonable to believe that the general concepts apply to other market classes. In general, as the canopy closes, droplet size should be increased to optimize the application.

3. Optimizing fungicide application timing when conditions favor white mold as dry beans enter bloom. In an April 2026 update, Dr. Wunsch discusses the importance of timing in Pinto, Kidney, Black and Navy beans. In general, results suggest that if a single application for white mold is made, efficacy was often maximized when the application was delayed until the majority of plants had initial pin pods. If two applications were made, efficacy was optimized by applying the first application a few days early (such as when 10-20% of the plants had initial pin pods).

4. Optimizing fungicide application internal (days between applications) and frequency (number of applications). In another April 2026 update, Dr. Wunsch presents recent optimization work for those who are considering two or more applications to manage white mold. He presents several findings, related to interval and efficacy, and while I can't do justice to the nuances of the work in this article, I briefly mention that under the *very high disease pressure* of this trials, multiple applications are found to increase efficacy, when three applications were made the interval could be tightened, and rotating chemistries in 2 and/or 3 application sequences improved efficacy.

5. Optimizing fungicide spray volume. Over the last several years, Dr. Wunsch has worked to optimize spray volume. Across the Pinto and Kidney studies, he found no, little, and/or differences when comparing (and increasing) volumes of 10, 15, 20 or 25 gal/ac. It is very important to note that Dr. Wunsch conducted there trials under *optimal* spray conditions (using his learnings from the work above), and that it is certainly possible a stronger response to increased spray volume could occur in suboptimal spray environments.

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Extension Plant Pathology, Broadleaf Crops

BACTERIAL LEAF STREAK OF WHEAT AND BARLEY LIKELY TO INCREASE

The IPM survey scouts reported bacterial leaf streak (BLS) in 21% of the scouted wheat fields in MN and 9% of the scouted wheat fields in ND (Figure 1). Last week, BLS was identified in 13% of the scouted barley fields in ND (Figure 1). Given the severe storms, high humidity, and general susceptibility levels in popular varieties, I am expecting BLS reports to increase. Early symptoms of BLS in both wheat and barley will begin as water-soaked lesions on the flag leaf (look like a grease spot). The BLS lesions in wheat will appear more linear, often containing bacterial ooze within the lesion, and eventually result in yellow to brown lesions covering the flag leaf (Figure 2). In barley, water-soaked lesions will also turn yellow to brown, but appear "blotchier" in appearance (Figure 3). As

Figure 1. Bacterial leaf streak on wheat (left) and barley (right) – Photo by McKenna Schneider – Langdon REC IPM Scout.

a reminder, fungicides are not effective in controlling BLS in wheat or barley. At NDSU, we have tested several products with bactericidal properties, however none of the products resulted in disease reduction in the field. The best management tool for BLS is the use of resistant varieties (rated 5 or less in the hard red spring wheat variety selection guide).

Figure 2. Bacterial leaf streak of wheat at various stages of disease development. Note water-soaking, ooze, and yellow to brown lesions.

Figure 3. Bacterial leaf streak of barley at various stages of disease development. Note water-soaking and "blotchier" leaf lesions.

FUSARIUM HEAD BLIGHT (SCAB) RISK

Scab risk still remains moderate to high on susceptible and moderately susceptible varieties for a large area in North Dakota (Figures 1 and 2). Scab risk for moderately resistant varieties is low, except for some areas along the Canadian border. The areas of the state with the greatest scab risk are the northern third of the state (north of Lake Sakakawea) and along the James River Valley. Extended dew periods, higher humidity and sporadic rain storms will continue this week and likely keep scab risk elevated for the next five to seven days. Continue to monitor growth stages in your small grain fields and check susceptibility ratings for your varieties in the NDSU hard red spring wheat and durum variety selection guides.

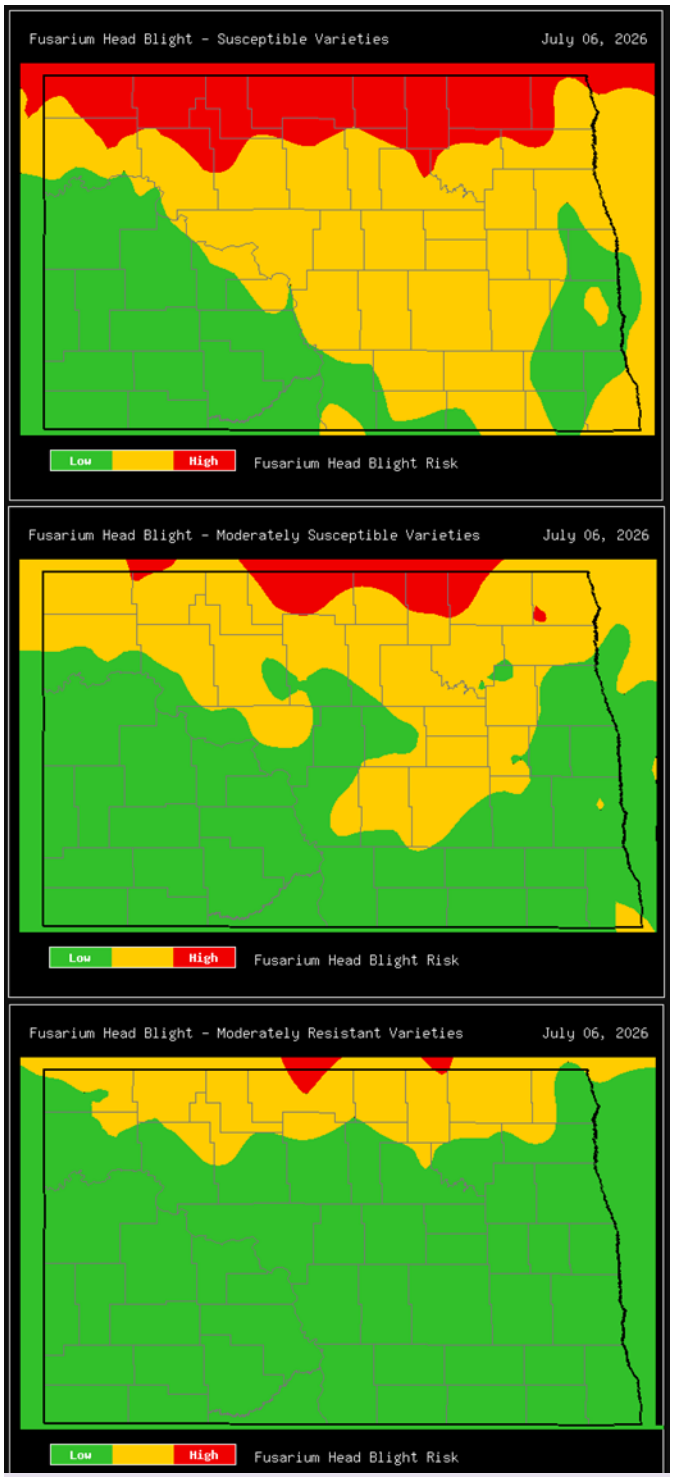

Figure 1. Scab risk for susceptible (top), moderately susceptible (middle) and moderately resistant (bottom) varieities in North Dakota according to the NDSU Small Grain Disease Forecasting site (red = high risk; yellow = moderate risk; green = low risk).

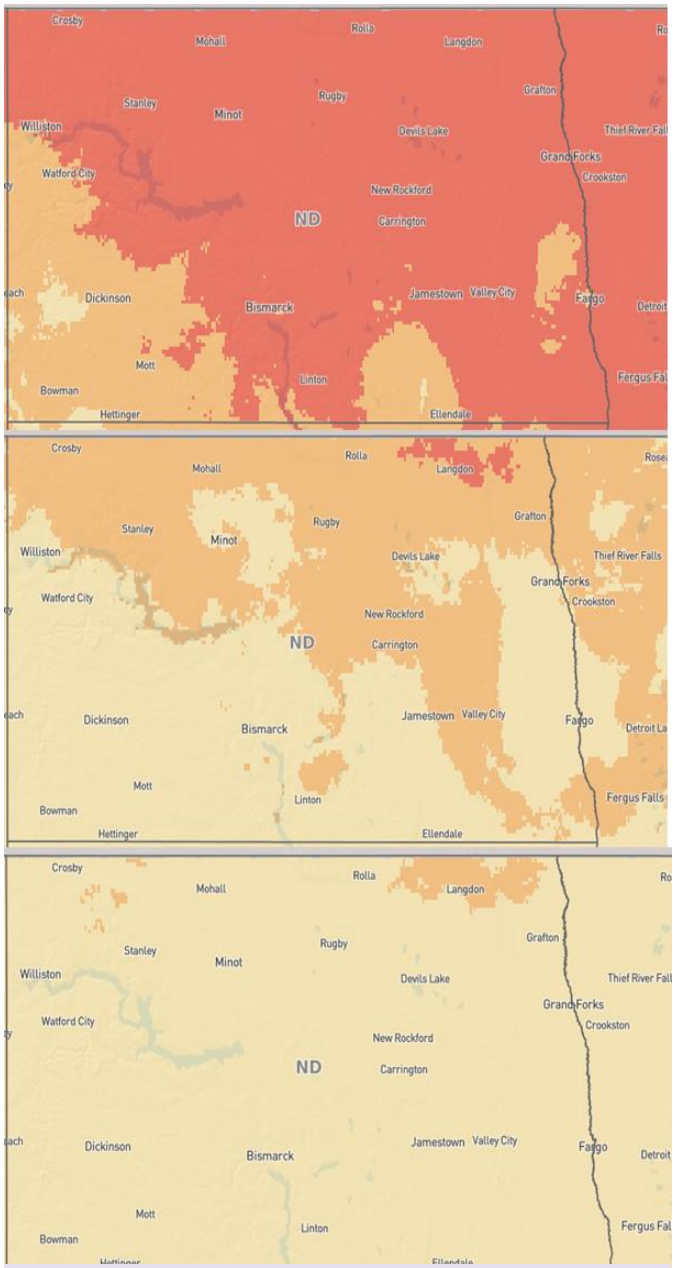

Figure 2. Scab risk for susceptible (top), moderately susceptible (middle) and moderately resistant (bottom) varieities in North Dakota according to the USWBSI FHB Risk Tool (red = high risk; orange = moderate risk; yellow = low

Andrew Friskop
Extension Plant Pathology, Cereal Crops

HOW DO STORMS, HAIL, AND ADVERSE WEATHER AFFECT SUGARBEET DISEASES?

Summer heat and humidity in the Red River Valley often bring thunderstorms complete with strong winds, heavy rain, and possibly hail. At this point in the season, the sugarbeet canopy is the greatest asset to the developing crop. Row closure occurs, covering the soil and maximizing the amount of sunlight intercepted for photosynthesis and sucrose production. A full sugarbeet canopy also shades out weeds. Depending on the severity and timing of any damage from storms or hail, there can be an increased risk for foliar diseases, including bacterial leaf spot, Cercospora leaf spot (CLS), and secondary infections such as Alternaria.

Figure 1. Sugarbeet leaf with symptoms of bacterial leaf spot. Leaf margins may also be affected. Damage for heavy winds and rain is also visible (Photo: Eric Branch)

Increased moisture is the main risk from the humid and stormy part of the summer. Free water (rainfall or dew) contributes to CLS through spore germination and infection. Practically all fungi and bacteria thrive in moist environments. Root diseases are also favored by moist soil conditions.

Many bacteria and fungi require wounds, existing infections, or other stress on the plant in order to enter leaf tissue and become pathogens. Or, asymptomatic infections can be triggered to start causing visible symptoms. Several of these are relevant to sugarbeet.

Bacterial leaf spot:

Symptoms of bacterial leaf spot, caused by *Pseudomonas syringae* pv. *aptata*, often appears after wind and heavy rain associated with storm events. However, the pathogen prefers cooler, moist weather. Bacterial leaf spot lesions (Figure 1) are irregular in shape and darker in color than Cercospora leaf spot, and often affect leaf margins

Figure 2. Symptoms of Alternaria leaf spot on a sugarbeet leaf. Lesions often develop and lead to large necrotic regions. Photo: Eric Branch

Alternaria leaf spot:

Several small-spored fungi within *Alternaria* can contribute to infections of Alternaria leaf spot; these are weak pathogens, and usually require some type of physical damage to cause symptoms (Figure 2). *Alternaria* fungi can also infect Cercospora lesions in sugarbeet, causing a co-infection of multiple pathogens.

Despite the concern that arises with any disease symptoms on sugarbeet leaves, **Cercospora leaf spot is the main disease causing economic losses in sugarbeet**. Rainfall greatly increases CLS risk. Fungicide application intervals should be shortened following heavy rain events (for example, 8-10 days

instead of 12 days). Unfortunately, with frequent rain working in fields can be challenging.

There are three takeaway messages:

1. Foliar stress (from the environment or disease) can increase risk of CLS
2. The best way to protect sugarbeet foliage (and yield potential) Is to prevent the most serious disease (CLS) from becoming severe and reaching economic thresholds.
3. Alternaria leaf spot is controlled by the Cercospora leaf spot fungicide program; no additions have been shown to further benefit yield.

The bottom line: Continuing the CLS fungicide program—and shortening intervals where necessary—is the best way to protect and promote sugarbeet crop health throughout the summer.

Eric Branch
Extension Plant Pathology, Sugarbeets
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plant science

NDSU EXTENSION TO HOST DRY BEAN FIELD DAYS IN FOREST RIVER AND HATTON

NDSU Extension, in partnership with the **Northarvest Bean Growers Association**, will host two Dry Bean Field Days on **July 21** in **Forest River, North Dakota**, and **July 22** in **Hatton, North Dakota**.

The field days will provide growers, crop advisers, industry professionals, and researchers with the opportunity to learn about the latest advances in dry bean production through field demonstrations and discussions led by NDSU specialists.

The program will feature a guided tour of the NDSU dry bean breeding nursery led by **Juan Osorno**, NDSU professor and dry bean breeder. Attendees will have the opportunity to explore promising new dry bean varieties currently in the breeding pipeline and learn about the traits and characteristics being developed for future commercial release.

Ana Carcedo will discuss inoculation strategies for dry beans to optimize nitrogen use, improve crop productivity, and maximize economic returns. Additional presentations include weed management

updates from **Joe Ikley**, NDSU Extension weed specialist, and disease management recommendations from **Sam Markell**, NDSU Extension plant pathologist. Both sessions will focus on practical, integrated management strategies to help producers address some of the most important production challenges facing dry bean growers.

Following the presentations, attendees will have the opportunity to ask questions and interact directly with the speakers during an open discussion.

Participation is free, and lunch will be provided. Registration is requested to assist organizers with meal planning. Register here: https://ndstate.co1.qualtrics.com/jfe/form/SV_3NVJVJoD6nUYVoO The Dry Bean Field Days are made possible through the support of the **Northarvest Bean Growers Association**.

For more information or to register, contact **Ana Carcedo** at **701-831-5796** or **a.carcedo@ndsu.edu**,

Ana Carcedo
Broadleaf Crop Agronomist

FLUFFY SOIL SYNDROME

While things on the soil fertility-front have been fairly quiet this year compared to last (fewer micronutrient deficiencies), we still have had a few problems popping up the past couple of weeks. Perhaps the most unique challenge lately is *Fluffy Soil Syndrome*.

What is Fluffy Soil Syndrome?
Fluffy Soil Syndrome (FSS) occurs when crops planted into fluffy soil struggle to take up water and nutrients (most notably K) due to lack of particle-to-particle and particle-to-root contact. A telltale sign of FSS is uneven crop growth, where plants in wheel tracks or low-lying areas often appear healthier because the slightly firmer soil provides better seed-to-soil contact and moisture movement (Figure 1). Researchers at NDSU and UMN first documented the condition after several dry winters in the Upper Midwest and Northern Great Plains, where producers observed disappointing stands despite otherwise good planting and soil conditions.

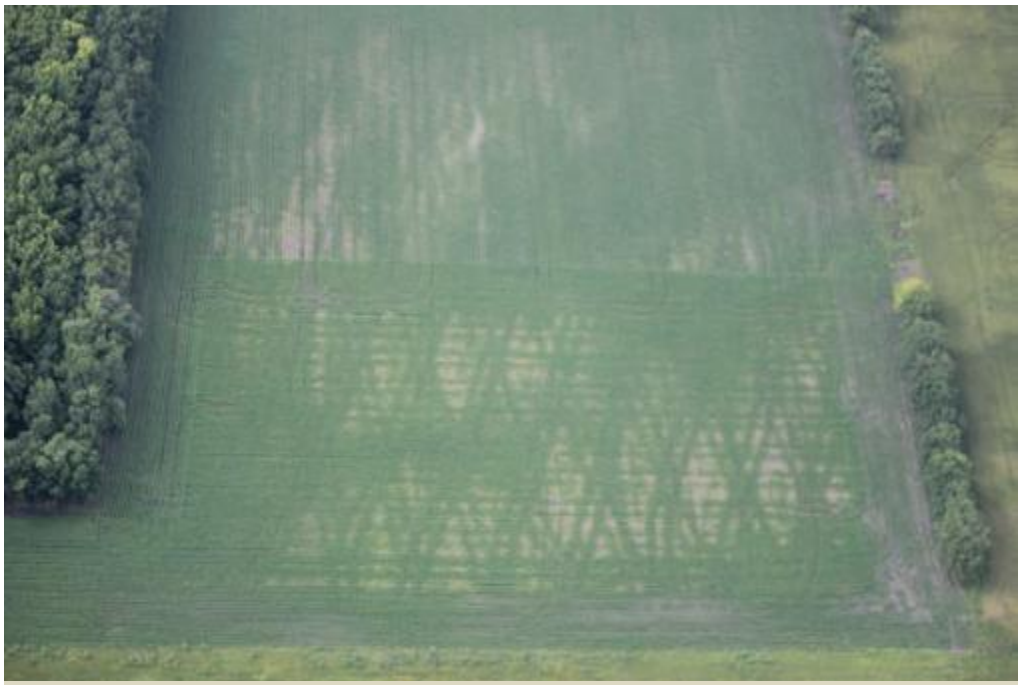

Figure 1. A field suffering from Fluffy Soil Syndrome. Poor soil particle-to-particle contact is detrimental to crop performance compared to the compressed wheel-tracks (Source: Fluffy soil syndrome: When tilled soil does not settle).

How does it develop?
Typically, following tillage events the fluffy, worked soil will be settled with freeze-thaw and wetting-drying events. However, in dry years with aggressive spring tillage, the soil does not settle resulting in fluffy, structureless, soil with high air-filled pore space. The lack of good particle contact then harms the crops by reducing water movement to the seed, reducing germination and increasing drought stress if the crop does germinate. If FSS continues to persist into the growing season, plants may struggle to take up nutrients from the soil and develop deficiency symptoms. If soil samples are collected in "good" and "bad" areas of an FSS field, areas with deficiency symptoms will likely have similar soil test levels compared to the good areas. Tillage practices which aggressively loosen the soil at the seeding and early rooting depths lead to FSS. Shallow vertical tillage (while being problematic in other ways) will not typically contribute to FSS.

Where has it shown up?
Reports of FSS have come across my desk from areas in Cass, Traill, and Steele counties, concentrated in areas with water deficits in the upper soil profile, receiving 3-4 inches or less precipitation since May 1st, based on NDAWN data.

For more information, check out the journal article "Fluffy soil syndrome: When tilled soil does not settle" by Aaron Daigh and Jodi DeJong-Hughes.

Brady Goettl
Extension Soil Specialist

COMMON QUESTIONS AND COMPLAINTS IN 2026

2026 has been another year of variable weather across the state, which always leads to variability in weed control. Many herbicide applications take place in May and June, and the questions and complaints will persist through July and August. Here are a few of the common themes throughout this season to date:

Wind. It has been a challenging season to find windows to make applications without risk of drift. This has led some folks to hold off until conditions improve, while others threw caution (and herbicide) to the wind. No matter how we slice it, the tight windows for application have led to many issues. Sprayer sanitation has been an issue in several cases (difficult to keep up with complete clean out), while particle drift has also occurred in many instances.

Carryover. There have been a number of questions about herbicide carryover. The top culprits coming across my desk have been clopyralid and fomesafen. This has caught many folks by surprise, as last year did not seem extraordinarily dry. However it is important to remember all factors that play into carryover. We need rainfall after application, while we have warm weather. A wet September and October does not automatically erase potential for carryover, as soils are cooler, and the microbes responsible for degrading herbicides are not as active as they are during the summer months. Expect more risk in sandy soils with low organic matter.

Weed escapes on postemergence applications. This is indeed a problem every year. Many early complaints have been from wild oat or green foxtail being prevalent after a glyphosate burndown. We observed this in research plots as well, but we can also track that emergence occurred after that application. We have yet to find a wild oat or a foxtail that is resistant to glyphosate anywhere in the world. Not saying it's impossible, but we do often see emergence after that glyphosate application. Other complaints have been from waterhemp escaping dicamba and/or Group 27 herbicides in corn or small grains. I do not expect complete control of waterhemp from dicamba applied at less than 0.5 pounds (the soybean rate). So if that is the sole effective site of action applied, that unfortunately is not surprising. I would say I have similar expectations of a Group 27 herbicide applied alone. Preferably we include a Group 5 (atrazine) or Group 6 (bromoxynil) herbicide with every Group 27 application. For many of our waterhemp populations, we likely need 3 effective sites of action in the tank to expect complete control. This seems especially pertinent this year where we have lacked humidity in many areas which has challenged many of our contact herbicides compared to the last 2-3 years.

Crop Injury. Two sites of action have stood out this year. The Group 15 herbicides seem to be injurious across crops. Dicamba in corn has caused a few issues this year too. Mix the two together, and injury has increased. We don't often talk about Group 4/dicamba sensitivity in corn hybrids, but there are known differences. We are learning (or re-learning) this in many cases this year. If someone plans to use generic or non-safened dicamba, it's a good idea to have a conversation with your seed representative about potential issues. Group 15 herbicides do not

always cause injury, but this year we can find cases of crop injury in many crops, regardless of specific active ingredient. One common lesson has been that the acetochlor cutoff on corn is 11-inch corn. When corn is taller than that, the risk for injury increases as we'll see necrosis on the leaves coming out of the whorl during those applications.

Residual Herbicides. I want to end with good news. I have not heard many complaints from folks who applied residual herbicides. Yes, they will break and we'll need a postemergence application to clean up fields. But those who took time to apply a residual in the fall, or right before/after planting are generally sitting ok right now. There are always exceptions depending on the herbicide used and the environment. But whether it's been too wet, too dry, or just right for moisture, we always see the benefit from residual herbicides, especially when combining 2-3 effective sites of action.

PLANTING COVER CROPS AFTER RESIDUAL HERBICIDES

Many areas have crop failures due to hail or flooding. A common question over the last week has been what to do with these fields in order to plant a cover crop to ensure it does not remain bare the rest of the year. Most questions coming in have been about risk of planting cover crops after a residual herbicide application. There are a few important legal and biological points of consideration. If the crop planted into these areas is to be harvested for grain or forage, then rotational intervals on herbicides labels must be strictly followed. If the goal is to get something growing for ground cover to help mitigate weed pressure and other issues, then there is some more flexibility in the answer.

Pages 105 and 106 in the Weed Guide have tables presenting several years of data applying common herbicides in small grains, soybean, and corn, and the inherent risk of planting cover crops after crop harvest (Figures 1, 2, and 3). In general, small grains are a safe choice to plant in these hailed out or drowned out situations. When injury is observed, it is often transient, and the crops will still produce biomass to help with weed suppression. Brassica and legume crops have more risk across certain herbicide active ingredients. Small grain cover crops would also allow selective application of Group 4 herbicides to help further suppress or control broadleaf weeds throughout the summer.

Risk of cover crop injury based on highest damage from wheat herbicides recorded at 5 ND locations in 2016-2017.

Herbicide*	Radish	Turnip	Field pea	Lentil	Flax	Oat	Barley	Dwarf Essex Rape
Dicamba	MR	HR	LR	MR	MR	LR	MR	MR
Everest	MR	MR	LR	MR	LR	LR	LR	MR
Goldsky	MR	MR	LR	LR	MR	LR	LR	LR
Huskie	LR	LR	LR	LR	MR	LR	LR	MR
PowerFlex	LR	LR	LR	MR	MR	LR	LR	MR
Quelex	MR	MR	LR	LR	LR	LR	LR	LR
Supremacy	LR	LR	LR	LR	LR	LR	LR	LR
Varro	MR	LR	LR	LR	LR	LR	MR	LR
WideMatch	MR	MR	HR	HR	LR	LR	LR	MR
2,4-D	MR	LR	LR	LR	LR	LR	LR	MR

Figure 1. Risk of cover crop injury following wheat herbicides. Crop injury was evaluated based on standard in-crop application timing, and cover crops were planted after harvest. LR = low risk (0-20% injury); MR = medium risk (21-50% injury); HR = high risk (51-100% injury).

Risk of cover crop injury due to soybean herbicide with soil residual, Carrington and Fargo, 2016-20.

Site years	Herbicide	Risk of cover crop injury: Barley	Winter rye	Field pea	Flax	Radish	Turnip	Lentil	Rapeseed/Canola
	Soil								
6	Sencor 75 DF	Low	Low	Low	Low	Medium	Medium	Low	Low
6	Spartan 4F	Low	Low	Low	Low	High	Medium	Medium	Medium
6	Valor SX	Low	Low	Low	Low	High	High	Low	High
6	Zidua SC	Low	Low	Low	Low	Medium	Low	Low	Medium
5	Pursuit	Low	Low	Low	High	High	High	Low	Low
	POST								
5	Engenia (dicamba)	Low	Low	Low	Low	Low	Low	Low	Low
6	Flexstar	Low	Low	Low	Low	High	Medium	Low	Medium
3	Liberty 280	Low	Low	Low	Low	Low	Low	Low	Low
2	Raptor	Low	Low	Low	Low	Low	Low	Low	Low

Figure 2. Risk of cover crop injury following soybean herbicides. Crop injury was evaluated based on standard in-crop application timing, and cover crops were planted after harvest. Low = low risk (0-20% injury); Medium = medium risk (21-50% injury); High = high risk (51-100% injury).

Risk of inter-seeded cover crop injury due to corn herbicides with soil residual, Carrington and Prosper, 2021-23.[1]

Herbicide	Radish	Turnip	Lentil	Crimson clover	Flax	Oat	Rye
Atrazine	HR	HR	MR	HR	LR	LR	LR
Dual II Magnum	LR	LR	LR	LR	LR	LR	LR
Calisto	MR	HR	HR	LR	LR	LR	LR
Lumax EZ	LR	HR	HR	MR	LR	LR	LR
Status	MR	LR	HR	LR	LR	LR	LR
Armezon	LR	HR	LR	LR	LR	LR	LR
Laudis	LR	LR	HR	LR	LR	LR	LR
Harness	LR	LR	HR	HR	LR	LR	LR
WideMatch	MR	LR	HR	HR	LR	LR	LR
2,4-D	LR	LR	LR	LR	LR	LR	LR

Figure 3. Risk of cover crop injury following corn herbicides. Crop injury was evaluated based on standard in-crop application timing, and cover crops were planted at V6 corn, approximately 2-3 weeks after herbicide application. LR = low risk (0-20% injury); MR = medium risk (21-50% injury); HR = high risk (51-100% injury).

Joe Ikley
Associate Professor/Extension Weed Specialist

horticulture

DAKOTA GARDENER: THE WEED PROBLEM

Weeds are always a problem in the garden or an ornamental landscape. There are always more weeds than there is time to weed, and with the amount of rain that we have received as of late, they are growing, well, like weeds.

As a solution to the weed problem, many gardeners will turn to weed barriers to prevent them from emerging. There are many types of weed barriers: landscape fabric (woven and nonwoven), mulch and cardboard, just to name the most common. Of these, landscape fabric has the worst

reputation by far. Claims of poor permeability for both water and air, difficult maintenance, removal issues, disposal problems and reduced soil fertility – why is this even an option at garden centers?

Before we are too hard on all landscape fabric, I should mention that there is a difference between woven and nonwoven fabrics and plastic sheeting. Plastic sheeting, or simply sheets of plastic, has been discouraged from use in landscapes since around the 1990s. Meanwhile, nonwoven and woven landscape fabrics are still widely available. Both fabric types are made from polypropylene, allowing water and air to permeate the fabric and reach the soil. Nonwoven landscape fabric has a feltlike texture created by heat-bonding or needle-punching the fibers together. Woven fabrics have interlocked fibers, creating greater strength and durability. Both types have a purpose in the garden. When I started my garden and needed to remove a heavy weed bed, I opted for the nonpermeable plastic sheeting to kill all the weeds in the area. However, when I was done with this step, I replaced it with the more permeable, nonwoven landscape fabric to help keep the weeds down during the first two growing seasons in that new location. After the second season, I felt that the fabric had served its purpose and it was removed.

Here is where the problem with landscape fabric lies: it is not meant to be used as a long-term solution for weed control. Over time, organic material can build up on the fabric, creating an environment for weeds to germinate. Some weeds, such as thistles and dandelions, have a strong taproot that can break through the fabric. And because of the fabric, these weeds can sometimes be more difficult to pull, as they are held in place by it.

Every year, the Ward County Master Gardener group lays woven landscape fabric for the Hunger Free Garden. This garden grows all summer with minimal weeding requirements and at the end of the season the fabric is removed and stored for use the following year. This is sustainable for a group of volunteers, but because I have more time to dedicate to my garden – which is also half the size of the Hunger Free Garden – I have replaced the landscape fabric with wood mulch.

There is no perfect solution for keeping a weed-free landscape. Know that each type of weed barrier has a downfall — even wood mulch, compost or leaves can lead to different problems. Whether it's a fabric weed barrier or a natural mulch, all are acceptable options and serve their intended purpose. So, when shopping at the garden center, consider your garden needs to determine the best weed barrier option.

Emily How,
Ward County Extension Agent
701-857-6444,

around the state

AROUND THE STATE

NORTHEAST ND

Standing water in a canola field near Langdon. Photo: Anitha Chirumamilla, LREC

Parts of the Northeast region continue to experience widespread wet conditions, with saturated and flooded fields delaying crop development. In portions of Ramsey, Benson, and Towner counties, flooding has made some roads inaccessible, and recent hailstorms have caused significant crop damage.

Crop Progress:

Small grains and canola have benefited from the abundant moisture and intermittent warm temperatures, progressing rapidly and reaching the flowering stage. However, after nearly three weeks of persistently wet conditions, wheat is at a medium to high risk for Fusarium head blight in susceptible to moderately susceptible varieties. Canola is at high risk for white mold infection. Saturated fields are making timely ground applications of fungicides difficult.

Significant true armyworm infestations have been reported in wheat fields in Benson, Rolette, and Pierce counties. One producer in Rolette County reported severe larval defoliation affecting approximately 80 acres of wheat.

Wheat and Barley at flowering in Cavalier County. Photos: Anitha Chirumamilla, LREC

Soybeans have been the crop most impacted by excessive moisture. Development has lagged, with many fields showing open rows and patches of iron deficiency chlorosis (IDC). Recent periods of warmer weather have improved crop appearance, and many soybean fields are noticeably greener and more vigorous than they were a week ago.
Corn and sunflowers also remain behind normal in development, but overall stands are good. Corn is approaching waist height, while sunflowers are in the later vegetative stages and nearing the star bud stage.

Field peas are flowering.

Weed control continues to be challenging due to persistent wet conditions. Foxtail barley, waterhemp, and kochia remain primary concerns. Reports of localized grasshopper hotspots have also been received from Benson County.



True armyworms damage on wheat; armyworms migrating into a nearby ditch from a wheat field; armyworms feeding on grass. Photos submitted by: Scott Knoke, Extension Agent, Benson County and Elizabeth Auka, Extension Agent, Rolette County

Corn at 9-10 leaf stage in Pembina County. Photo: Anitha Chirumamilla, LREC


Soybean field with IDC in Cavalier County. Photos: Anitha Chirumamilla, LREC

Sunflowers at late vegetative growth stage in Cavalier County. Photo: Anitha Chirumamilla, LREC

Canola at flowering in Pembina County. Photo: Anitha Chirumamilla, LREC

Anitha Chirumamilla
Extension Cropping Systems Specialist
Langdon Research Extension Center

SOUTH-CENTRAL/SOUTHEAST ND

Mark Your Calendars for The CREC Row Crop Tour in August.

The Carrington Research Extension Center's (CREC) annual Row Crop Tour will take place August 20, 2026 with registration starting after 8:00 AM. The CREC Row Crop Tour will focus on current issues and best management practices for corn, soybean, dry bean, and sunflower. There will be a free lunch and a special afternoon event not finalized yet, so plan to stick around for an afternoon event this year.

Please put this important field day on your calendar.

South-Central and Southeast North Dakota

The heat cranked up again across the region this past week. The average daily high temperature for the past week (6-30 to 6-6) across the 47 NDAWN stations I keep track of in this region ranged from 80 degrees Fahrenheit (F) at Carrington and McHenry to 87 degrees F at Gardener, Hillsboro, Leonard, Lisbon, Milnor, Mooreton, and Wahpeton with an average across these stations of 83.7 degrees F, 12 degrees F greater than two weeks ago and 3.4 degrees F greater than the historical average daily high temperature for Cooperstown. The average daily low temperature for the past week across the 47 NDAWN station in this region ranged from 56 degrees F at Harvey and Pickardsville to 62 degrees F at Lisbon and Milnor with an average of 59.3 degrees F, 4 degrees greater than the historical average daily low temperature for Cooperstown.

Overall, crops across the region have really improved due to the hotter temperatures this past week, however, variable crop growth stages and condition within the same field is still a big issue for about 20% of crop fields in the region. Hard red spring wheat is likely the most variable I have ever seen in growth stages within a field and a Griggs County farmer recently agreed with this statement. Within three to six feet of row, a wheat head may be in the flowering stage while other main stems are only at flag leaf emergence (Figure 1). In the south-central part of the state many soybean fields also have highly variable soybean growth stages within a field due to thick crop residue at the time of planting and continuing through this growing season.

Figure 1: Highly variable wheat growth stages within the same field from flag leaf emergence to fully flowered heads.

Another major issue for the region is the lack of rainfall in most of the SE part of the state, particularly the counties bordering South Dakota and the east side next to Minnesota as seen in Figure 2. This are has only received between 24 and 72% of normal precipitation in the past 30 days ending July 6th. In the past week, based upon the 47 NDAWN stations in the region I monitor, rainfall ranged from 0 inch at Mayville to 1.05 inches at Strasburg with an average across these 47 NDAWN stations of only 0.25 inch. The average 4-inch soil moisture as of after the rain on July 7th ranged from 5.4% at Skogmo to 42.7% at Milnor with an average of 19.6% and the 39-inch soil moisture ranged from 3.0% at Tappen to 51% at Cooperstown and Ellendale with an average of 28%. Based upon the Jensen-Haise Total potential evapotranspiration model, it ranged from 1.53 inches at Cooperstown to 1.86 inches at Sonora with an average across the 47 NDAWN stations of 1.7 inches, a whopping 1.45 inches below the rainfall for the week. In the driest parts of the region during the heat of the day, corn and soybean plants in the drier areas of a field were showing lack of water stress.

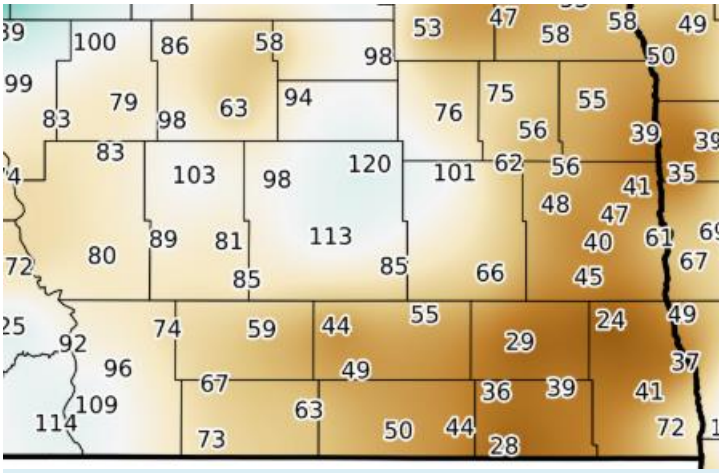

Figure 2: The southeast and south-central ND region showing the percent of normal precipitation for the last 30 days ending July 6th.

There were a few more chances this past week to apply herbicides based upon reduced wind speed across the region with average daily wind speed across being only 6.1 miles per hour, yet some areas were still too wet to spray continuing the cycle of weeds getting too large before they get sprayed.

I could still see the "yellow flash" stage in a few corn fields across the region this past week from the "Twisted Whorl Syndrome".

IDC is still very visible in some soybean fields across the region, but plants in many soybean fields have recovered quite nicely.

Out of the 7 NDAWN stations below, corn growing degree days (GDD's) increased by at least 92 GDD's from last week according to Table 1. At least based upon these 7 NDAWN Stations, Edgeley saw the greatest increase in GDD's at 153 GDD's compared to last week. GDD's for the region are way ahead of the normal and compared to 2025 growing season, but the departure from the 5-year average was both positive and negative depending upon the location. Based upon the accumulated GDD's at Denhoff, corn there should be at the V9 (ninth visible collar) growth stage and should reach black layer by September 10th, meaning there likely will be no issues of corn reaching maturity before a freeze this year.

Table 1. Accumulated and departure from normal GDD's for seven NDAWN stations across the region.

	Denhoff	Linton	McHenry	Jamestown	Edgeley	Mayville	Mooreton
Accumulation from 5-13 to 7-6, 2026	711	772	714	734	847	750	815
Departure from last week	+ 127	+ 136	+ 126	+ 92	+ 153	+ 130	+ 140
Departure from normal	- 51	+ 24	+ 67	+ 46	+ 95	+ 138	+ 121
Departure from 2025	+ 83	+ 66	+ 85	+ 78	+ 116	+ 146	+ 167
Departure from the 5-year average	- 27	- 14	+ 8	- 11	0	+ 41	+ 41
Departure this past week for the 5-year average	+ 1	+ 11	+ 6	+ 6	+ 12	+ 11	+ 9

Hard red spring wheat (HRSW) and barley continue to look pretty good across most of the region, but as mentioned above many fields have a wide range in growth stages within a field. HRSW within the region is from jointed to milk stage (Figure 3) with most HRSW at least at the flowering stage. It's still very difficult finding any leaf diseases in the region at the moment, however watch for the environmental conditions and small-grain varieties having a Fusarium Head Blight (FHB) rating of 6 or greater to determine the need for a fungicide application to reduce FHB. I'm seeing more wheat fields with a greater than normal presence of wheat stem maggot this season, however it's presence shouldn't reduce HRSW yields.

Figure 3: Earliest HRSW in Griggs County already at the milk growth stage.

Corn condition and growth improved again this past week over most of the region. However, there are still some fields in the region having variable growth stages and crop condition including nutrient deficiencies, with sulfur being the most prevalent. Corn in the region is from V3 (3rd visible collar) to at least V14 in Griggs County as seen in Figure 4 with most corn in the region at V7 to V9. While scouting a corn field in McIntosh County last Wednesday, we observed a Southern corn rootworm adult which was very rare in the field and not seen often in ND (Figure 5).

Figure 4: V14 (14th visible collar) corn growth stage in Griggs County as of July 7th.

Figure 5: A southern corn rootworm adult observed in a McIntosh County

Soybean crop condition improved the most of all crops this past week, but many fields in the region still look tough. I attribute most of the soybean improvement to the increased air temperature and being drier during the past week. Soybean plants in the region range from V1 (first fully expanded trifoliate) to R2 (at least one flower within the top two nodes having fully expanded leaflets) as seen in Figure 6. Last week this same soybean field was only at V6 growth stage in addition the rows are very close to canopy closure. Most soybeans in the southern part of the region are at R1 (at least one flower at any node of the plant) while fewer soybean plants in the northern part of the region have only begun flowering.

Figure 6: R2 (at least one flower in the upper two fully expanded leaflet nodes) soybean growth stage.

Canola condition is good to excellent in most fields of the region and in full flower. Some fields in the region, however, have many different growth stages present.

Dry bean and sunflower are still looking pretty good across the region with dry bean from VC (unifoliate leaves fully expanded) to the R1 (at least one open flower on the plant) growth stage. Sunflowers across the region look really good for the most part. Sunflower growth stage ranges from V6 (6th leaf) to R1 (flower bud visible) with most around V8 or V10 growth stage.

Have a great week!

Jeff Stachler
NDSU Extension Cropping Systems Specialist
Carrington Research Extension Center

weather

WEATHER FORECAST

The July 9 to July 15, 2026 Weather Summary and Outlook

Most of North Dakota recorded some measurable rain over the last week. There were some pockets where over 1 inch fell, but a high percentage of the region recorded under 1 inch. This week some parts of western North Dakota may record little if any rain. It will be the heat that will probably be the biggest weather news during this forecast period.

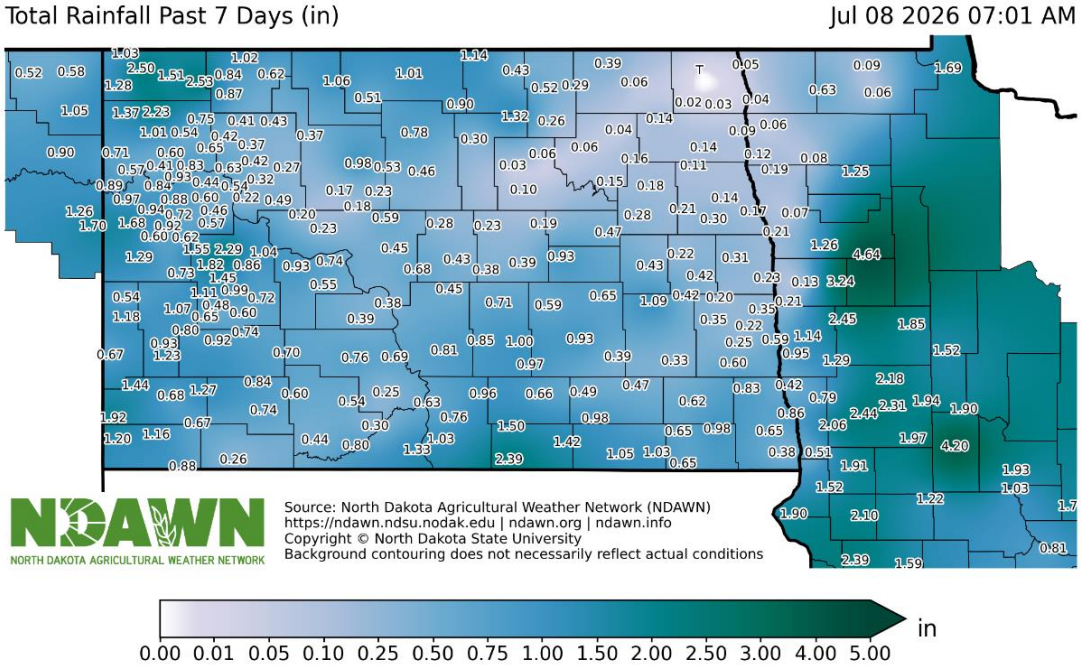

Figure 1. Total Rain at NDAWN stations from July 2 through 7:00 AM on July 8, 2026

The percentage of average rain since June 1 continues to show approximately 50% of North Dakota being above average for rain, some locations well above average. Yet, the other 50% of the state is below average with some locations well below average.

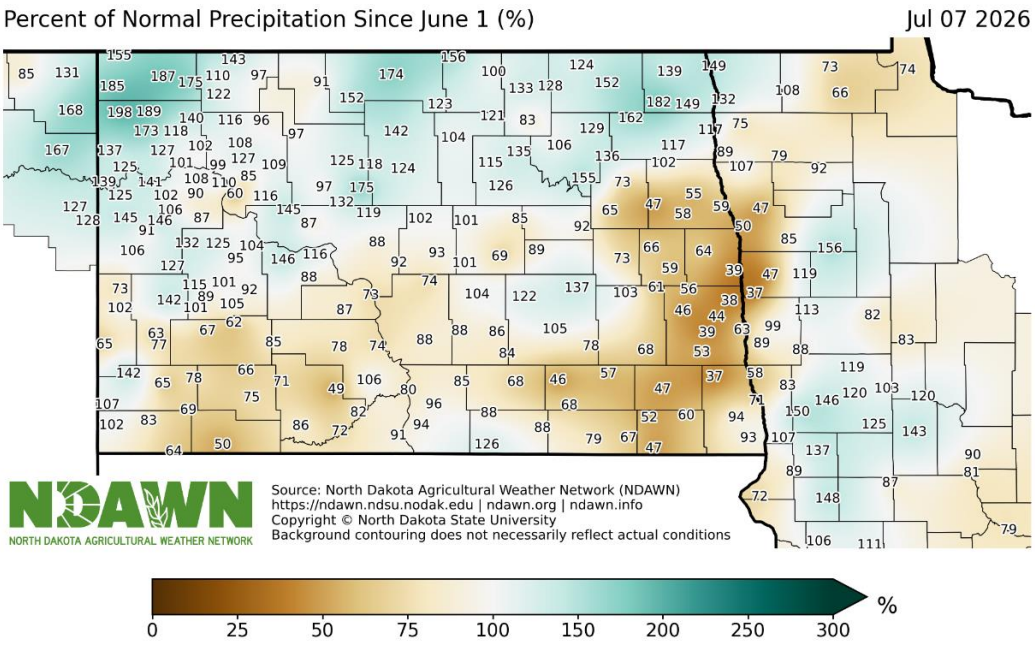

Figure 2. Departure from Average Rainfall from June 1 through July 7, 2026

Temperatures have been overall mostly above above average during the first week of July. As already hinted to, this forecast period looks to be well above average for temperatures, with some triple digit heat possible. With little rain in combination with very warm temperatures, some fast drying out of top soil moisture will be possible.

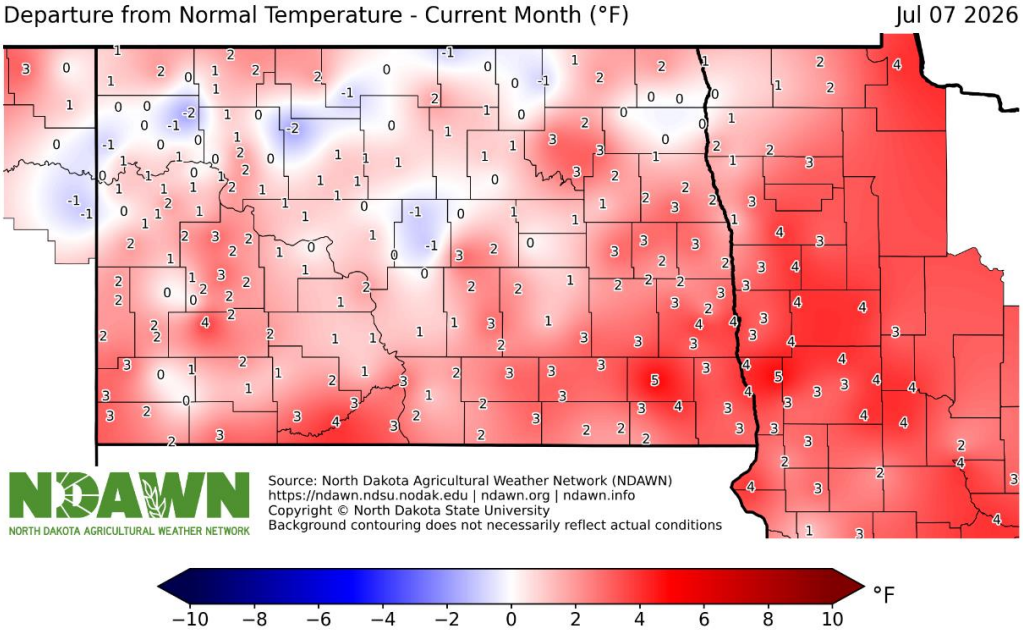

Figure 3. Departure from Average Temperatures for the period of July 1 through July 7, 2026

Figures 4 and 5 show the forecasted growing degree days (GDDs) for base 32° (wheat) and base 50°F (corn and soybeans) during this forecast period. Well above average temperatures during the next week will mean more than average growing degree days. As a reminder, most growing degree calculations stop at 86°, meaning you don't get credit for high temperatures above that level.

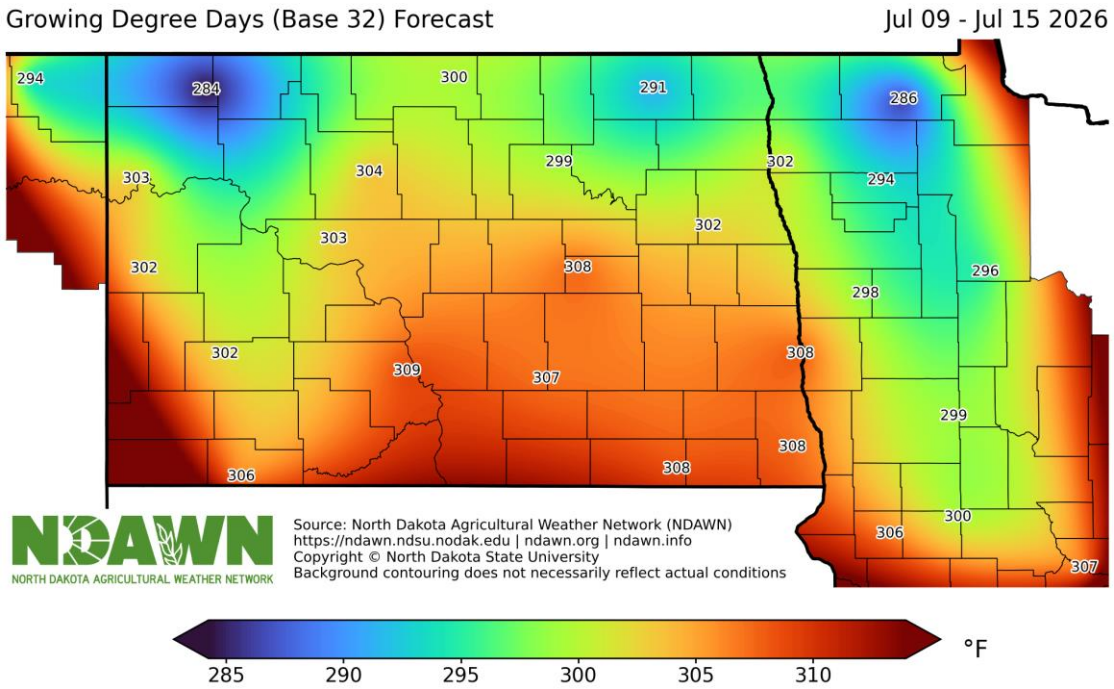

Figure 4. Estimated Growing Degree Days Base 32° for the Period of July 9 to July 15, 2026

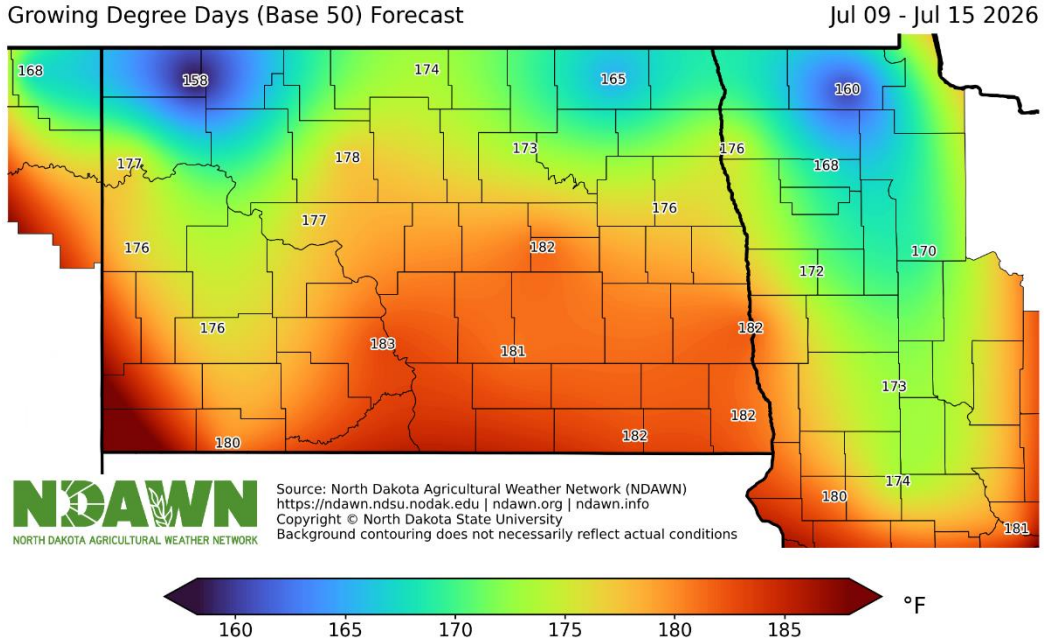

Figure 5. Estimated Growing Degree Days Base 50° for the Period of July 9 to July 15, 2026

Using May 1 as a planting date, the accumulated growing degree days for wheat (base temperature 32°) is given in Figure 6. 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

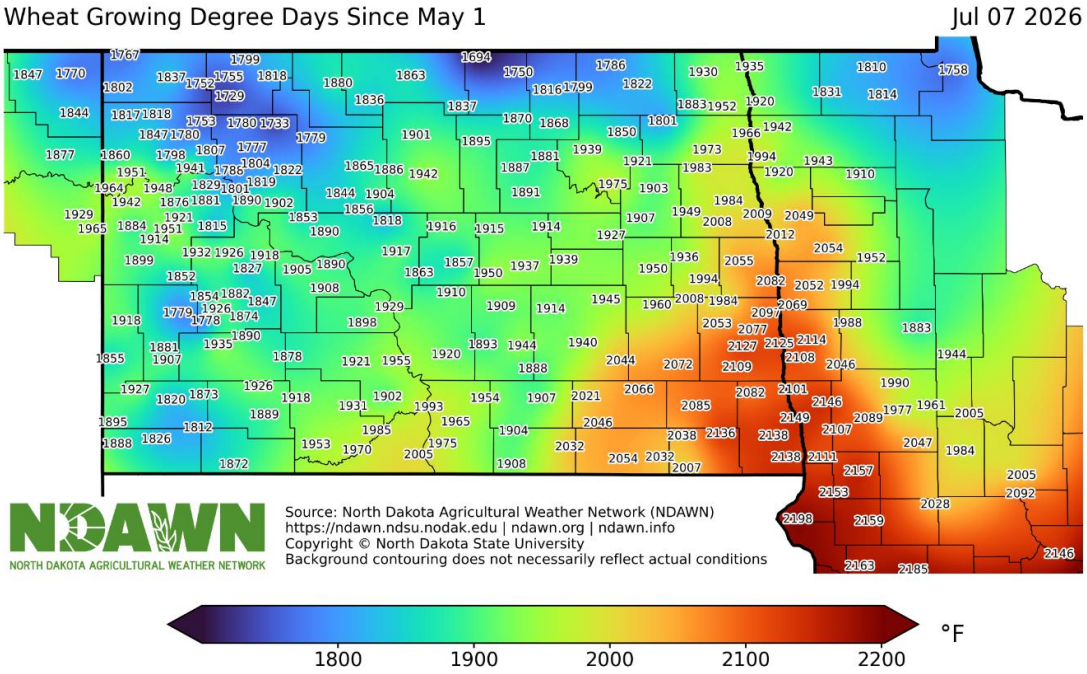

Figure 6. Wheat Growing Degree Days (Base 32°) for the Period of May 1 through July 7, 2026

Using May 10 as a planting date, the accumulated growing degree days for corn (base temperature 50°) is given in Figure 7. 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.

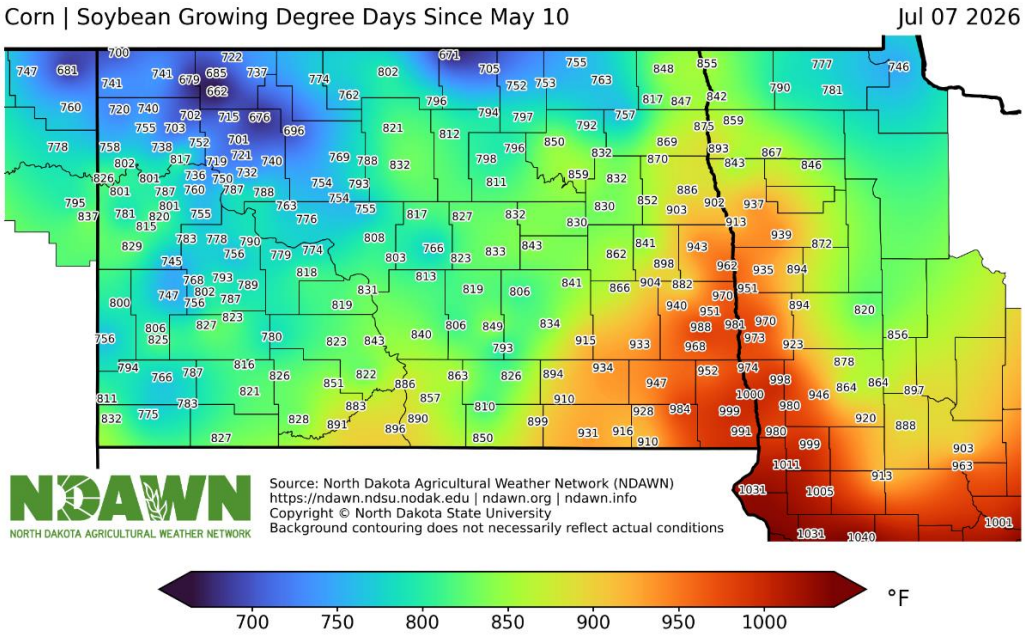

Figure 7. Corn Growing Degree Days (Base 50°) for the Period of May 10 through July 7, 2026

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