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AG NDSU FIELD DAYS SET

Several North Dakota State University Research Extension Centers annual field days are set to occur soon. 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. NDSU’s 15th President, David Cook, will be attending this year’s field day events.

The dates and locations for the upcoming field days are:

July 21 – Langdon Research Extension Center – Langdon (8:45 a.m.-Noon CDT)

August 4 – CREC Oakes Irrigation Research Site – Oakes (8:30 a.m.-Noon CDT)

August 9 – NDSU Horticulture Research & Demonstration Gardens – Fargo (3-7 p.m. CDT, plants, local foods and outdoor spaces)

*September 10 – NDSU Arboretum near Absaraka (12-5pm CDT trees and ornamentals) pre-registration required

*Note: This event has had a change of place and time
SUGARBEET PLOT SUMMER TOUR 2022 SCHEDULE

**July 26**

**10:00 AM**

**St. Thomas, ND** – “Root Maggot Control Research and Cercospora Leaf Spot.” Dr. Boetel will discuss management options for sugarbeet root maggot; Dr. Chenggen will provide an update on his breeding trials; Dr. Khan will discuss options for managing Cercospora leaf spot.

*Directions*: 48.5645937, -97.4580947; One-half mile directly W. of former Pete Carson farmstead. Access field by using dirt road from West. **No traffic through farmstead please!**

**From Drayton**: Exit (#187) on I-29; West 12 mi. to ND Hwy 66/US 81 intersection; then west 1 mi. to 147th Ave. NE; South ½ mi. to dirt field rd.; East 0.5 mi.; plots are on S. side of road.

**From Grafton**: North 9.5 mi. on US 81 to 79th St. NE; West 1 mi. to 147th Ave. NE; North ½ mi. to dirt field rd.; East 0.5 mi.; plots are on S. side of road.

**From St. Thomas**: S. on US 81 2.5 mi. to ND Hwy 66/US 81 intersection; west 1 mi. to 147th Ave. NE; South ½ mi. to dirt field rd.; East 0.5 mi.; plots are on S. side of road.

*Lunch sponsored by AMVAC at St. Thomas Firehouse*

**July 27**

**10:00 AM**

**Moorhead, MN** - “Waterhemp control in sugarbeet.” Dr. Tom Peters will discuss waterhemp control; use of Ultra Blazer; and fall seeded cover crops.

*Directions*: The American Crystal Sugar Technical Center (46.890790 -96.757104). Entrance is along 15th Avenue N, east of the Moorhead Drivers Exam Office. Please do not park in the grassy areas between the trees.

*Betaseed will sponsor lunch at Buffalo Wild Wings at 11:45 or immediately after the tour.*

**Aug 30**

**10:00 AM**

**Foxhome, MN**-“Controlling Cercospora leaf spot in sugarbeet”. Dr. Khan will show the effects of using individual and fungicide mixtures for controlling Cercospora, the effect of application timing of fungicides for controlling Cercospora in susceptible and CR+ varieties, and the impact of water volume with fungicides for controlling Cercospora.

*Directions*: From the intersection of Hwy 75 and 210 in Breckenridge
  - East 11.7 miles on Hwy 210
  - Turn North on 310th Ave for 0.5 mile
  - Turn West on grassy field approach

*Lunch will be sponsored by Betaseed at Foxhome Bar & Grill, Foxhome, MN*
GET READY TO SCOUT FOR RED SUNFLOWER SEED WEEVIL

Red sunflower seed weevils (RSSW) are emerging in South Dakota near Pierre. RSSW should not be far behind in North Dakota sunflowers. Start scouting as soon as sunflowers begin to show florets around the outer perimeter of the sunflower head (R5.1). Please send me your reports, including locality and numbers, when you start finding RSSW.

Identification: RSSW are small (¼ inch long) weevils with a snout and are reddish-orange.

Scouting: When sampling, use the X pattern and begin counting at least 75 to 100 feet into the field to avoid field margin effects. Rub your hand vigorously across the sunflower face. Count the number of RSSW adults on 5 plants at 5 sites for a total of 25 plants per field. Scout for adults in the early blooming sunflower fields when the yellow ray petals are just beginning to show. RSSW is attracted to early blooming sunflowers, as females must imbibe pollen before laying eggs. An NDSU YouTube video is available on Scouting for Red Sunflower Seed Weevil in Sunflowers.

Scouting should continue until the economic threshold (Tables 1 & 2, next page) is reached or most plants have reached 70% pollen shed (R5.7). At 70% pollen shed, plants are no longer susceptible for egg laying or significant damage. On older flowering plants (after R5.7), larvae of RSSW (and banded sunflower moth larvae) will be feeding inside the seeds and are protected from the insecticide. By then, much of the feeding damage has already occurred.

The ideal plant stage for treatment is when most individual plants are at 40% pollen shed. However, we recommend that treatment be considered when three out of 10 plants are just beginning to shed pollen.

Chlorpyrifos Alternatives for RSSW

- Pyrethroids, 3A – beta-cyfluthrin (Baythroid XL), cyfluthrin (Tombstone), deltamethrin (Delta Gold), esfenvalerate (Asana XL), lambda-cyhalothrin (Warrior II, generics), zeta-cypermethrin (Mustang Maxx)
  - May not give as good of control of seed weevils in some areas of SD
- Carbamates, 1A – carbaryl (Sevin XLR Plus)
Collaborative research among entomologists in North Dakota and South Dakota found that RSSW collected in 2021 in central and western SD had more locations in which the RSSW were less susceptible to three pyrethroid insecticides than in 2020, when tested in a glass vial bioassay. The three pyrethroid insecticides tested for efficacy against RSSWs were zeta-cypermethrin (Mustang Maxx), lambda-cyhalothrin (Warrior II) and esfenvalerate (Asana XL). The percent of 2021 SD locations with reduced susceptibility of RSSWs occurred at 83% of the fields sampled for zeta-cypermethrin, 71% of the fields sampled for lambda-cyhalothrin and 46% of the field sampled for esfenvalerate. The percent of reduced susceptibility of RSSW for each pyrethroid treatment also increased from 2020 to 2021 (Fig. 1).

In North Dakota, we sampled over 20 field sites in 10 counties in 2020-2021, but no evidence of reduced pyrethroid susceptibility was found in RRSW populations in ND. Good news for now.

### Table 1. Economic Threshold for Oilseed Sunflowers - Number of adult red sunflower seed weevil per head when the cost of control equals $8 per acre.

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### Table 2. Economic Threshold for Oilseed Sunflowers - Number of adult red sunflower seed weevil per head when the cost of control equals $10 per acre.

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IPM INSECT TRAPPING UPDATE

We will be posting and reporting weekly trapping results for insect pests of wheat, canola and sunflower on the NDSU Extension IPM website and in the Crop & Pest Report.

**Wheat:** Pheromone traps for true armyworm and black cutworm continue to be low for both moths at 18 trap sites in 18 counties. See maps on IPM website.

**Canola:**
IPM Scouts have placed pheromone traps for bertha armyworm and diamondback moth at 21 trap sites in 12 counties, mainly in northern canola growing areas (Table 1).

Trap catches for **bertha armyworm** continue to be low, <10 moths per trap per week, at 43% of the trap sites compared to 56% last week. Bertha armyworm threshold for scouting is based on the cumulative number of moths captured over the season, which are low, below 30 cumulative moths per season (non-economic). See scouting article for bertha armyworm larvae in canola, in the past *Crop & Pest Report #11*, July 14.

Trap catches for **diamondback moths** were also low except for Cass County, and observed at only 43% of the trap sites compared to 39% last week. When diamondback moth trap catches are above 100 moths per trap per week, canola fields should be scouted for larvae. See past scouting article for diamondback moth larvae in canola in the past *Crop & Pest Report #11*, July 14.

**Sunflower:**
IPM Scouts have placed pheromone traps out for banded sunflower moth, Arthuri sunflower moth and sunflower head moth at 8 traps site in 7 counties.

**Banded sunflower moth** was only captured at Cass and Foster Counties. Trap catches are increasing, <50 moths per trap per week, at these sites.

**Arthuri sunflower moth** as captured at Cass County, only one moth.

**Sunflower head moth** was captured at Cass and Cavalier Counties last week, only one moth per trap per week at each site.
WHEAT MIDGE EMERGENCE CONTINUES

Observations in northern North Dakota indicate that wheat midge degree days (DD) are between 1573 to <1800 ADD, which correlates to 50 to 90% of the female wheat midge emerged (see map below). By about 1,800 DD, adult numbers decline to the point where field activity is below economic threshold levels. However, in areas where reduced or minimum tillage is common, significant adult activity has been reported and observed up to about 1,900 DD.

Accumulated Midge Degree Days (°F) (2022–03–01 – 2022–07–18)

Source: North Dakota Agricultural Weather Network (NDAWN)
https://ndawn.ndsu.nodak.edu
Copyright © North Dakota State University

Pheromone trap catches do not indicate future kernel damage to wheat crop, since only male flies are captured in the traps. Wheat midge trapping indicates areas with high trap catches found in Burke, Renville, Towner, Cavalier, Ramsey and Nelson Counties this past week. Also, see recent trapping map results on the PestWeb website, Montana State University.

Scouting is necessary in areas with high wheat midge trap catches to see if wheat fields are at E.T. levels. See last’s week Crop & Pest Report #11, July 14, for more information on wheat midge scouting and thresholds.
APHID UPDATE

Cereal aphids continue to be non-economic and were observed in 13% of the 64 wheat fields scouted by the IPM Crop Scouts. Only one flowering wheat field in Eddy County had economic populations of cereal aphids. Field scouting should begin at stem elongation and continue up to the early dough stage of wheat.

Soybean aphids continue to be low, detected in 7% of the 58 soybean fields scouted by the IPM Crop Scouts. If soybean aphids reach economic threshold levels of 250 aphids per plant on 80% of the plants, avoid using pyrethroid insecticides, Group 3A, in areas where pyrethroid-resistant soybean aphids occur, including Cavalier, Pembina, Walsh, Nelson, Grand Forks, Steele, Traill, Barnes and Cass Counties.

Correction on “Soybeans - Alternatives to Chlorpyrifos (Lorsban and generics) – Soybean aphids” table from last week: Bayer CropScience has a FIFRA 2(ee) label for a reduced rate of Sivanto Prime at 5 fl oz per acre, applied as a foliar application in legume vegetables (soybean) for control of soybean aphid. This would decrease the cost of Sivanto Prime at 5 fl oz/acre to $13.05/acre.

ECONOMIC THRESHOLDS FOR CEREAL 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

EUROPEAN CORN BORER INCREASING

European corn borer (ECB) Z-race moths (univoltine) were detected at 11 of the 13 of trap sites this week (see Table 1). The univoltine ECB-Z is the most common corn borer in ND, and trap counts increased this week at Casselton, Rush River, Grandin (Cass Counties), Finley (Steele County), Shenford, Sheldon (Ransom Counties), and Antelope (Richland County). First detection of Z-race ECB moth was at Lidgerwood, Richland County. The first ECB E-race moth (bivoltine) was found at Minot. Corn crop stages varied from V8 to silking.
ADULT CORN ROOTWORMS EMERGING

The first emergence of adult northern corn rootworm was observed last week in corn research trials near Wyndmere, Richland County. The northern corn rootworm adults were feeding on silks of an early variety of field corn. Western corn rootworm (WCR) adults have not been seen yet. This week, we have started monitoring rootworm adults using yellow sticky traps in 13 corn sites in 7 ND counties (Barnes, Cass, Griggs, Steele, Sargent, Ransom, and Richland).

Adult corn rootworm beetles can easily be identified in the field. Northern corn rootworm adults are tan to pale green, ¼ inch long beetles. Western corn rootworm adults are from 3/16 to 5/16 inch long and yellowish-green with three black longitudinal stripes, usually on the female’s forewings, and nearly solid black marking on the male’s forewings.

From left to right: Northern corn rootworm adult (Eric Quale); Western corn rootworm – adult female (J. Knodel) and adult male (P. Beauzay).
For monitoring corn rootworm adults, deploy four or six unbaited Pherocon AM® yellow sticky traps into a linear transect at each field. Traps should be set at least 100 feet away from field edges and/or waterways. The distance between sticky traps should be at least 165 feet. Attach the sticky trap on the corn stalk at ear height (see picture). Replace traps once per week for four to six weeks, or until the threshold is reached. Count and record the number of beetles caught on each trap. Lastly, calculate the average number of beetles per trap per day (add total number of beetles captured from all traps and divide by total number of sticky traps, then divide this result by the total number of days that traps were deployed in the field).

**Adult Corn Rootworm Trap Threshold:**
- 2 or more beetles (either species or in combination of the 2 species) per trap per day
- This threshold indicates that a high corn rootworm population is expected the following year. As such, a corn rootworm management tool will likely be necessary to protect the following year’s corn crop.

Scouting data are posted weekly on the NDSU Extension [IPM website](#) and in the [Crop & Pest Report](#). For more information on corn rootworms, please see the recently revised (March 2022) NDSU Extension [Integrated Pest Management of Corn Rootworms in North Dakota E1852](#).

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Extension Entomologist

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**CERCOSPORA LEAF SPOT IN SUGARBEET**

The fungus *Cercospora beticola* causes Cercospora leaf spot that is the most damaging foliar disease of sugarbeet in Minnesota and North Dakota. This disease results in lower tonnage, lower sucrose concentration, reduced extractable sucrose and increased impurities that lead to higher processing costs. The most common source of the Cercospora fungus is infected sugarbeet debris in the field. The fungus spreads from field to field mainly by wind. Cercospora leaf spot develops rapidly in warm and wet conditions. Day temperatures of 80-90°F and night temperatures above 60°F favor disease development. Leaf spot symptoms may occur about 5-7 days after infection under favorable conditions. Cercospora infection produces circular spots about 1/8 inch in diameter with ash gray centers and dark brown or reddish-purple borders. Severe infections result in death of leaves (Figure 1). In humid conditions, Figuer 1. Sugarbeet with severe Cercospora leaf spot infection.
conditions, the spots may become gray and velvety with the production of spores. These spores further spread the disease, especially within fields, resulting in many infection cycles during the growing season.

Because of the multi-cyclic nature of the pathogen, it is important to have early control of Cercospora leaf spot using an integrated approach. This includes cultural practices such as burying infected tops by tillage, planting improved tolerant varieties especially CR+ varieties, using a crop rotation interval of a minimum of three years, selecting fields as far away as possible from the previous year’s infected field, and the timely and proper use of recommended fungicide mixtures in high water volume (15 to 20 GPA) (Figure 2).

Infected leaf samples are collected annually from all factory districts in Minnesota and North Dakota. These samples are tested to determine sensitivity of the fungus to the different fungicides used in their control. *C. beticola* has developed resistance and/or reduced sensitivity to most of the fungicides used for its control. Currently, no individual fungicide provides season long control of CLS. Mixtures that contain a multisite fungicide and used in a rotation program are most effective at controlling CLS. Consult your agriculturists for fungicide mixtures recommended for your factory district.

Research done at NDSU and University of Minnesota showed that application of effective fungicide mixtures after rows are closed and at disease onset, or at first symptoms in a field or in the factory district, with subsequent applications based on the presence of leaf spots and favorable environmental conditions, consistently provided the most effective and economical CLS control ([https://apsjournals.apsnet.org/doi/epdf/10.1094/PDIS-91-9-1105](https://apsjournals.apsnet.org/doi/epdf/10.1094/PDIS-91-9-1105)). Frequent rainfall, especially soon after fungicide application, reduces the efficacy of fungicides. Information on the potential for disease in your area based on weather conditions is available at [http://ndawn.ndsu.nodak.edu](http://ndawn.ndsu.nodak.edu)

Sugarbeet fields with more susceptible varieties with closed rows that are close to shelter-belts, waterways, and those close to previously infected fields should be the first to be scouted since they would be the first to become infected. The most effective strategy to manage CLS is to use improved tolerant varieties (where available) with judicious timely fungicide applications. The development and availability of CR+ varieties with improved resistance to *C. beticola* will contribute significantly in managing leaf spot (Figure 3).

**Figure 2.** Fungicide mixtures applied in higher water volume (20 GPA - left) resulted in more effective disease control than when applied in lower water volume (10 GPA - right).

**Figure 3.** CR+ variety with improved resistance to *C. beticola* in the presence of inoculum

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ELEVATED RISK OF POWDERY MILDEW IN FIELD PEAS

Field pea growers are advised to be alert for powdery mildew. Late-planted peas are at high risk of developing powdery mildew, and the warm days with morning dew observed in parts central and western North Dakota in the past week are increasing the high-risk for the disease.

Powdery mildew can cause severe yield losses in field peas. The disease impacts yield by reducing seed size and by reducing seed set; the earlier powdery mildew develops in crop development, the more severe its impact. In fungicide efficacy studies conducted in Carrington, the average yield gain from fungicides has ranged from 5 to 24 bu/ac, depending on when powdery mildew developed during field pea bloom and pod-fill. Yield gains as high as 35 bu/ac have been observed from the most effective fungicides when the disease has developed in early pod-fill.

Some field pea varieties are resistant to powdery mildew, but many varieties are susceptible (Figure 1). In susceptible varieties, the disease can be managed successfully with fungicides but only if the fungicides are applied preventatively at the first sign of disease in the lower canopy. In field trials conducted in Carrington, Proline (5.7 fl oz/ac) has been highly effective against powdery mildew in field peas. Headline (6 fl oz/ac), Quadris (6 fl oz/ac), and Priaxor (4 fl oz/ac) have also shown efficacy but have performed less consistently than Proline.

Powdery mildew starts in the lower canopy, developing as small areas of white fungal growth on the surface of the lowest leaves in the canopy (Figure 2). At the initial stages of disease development, the white patches are easily rubbed off with your finger, revealing what appears to be perfectly green tissue underneath.
The disease spreads quickly and explosively. The disease can progress from first symptoms on the lower leaves to covering the entire canopy in as little as a week. When severe, a patchy gray discoloration develops below the white fungal growth on the leaf surface (Figure 3).

Growers are advised to scout their fields carefully for powdery mildew if they planted a susceptible variety and are receiving overnight dew. The later that peas were planted, the higher the risk of yield loss to powdery mildew. The importance of careful scouting cannot be overstated. Fungicides cannot eradicate the disease once it has developed and must be applied when powdery mildew is still at its very early stages of development.

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RESULTS OF FOLIAR FERTILIZER APPLICATION IN SOYBEAN

Some producers may wonder if there are management practices that can be applied during the early reproductive growth to increase soybean yield. National soybean agronomists have put together a publication: The soybean growth cycle: important risks, management and misconceptions. Some producers are interested in knowing if foliar fertilizer may increase yield. However, it is not the yield increase that is important, it is the cost vs the benefit. Without a positive financial return on investment, additional inputs are not justified. Based on producers and agronomists requests, a large national research project was set up to evaluate six foliar fertilizer products to compare with an untreated control, in a randomized complete block design, with at least 4 replicates. This large project was conducted over a two year period with a total of 46 experiments. Data from North Dakota, South Dakota, and Minnesota were included in this project. The research sites were fields without known nutrient deficiencies, and they represented average soybean growing conditions. Products were applied at soybean R3 growth stage. Nutrients applied per acre for each product are listed in Table 1.

<table>
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<tr>
<th>Product</th>
<th>N</th>
<th>P</th>
<th>K</th>
<th>S</th>
<th>Mn</th>
<th>Fe</th>
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<th>Zn</th>
<th>B</th>
<th>Other</th>
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<td>0.9</td>
<td>0.5</td>
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</tbody>
</table>

The North Dakota results, as well as national results, (Figure 1), showed that foliar fertilization application in fields with no known nutrient deficiency did not increase soybean yield but decreased the profitability of soybean production (no increase in yield but a cost for application and cost of the fertilizer product). The conclusion: foliar fertilizer products, similar to those tested, are not recommended for use by North Dakota soybean producers in the absence of symptoms of nutrient deficiency. This research was conducted a part of the “Science for Success” project funded by the soybean checkoff. The full report Foliar Fertilizers Rarely Increase Yield in U.S. Soybean is available in pdf format. Further information on this trial, including individual site results, is available in the full publication at: https://doi.org/10.1002/agj2.20889.
For information about soybean fertility recommendations see NDSU publication Soybean Soil Fertility SF1164. For additional information about in-season application of foliar sprays of N, P, and K see link.

Hans Kandel
Extension Agronomist Broadleaf Crops

Severe weather impacted parts of the north central region early this week bringing heavy rain and some hail to parts of the area. At the NCREC, 0.52” of rain was observed since last Tuesday (July 12th). The following are precipitation observations across the area as noted by local NDAWN stations from July 13th through July 19th: Bottineau: 0.26”; Garrison: 0.09”; Karlsruhe: 0.26”; Mohall: 0.25”; Plaza: 0.01”; and Rugby: 0.21”. Bare soil temperatures were being observed at 80°F on the morning of July 19th.
Calls into the Crop Protection Office are beginning to slow from an entomology standpoint. Grasshoppers are still causing headaches for some, so please continue to field scout. On the plant pathology side, growers are not finding a lot of disease, however, fungicide applications are being made throughout the area. Many of these calls are focused on small grains and pulses. Overall, scouting will be key over the next week for both plant pathology and entomology concerns in the area.

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Leo Bortolon
Extension Cropping Systems Specialist
NDSU North Central Research Extension Center

NORTHEAST ND

Rainfall for the past week ranged from 0.11 to 1.89 inches in the NE region. Some parts of the region are getting dry and wheat has been stunted in those areas due to lack of moisture (Figure 1). Small grains are progressing well as majority of them are at heading and flowering stages. Fungicide sprayings are in full swing considering the high humidity which comes with increased risk of scab in small grains. Early planted canola fields are blooming and fungicide applications are being made to protect the crop from white mold infection. Soybeans and sunflowers are reaching the flowering stage. IDC is still showing up, but plants are greening up a bit (Figure 2). Dry beans range from one trifoliate to R3 with most at the three to five trifoliate stage. The cereal aphid and soybean aphid populations (Figures 3, 4) are increasing in Grand Forks and Cavalier Counties. Grasshopper populations look spotty in certain areas. Weeds, such as wild oats, stink grass and foxtail barley are showing up in wheat fields. Alfalfa is in good to excellent condition, and the second cutting is starting to flower, but some still only 6’’ tall.

Figure 1: Moisture stressed wheat field in Griggs County (Jeff Stachler, ANR Extension Agent, Griggs County)
Figure 2: Soybeans showing IDC symptoms in Grand Forks County (Anitha Chirumamilla, LREC)

Figure 3: Bird cherry oat aphids in Barley in Grand Forks County (Anitha Chirumamilla, LREC)

Figure 4: Soybean aphids in a field in Grand Forks County (Anitha Chirumamilla, LREC)
SOUTH-CENTRAL/SOUTHEAST ND

According to NDAWN, the region’s rainfall during April 1-July 18 ranges from 8.8 inches (Linton; Emmons County) to 16.9 inches (McHenry; Eddy County), with the Carrington REC receiving 14.2 inches and Oakes irrigation research site at 16.1 inches. The region received 0.5-2.3 inches during July 1-18. Current (July 18) accumulated growing degree days for May 15 planted corn is slightly ahead of the long-term average, ranging from an additional 13 to 149 units.

Crops continue to rapidly develop. Winter rye is mature and winter wheat is nearing maturity. Spring-seeded small grain growth stages generally range from heading to early seed development. Mid-May planted corn is in the late vegetative growth stages with tassels appearing soon. Soybean planted the last-half of May and early June are flowering (R1-2) and timely planted dry bean are in the bud to pin pod stages (Vn-R2 stages).

The Carrington REC conducted a successful Field Day on July 19 that included agronomy tours to provide production information on spring wheat, barley, corn, soybean, dry bean and field pea. The next major field event at the Carrington REC is the annual Row Crop tour, scheduled for September 1.
SOUTHWEST ND

There have been scattered storms across the region over the past couple of weeks. Wet conditions have made for fast growth for crops in most of the region -- however low spots have collected water -- causing stress and stand loss in those areas (see Figure below). This fall it would be a good idea to get a root in the ground in those low spots (either as a perennial or winter annual) to avoid buildup of salts in the soil surface. On July 26th, Bowman County Extension is hosting a field tour and soil acidity workshop in Scranton from 2:30-7pm. On July 28th, Morton County Extension is hosting a variety tour north of Glen Ullin starting at 6:30pm. For more information on the Scranton tour contact Penny Nester at penny.nester@ndsu.edu and for the Glen Ullin tour contact Renae Gress at Renae.gress@ndsu.edu.

Field west of Lefor, ND on July 18th

Ryan Buetow
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WEATHER FORECAST

The July 21 to July 27, 2022 Weather Summary and Outlook

We have just passed the middle point of meteorological summer (June 1 through August 31). Even with the rain from this past week, a high percentage of the NDAWN (North Dakota Agricultural Weather Network) stations are running well below average for rainfall (Figure 1). In fact, there are several stations that are even drier than last year to this point. An interesting tidbit is that the Humboldt NDAWN station in far northwestern Minnesota is running at 97% of normal, in other words, right at the average, yet nearly 4 inches fell at that location in the past week, with 3 inches of that falling this past Tuesday. I mention this as an example of how dry some areas are or have been, and also it gives a good description of: yes, there have been numerous rain events this summer, but most have dropped only localized, not widespread rains.

One exception to our summer of mostly localized rain events was earlier this week. Much of the area north of Highway 2 recorded rain on Monday night into Tuesday. A large cluster of thunderstorms moved from Saskatchewan through Manitoba that also brought thunderstorms with severe weather across far northern North Dakota (Figure 2).
The rain during this forecast period, like these past 7 days, will be mostly hit and miss. There appears to be several minor waves that will move across the state. In turn, it will be hard to pin point the exact areas that will get rain, but there will be opportunities if you’re in a spot that needs a good rain, just no guarantees. Although probably not as warm as last week when temperatures were 5 to 7 degrees above average (Figure 3), these next 7 days look to be averaging near or slightly above average for temperatures. If you’re tired of the persistent above average temperatures, the temperatures this weekend should be a bit below average with many areas recording highs only in the 70s on Saturday and Sunday. That coolness comes after a very hot Friday, which should be one of the factors leading to opportunities for thunderstorms during this forecast period.
Figures 4 and 5 below are forecasted Growing Degree Days (GDDs) base 32° (wheat and small grains) and 50° (Corn and Soybeans) for this forecast period.

**Figure 4.** Estimated growing degree days base 32° for the period of July 21 to July 27, 2022.

**Figure 5.** Estimated growing degree days base 50° for the period of July 21 to July 27, 2022.
Using May 15 as a planting date, the accumulated growing degree days for wheat (base temperature 32°) are 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

![Wheat Growing Degree Days](image)

**Figure 6. Wheat Growing Degree Days (Base 32°) for the period of May 15 through July 19, 2022.**

Using May 20 as a planting date, the accumulated growing degree days for corn (base temperature 50°) are 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

![Corn/Soybean Growing Degree Days](image)

**Figure 7. Corn Growing Degree Days (Base 50°) for the period of May 20 through July 19, 2022.**
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](https://ndawn.ndsu.nodak.edu/soybean-growing-degree-days.html)

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