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FIELD DAYS

Following is a list of 2018 Annual Field Days events that are remaining. This is on the ND Agricultural Experiment Station web page that is updated as information becomes available. Please visit the Research Extension Center and Agronomy Seed Farm websites for more details on specific events.

July 16 - Agronomy Seed Farm, Casselton (5 p.m. start)

July 17 - Carrington Research Extension Center (9 a.m.-3 p.m.)
  beef production tour, fruit project, crop tours
  - Oakes Irrigation Research Site Field Day - August 14

July 18 - North Central Research Extension Center, Minot (9 a.m.-12 noon)

July 19 - Langdon Research Extension Center (8 a.m.-1 p.m.)
  News release
WHEAT MIDGE FLIGHT ENDING

For wheat midge emergence, accumulated degree days have reached more than 1800 (see DD map below). As a result, midge emergence will be declining in most areas of the state. Wheat midge emergence is ahead of last year’s emergence due to the hot temperatures, except in the northwest area of ND.

Pheromone trap catches also have started to decrease at most trapping sites where wheat is in the flowering to milky kernel crop stages (see Wheat Growth Stage map). At trap sites with late-planted wheat in the boot to late heading crop stages (mainly NW and NC areas), higher trap catches were still observed. Wheat is susceptible to wheat midge infestation from heading to early flowering. Updated trap catches are on the PESTWEB system of Montana State University. Remember, trap catches do not indicate treatment but do tell growers when wheat midge is present and the relative density of the male wheat midge.
SCOUT FOR GRASSHOPPERS AND ARMYWORMS IN WHEAT

Isolated hot spots of grasshoppers and armyworms were reported in wheat from southeastern ND. Some fields needed to be treated with insecticides.

With the recent thunderstorms, it is not surprising that armyworms were blown into ND, since this insect pest does not overwinter in ND. The University of Minnesota Extension also has reported armyworms in wheat in southwest Minnesota (Source: Bruce Potter, Extension IPM Specialist).

Full-grown larvae are green-brown, longitudinal stripes on sides and head is brown. They grow to a length of 1½ to 2 inches. Field scouting for armyworms should be done in field margins, low areas with vigorous plant growth, and areas where plants have lodged. Indications of armyworm feeding include leaf defoliation, worm frass (droppings) around the base of plants, and defoliated leaves in lodged areas of wheat fields. Larvae complete feeding in 3 to 4 weeks, staying in the area where they hatched until they run out of food. If all food is consumed, larvae often move in hordes or “armies,” eating and destroying vegetation as they move.

For proper pest management, it is important to scout and control armyworms while they are small larvae and before extensive feeding damage has resulted. Mature larvae that have completed their feeding are more difficult in terms of both control and economic return. Late spraying for armyworms is often referred to as “revenge” spraying, since the crop damage has already been done and no economic benefit is realized.

Look for larvae beneath plant debris around the base of plants and on heads of wheat or barley. Since armyworms feed at night, spray in early evening and use adequate water volume to get the insecticide into the crop canopy (3-5 gallons per acre by air). The current economic threshold is 4-5 armyworms per square foot in wheat or barley.

Grasshopper hot spots were reported earlier in the June 14th issue and June 28th issue of the Crop & Pest Report. For grasshopper action thresholds, use the following:

- In adjacent non-crop areas: 50 - 75 small nymphs per square yard (or 6 - 8 nymphs per square foot), or
- Within the field: 30 - 45 nymphs per square yard (or 3 - 5 nymphs per square foot).

SOYBEAN APHIDS LOW

The IPM Survey and other field reports on soybean aphid counts are low, about 10% of plants in field infested and an average of <10 aphids per plant in ND. The soybean survey in Minnesota reported a higher percentage of plant infested, range of 0-100%; however, aphids per plant were still low <40 aphids per plant (Source: Phil Glogoza, UMN). It is still early for soybean aphid infestations in ND, so continue to be vigilant with scouting. The severe thunderstorms with heavy rains and strong winds, and hot temperatures near 90 F are not ideal conditions for soybean aphid reproduction. Soybean aphids prefer 82 F for optimal reproduction. So, stay tuned for more reports.
EUROPEAN CORN BORER EMERGING

NDSU Extension Entomology set up a European corn borer (ECB) trap network using pheromone traps to monitor populations in conventional field corn this year. We have 10 trap sites in 10 counties of eastern ND, including Barnes, Cass, Grand Forks, Griggs, Nelson, Ransom, Richland Sargent, Steele and Traill Counties. Last week, the Iowa (or Z-race) of ECB was captured in 3 of the 10 trap sites. Trap catches were very low, < 7 moths per trap per week, in Richland County near Antelope, Sargent County, and Cass County near Casselton. The univoltine Iowa (or Z-race) of ECB is the most predominate ECB in ND that emerges once a year, typically in July. The damage from the univoltine ECB includes eardrop, stalk lodging and reduced corn yields when economic populations of ECB larvae tunnel inside stalks of corn. We will be posting weekly maps of the trapping results for European corn borer moths on the IPM website soon. Time to start scouting conventional field corn for ECB egg masses and larvae (more next week).

Thanks to support from the North Dakota Corn Council for the Corn Insect Trapping Network.

MYSTERY BUG

This insect was observed on sunflower near the field edge. What is it?

This is the Argus tortoise beetle (Coleoptera: Chrysomelidae: Chelymorpha cassidea). Adults and larvae feed on leaves of milkweed and morning glory plants. Larvae are often seen carrying around their excrement on their backs, which serves as a protective shield against predators and parasitic wasps. They are seldom abundant enough to cause severe defoliation.

Janet J. Knodel
Extension Entomologist
HAIL DAMAGE IN BEANS AND SUNFLOWER

Soybean and Dry Bean

Every growing season usually has several severe thunderstorms, which sometimes result in crop damaging hail. The growing point of the soybean and dry bean plants is located at the top of the plant where new leaves are emerging. There are also vegetative buds in leaf axils that can serve as growing points where new branches can develop. If the top of the plant is damaged or the stem is cut off above the cotyledonary node, the plant will re-grow from one or more of the axillary buds. However, it will take some time for the plant to recover when many leaves are removed or damaged by the hailstones. Bruised or broken stems are regularly observed after hail, but the hail damage is often not severe enough to kill the plant. Damaged stems may lodge later in the season, especially after pod development and filling. Lodging and plant breaking from hail injury will depend on the severity of the bruising, position of the damage on the stem, the variety, and other environmental factors. Bruised areas of the plant may also be entry points for bacteria or other disease organisms. Loss of leaves opens the canopy which may result in a flush of weeds due to the extra light available for the weeds to germinate and develop. The degree of defoliation and stage of plant development at the time of the hail may affect the expected grain yield. Typically, damage done later in the reproductive phase of the plant will lead to greater percent yield loss. This is a function of limited remaining time until fall plant senescence. Nevertheless, if there are still enough evenly distributed plants remaining, the crop can still produce reasonable yields with a favorable remaining growing season.

Sunflower

The tolerance of the sunflower plant to hail depends on the intensity of the storm, hail size, and the stage of the growth. Sunflower is less tolerant to hail during the budding stage compared to the vegetative stage. Damage occurs from defoliation and severely bruised or broken stems (Photo 1). If the growing point is hit by hail and removed, sunflower plants may branch out and result in many small heads. Those tiny heads will not contribute to yield.

Photo 1: Sunflower leaves partly shredded by hail and bruising on the stems (R. M. Harveson, Univ. of Nebraska).

Hans Kandel
Extension Agronomist Broadleaf Crops
PROTEIN PREMIUMS AND DISCOUNTS IN SPRING WHEAT

In my contribution to the Crop and Pest Report two weeks ago, I described a decision support system for determining when a post-anthesis application of nitrogen might be profitable. It was brought to my attention that my article focused on premiums and neglected to address the issue of discounts that can occur when protein levels drop below 14 percent. My rationale for focusing on “premiums” rather than discussing premiums and discounts separately was that when you increase protein you potentially increase the value of the crop, whether it is because of a true premium for protein levels above 14% or because of reduced discounts when protein levels are less than 14%. When addressing the topic of premiums and discounts in various discussions and meetings, I frequently hear the comment that discounts (when protein is less than 14%) are always much higher than premiums (when protein content exceeds 14%).

In reality, discounts and premiums follow each other closely; at least when considering variations of 1 to 2 percent from the standard 14% protein (see Figure 1). By looking at these historical data, one can see that discounts and premiums for protein often mirror one another. There are notable exceptions to this, however, when premiums were much greater than the discounts (e.g. June 2005) and when the opposite was the case (e.g. December 2011). Moreover, there were several periods when there were no discounts or premiums. The value of protein is determined by industry and is based on the availability of wheat with adequate levels of protein in the supply chain. Interestingly, the current premium for 15% protein wheat (+$0.40) is double that of the discount (-$0.20) for 13% wheat (Table 1) for the two western North Dakota elevators that had prices posted on the web.

Although the value of protein varies and is hard to predict in advance, generally, higher protein levels add value to spring wheat when marketed regardless of whether it is boosting it from 13% to 14% or from 14% to 15%. The reason that applying extra nitrogen to a high yielding, lower protein variety/crop is more likely to be profitable than other scenarios is that there is more potential return to the treatment because there are more bushels to multiply by when calculating the returns from the value of added protein.

Figure 1. Daily protein spreads for hard red spring wheat, Minneapolis, MN (6/1/99 to 1/28/16).

Data from USDA-AMS. Graph prepared by Frayne Olson - NDSU.

(Continued on Next Page)
Table 1. Cash price for spring wheat with differing protein levels from two locations in western ND, July 9, 2018.

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<th>Horizon Resources ($ per bu)</th>
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Joel Ransom
Extension Agronomist for Cereal Crops

PULSE CROP UPDATE
Pea fields in the northwest part of the state have reached early to late reproductive growth stages (Figure 1). Lentils and chickpeas are a little behind the pea crop, but most fields in the northwest region have reached bloom.

Figure 1. Lentil, Pea and Chickpea Growth Stages
(Continued on Next Page)
Disease levels in lentil fields have remained low. Out of the eleven lentil fields scouted by the NDSU WREC pulse scout (Shawn Postovit) from June 18th – 29th, only one field was positive for foliar disease (Ascochyta Blight – Figure 2). With the crop having reached canopy closure in many fields and the weather remaining wet in this region, we will continue to scout for foliar diseases, as high humidity within the crop canopy will favor disease.

Bacterial blight has been identified in pea fields in Williams, Burke and Mountrail counties (Figure 3). Incidence ranges from 8 – 48% of plants exhibiting symptoms. Severity is generally low, with under 15% of the crop canopy showing symptoms. More information about bacterial blight can be found on a previous article in the crop and pest report from 6/2/16 titled Field Pea Diseases Review: Bacterial Blight and Brown Spot.

(Continued on Next Page)
Scouting of chickpea fields in the northwest and north central region of the state for Ascochyta blight continues. In some fields incidence has reached up to 80% (Figure 4). The percent of the crop canopy exhibiting symptoms was on average 7% in the sixteen fields that were positive for disease. Many of these fields have been treated with fungicides in recent weeks.

(Continued on Next Page)
More information about management of chickpea Ascochyta blight can be found on a previous article in the crop and pest report from 6/28/18 titled Management Recommendations for Ascochyta Blight on Chickpea.

Audrey Kalil
Plant Pathologist
NDSU Williston Research Extension Center

MANAGING CERCOSPORA LEAF SPOT OF SUGARBEET

Cercospora leaf spot (CLS) (Figure 1) is the most destructive foliar disease of sugarbeet in North Dakota and Minnesota. The causal agent of CLS is the fungus Cercospora beticola, which is most damaging in warm weather (day temperature of 77 to 90° F and night temperature above 60° F) and in the presence of moisture from rain or dew on the leaves for 8 or more hours. The fungus destroys the leaves and adversely impacts photosynthesis. The longer and more severe the infestation, the greater the reduction in tonnage, sugar concentration and recoverable sucrose. Roots of CLS infected plants have higher impurities and are more costly to process.

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Growers typically manage CLS by integrating rotation with non-hosts crops including corn, soybean and wheat, planting CLS tolerant varieties, planting away from a previously infected crop, and applying fungicides in a timely manner.

The CLS epidemic of 2016 (Figure 2) has resulted in a *C. beticola* population that is highly resistant to QoI fungicides (Headline, Priaxor, Gem) and has also become less sensitive to triazoles (Eminent, Minerva, Inspire XT, Proline, Enable, Topguard), triphenyltin hydroxide (TPTH) (Super Tin, Agri Tin), Thiophanate methyl (Topsin). As a result, the efficacy of individual fungicides to control *C. beticola* has been significantly reduced in most instances.

**What are the options for 2018?**

Current warm and wet conditions in most areas are favorable for *C. beticola* infection and rapid disease development. It is recommended that all fields with row closure should be scouted every 3 to 5 days so that the first application can be made at first symptoms. Symptoms typically appear first in fields close to waterways, shelterbelts, last year’s sugarbeet fields, and near corn fields.

The best way to control CLS during the growing season is to apply effective fungicides in a timely manner. For ground application, apply fungicides in 15 to 20 gallons of water per acre at 75-100 psi pressure; aerial applicators should use 3 to 5 gallons of water per acre for best results. Mixtures which provided effective CLS control in 2017 included TPTH + Topsin (Figure 3), TPTH + Proline (Figure 4), Manzate (EBDC) and Proline (Figure 5), Inspire XT + Badge (Copper) (Figure 6), Minerva Duo (Minerva + TPTH) (Figure 7), and ManKocide (EBDC + Copper) (Figure 8). Since the pathogen has developed resistance to individual and multiple fungicides, all applications should be a mixture with different modes of action (Figure 9). Shorten spray intervals during periods with heavy rainfall, from 14 to 12 or 10 days. Plan on using a systemic fungicide (Eminent/Minerva, Minerva Duo, Proline) in a mixture if heavy rainfall is expected. Try to avoid using site specific fungicides with the same mode of action (triazoles, QoI, Topsin) back to back. It is recommended to do a compatibility test with each batch of mixtures to ensure that the mixture will not result in nozzle plugging. Use warm water where possible and agitate when adding and mixing products. Feel free to call me for current research updates or visit our research site to observe real time CLS control using individual and fungicide mixtures.

![Figure 1. Cercospora beticola kills the mature and productive leaves resulting in re-growth of new leaves. Severe disease starting in early summer results in reduced tonnage, significantly lower sugar concentration and recoverable sucrose with higher processing costs.](image-url)
Figure 2. Sugarbeet field with five fungicide applications in 2016 did not provide effective CLS control because of fungicide resistance.

Figure 3. Plot treated (middle 4-rows) with a mixture of TPTH and Topsis in 2017.
Figure 4. Plot treated with Proline and TPTH in 2017.

Figure 5. Plot treated with Manzate (EBDC) and Proline (triazole) in 2017.

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Figure 6. Plot treated with Inspire XT (triazole) and Badge (Copper) in 2017.

Figure 7. Plot treated with Minerva Duo (Minerva - triazole + TPTH) in 2017.
Figure 8. Plot treated with ManKocide (Manzate – EBDC + Kocide – Copper) in 2017.

Figure 9. Plot treated with fungicide mixtures provided effective CLS control in 2017.
WHEAT DISEASE UPDATE

Common Foliar Diseases
Bacterial leaf streak and tan spot are the two most common diseases being detected in wheat fields. Last week the NDSU IPM scouts identified bacterial leaf streak in 28% of the wheat fields and tan spot in 21% of the fields. Bacterial leaf streak was commonly found on flag leaves (Figure 1), whereas tan spot was primarily in the mid to lower canopy. I have visited a few fields where bacterial leaf streak will likely cause some yield loss.

Rust Diseases
Barley leaf rust was found by Brittney Aasand (IPM Scout) on July 2 in Foster County. Wheat leaf rust (Figure 2) was found on July 10 in Morton County and Adams County while visiting hard red spring wheat breeding plots. This is the latest report of a cereal rust in the state in the past six years. At this point in the growing season, it is unlikely that cereal rusts will lead to any yield loss.

Fusarium Head Blight (Scab) Risk
Scab risk for susceptible late planted spring wheat and durum is moderate to high for several areas across the state (Figure 3). A moderate to high scab risk will likely remain for these areas in the upcoming days due to high humidity and recent thunderstorms. Also, now is a good time to start scouting fields that have entered early dough stages of development for “scabby” heads and be on the lookout for partially bleached (partially green/partially white) wheat spikes.

Andrew Friskop
Extension Plant Pathology, Cereal Crops

Figure 1. Bacterial leaf streak in the upper canopy of wheat.

Figure 2. Wheat leaf rust identified on susceptible hard red spring wheat variety.

Figure 3. Fusarium head blight risk for susceptible varieties on July 10.
RESOURCES FOR COPING WITH PESTICIDE DAMAGE - INCLUDES ADDITIONAL TOOLS FOR 2018

Whether it is spraying the wrong field, not cleaning the sprayer sufficiently, drift to sensitive crops/plants, or taking out a garden—all of these reasons, and many more, can cause major problems. Often incidents can result in tens or even hundreds of thousands of dollars to the damaged party. NDSU has resources to help people work through this:


2. Rich also has a section in the 2018 ND Weed Control Guide, W-252, regarding “Investigation of Crop Injury” on page 70. A list of residue testing laboratories can be found on page 108 and 109. The guide is available from your county agent or here: https://www.ag.ndsu.edu/weeds/weed-control-guides/nd-weed-control-guide-1

3. The ND Department of Agriculture has an FAQ and an On-line form for submitting a formal complaint. https://www.nd.gov/ndda/pesticide-fertilizer-division/pesticide-program-complaint-form

4. We have developed a narrated video presentation on complying with North Dakota’s “Alleged Property Damage Notification of Applicator Law,” North Dakota Century Code Chapter 4.1-33-18. Also known as the “28 Day Rule”. The video runs 14 minutes and can be watched on smartphone, tablet, or computer at this URL: https://vimeo.com/226170040/dae4272f81 the slide set used in the video is available in PDF here: https://tinyurl.com/LossSlideSet

5. The text of 4.1-33-18 and a copy of a sample notification letter is here in Word format: https://tinyurl.com/LawLetterSample the PDF version is here: https://tinyurl.com/LawLetterSamplePDF


7. Additional resources for coping with dicamba related off target movement can be found at our NDSU Pesticide Training and Certification Website, look Under “What’s Hot at: https://www.ag.ndsu.edu/pesticide

Recovering from a pesticide misapplication incident is a very challenging process. The above materials should help applicators and those suffering damage better understand and organize their efforts.

Andrew A. Thostenson
Pesticide Program Specialist

WHY IS MY PIGWEED DIFFERENT THAN YOUR PIGWEED?

Every field season creates interesting observations that reestablishes normal. One observation in 2018 is the redistribution of weeds. For example, prior to 2017, narrowleaf hawksbeard (Latin name = Crepis tectorum) occurred in insignificant areas of fields and along roadsides in western North Dakota, but widespread infestations occurred in Canada and Montana. In 2017, heavy populations and widespread distribution of narrowleaf hawksbeard occurred in ND. You probably have seen it if you live in Williams County. It’s the plant that overwinters in the rosette stage and forms an elongated stem with yellow flowers in the spring. Recently a home owner found a plant specimen identified as narrowleaf hawksbeard in Grand Forks County. How did a weed of the west find its way to the east?

Waterhemp belongs to the botanical Amaranth family, which also features other pigweed species found in North Dakota and Minnesota, including redroot pigweed, Powell pigweed and smooth pigweed. The
Latin, or scientific name, of each pigweed includes the genus name *Amaranthus*; each respective species name differentiates among the genus members.

Waterhemp plants are either male or female (dioecious). Thus, male plants produce only pollen, while female plants produce only seed. This type of biology leads to cross-pollination, or the fertilization of female plants with pollen from one or more male plants. Cross-pollination can greatly increase the genetic diversity of a population, and with genetic diversity comes a wide range of morphological and biological characteristics. Seeds produced by female waterhemp plants are small and usually germinate from very shallow depths in the soil (1/2 inch or less). The number of seeds produced by female waterhemp plants can vary depending on many factors. Waterhemp has been a ‘game-changer’ due to its wide period of germination and emergence and due to its herbicide resistance.

Most Agriculturalists associate waterhemp with the eastern portion of the state of North Dakota or areas east of US 281. However, in 2018, waterhemp has been identified in central and western areas of North Dakota. Recently a homeowner from Beach, ND sent a sample that was identified as waterhemp. Once again, how does a pigweed that is common in the east find its ways to the Beach, ND, one of the most westerly communities in North Dakota?

How do weeds spread? They spread by natural methods including wind, water and by animals and by humans by vehicles, attached to equipment such as combines or tillage and in contaminated seed or feed. Following the 2107 drought, numerous quantities of hay baled in places like Wisconsin, Kansas and Nebraska were shipped to North Dakota. While the intent was positive, it is possible that donated and purchased hay contained weeds and weed seed. Dare I say the hay may contain Palmer Amaranth, a weed we don’t yet have in ND....

We remind you to be curious about the weeds you observe in your gardens, in your agricultural fields or in your pastures. Ask for assistance is weed identification if a weed such as pigweed doesn’t look like other pigweeds in your community. Call your County Agent, ask your crop consultant or ag-retailer. Call a State Specialist. But, above all, be curious. We intend to continue our campaign about Palmer amaranth awareness and identification. Palmer amaranth will start flowering soon if it accidentally was transported to North Dakota. We will teach you how to identify it and assist you in its eradication if we find it. As we have stated, we don’t have Palmer Amaranth in North Dakota and we don’t’ want it.

Tom Peters
Extension Sugarbeet Agronomist
NDSU & U of MN

around the state

NORTH CENTRAL ND

Some parts of the region continue to see decent amounts of rainfall. Minot received about 0.45”, Bottineau 0.81”, Crosby 0.50”, Garrison 1.26”, and Rugby 0.57” of precipitation. Soil temperatures (bare) appear to be holding steady at most NDAWN stations in the North Central region (NCREC/Minot - 83°F, Bottineau - 75°F; Garrison - 77°F; Rugby - 75°F).

Continue to scout for populations of grasshoppers in the area as some growers are spraying for control, however, it is important to keep the action threshold in mind before making an insecticide application. The ‘threatening’ rating is considered the action threshold and is advised whenever 50-75 nymphs per square yard are being observed in adjacent non-crop areas or 30-45 nymphs per square yard within the field. Growers can use a 15-inch
diameter sweep net, taking four 180 degree sweeps to equal a square yard estimate. Always inspect ditches and field edges for nymphs.

For small grain aphids (i.e. Greenbug, Bird Cherry Oat Aphid, and English Grain Aphid), the treatment threshold is 85% of stems with more than one aphid present or 12-15 aphids per stem, prior to complete heading. Populations above the threshold could result in economic injury. Additionally, aphids are being reported in pulse crops in Ward County. Again, consider economic threshold before spraying. Scouting should be completed by examining the number of aphid per plant tip when 50-75% of the crop is flowering. Check at least five 8-inch plant tips from four different locations in the field. Calculations should be taken by determining an average of the four locations scouted. In peas, economic thresholds can vary depending on crop value, potential seed weight, precipitation, and heat stress. As an example, the economic threshold for peas valued at $5.71 per bushel (and an average control cost of $6.73-9.25 per acre) is 2-3 aphids per 8-inch plant tips or 9-12 aphids per sweep using a 15-inch diameter net at flowering. For chickpea, there is no recommended threshold for aphids.

Wheat Midge continues to be detected in traps across the region with numbers now falling from a peak 10 days ago. However, scouting should continue. Please refer to the Crop & Pest report from 2 weeks ago for more information.

TJ Prochaska
Extension Cropping Systems Specialist
NDSU North Central Research Extension Center

NORTHWEST ND

Severe thunderstorms moved through Williams and McKenzie Counties the night of Monday, July 9th with wind gusts as high as 50 mph. Rainfall totals ranged from about 0.5” to 2.0”. Very large hail, tennis ball to golf ball size, was reported south of Grenora, in the Bonetrail area northwest of Williston, and around Watford City. Pea-sized hail fell in Williston. Crop damage in areas that received large hail has been reported. There is a chance of more isolated thunderstorms popping-up overnight of the 10th. The forecast for the coming week is temperatures in the 80’s and 90’s through Saturday and then cooling down into the 70’s and 80’s Sunday and Monday.

Clair Keene
Extension Cropping Systems Specialist
NDSU Williston Research Extension Center

NORTHEAST ND

As of July 9th, Langdon hit 1000 GDDs for corn. We are 267 GDDs ahead of last year’s accumulation. The first signs of tasseling in the region have been observed. Soybeans are at R1 (first flowers) and R2 (full bloom). Flax is blooming. Canola continues to bloom. Sclerotinia development risk is higher in the counties of Rolette, Towner, Ramsey, Benson and far western Cavalier County.

Wheat is flowering to soft dough stages. Scab risk is high for late seeded susceptible varieties across Towner, Cavalier and Grand Forks Counties. We have observed bleached heads from scab and wheat stem maggot in our IPM surveying. Bacterial leaf streak is also present in wheat stands which were roughed up by storm events. Grasshoppers continue to need to be scouted. Still haven’t found soybean aphid as of 7/9 in the region.

Lesley Lubenow
Area Extension Specialist/Agronomy
NDSU Langdon Research Extension Center

SOUTH-CENTRAL

The region’s NDAWN station data indicate rain during July 1-9 ranged from 0.8 inch (Harvey) to 2.9 inches (Robinson), with the Carrington REC (CREC) receiving 2.3 inches. Soil moisture is adequate to excess (standing water now present in low areas of fields). The abundant moisture is increasing risk of scab and late-season foliar disease in small
grain, and white mold and rust in dry bean. However, our crops are using significant moisture. For example, NDAWN data indicates corn emerged on May 10 used 1.7-2 inches of moisture during the week of July 3-9. 

Winter cereals are nearing maturity and late-April seeded barley is right behind in development (dough stage to seed color loss). Late-April seeded spring wheat is in the watery ripe to milk stages. Corn planted during the first week of May is beginning to tassle (VT stage). Based on NDAWN growing degree day units (GDDU) accumulated from May 1 planting date through July 9, the region’s corn has accumulated 1070 GDDUs (Wishek) to 1260 GDDUs (Oakes), which continues to be about 10-14 days ahead of the long-term average for the same period. Mid-May planted soybean fields are at full flower to early pod development (R2-3 stages).

The CREC Field Day is Tuesday, July 17. Two agronomy tours are scheduled at 9:30 a.m. and 1 p.m. that will showcase a wide variety of our crop management research. Tour info can be found at www.ag.ndsu.edu/CarringtonREC/

Greg Endres
Extension Cropping Systems Specialist
NDSU Carrington Research Extension Center

SOUTHWEST ND

Many are still cutting hay across southwest North Dakota. It is important to keep the growth stage of the crop in mind, especially when cutting small grains for hay to get the most out of the forage. Also, be sure to pay attention to growth stage when applying herbicides and fungicides to cash crops, a reminder to read and follow label instructions. While many have received adequate rainfall across the region, there are still some areas in need of moisture, and other parts of the region dealing with damage from severe weather. According to NDAWN in the past week from July 1st to July 10th Dickinson received 1.92 inches, 0.56 inches in Beach, 1.02 inches in Bowman, 0.83 inches in Hettinger, and 0.66 inches in Mott. Be sure to attend field days and crop tours throughout the region over the next several weeks.

Ryan Buetow
Extension Cropping Systems Specialist
NDSU Dickinson Research Extension Center
WEATHER FORECAST
The July 12 through July 18, 2018 Weather Summary and Outlook

As Yogi Berra once said, “It’s deja vu all over again.” In other words, it was yet another week with temperature averaging above normal. A few North Dakota Agricultural Weather Network (NDAWN) stations were near average, but generally, in much of the region the temperatures were two to four degrees above normal (see Figure 1).

![Temperature Departure from Average for the Period of July 4 through July 10, 2018](https://ndaawn.ndsu.nodak.edu)

Although there were no widespread rain events, there were enough regional thunderstorms clusters that nearly all NDAWN stations recorded some rain in the past seven days. The graphic below does not include the rain from early Wednesday morning that impacted areas in northern North Dakota into far northwestern Minnesota.
Since the start of meteorological summer on June 1, most NDAWN stations have recorded average or above average precipitation (Figure 3). The most pronounced areas with rainfall deficits in the past six weeks are the central Red River Valley areas in both North Dakota and Minnesota as well as extreme northwestern Minnesota.

The persistent above average temperatures that have been recorded since the beginning of May will continue for the next seven days, although, a brief period of below average temperatures are predicted to occur for a few days next week. Projected growing degree days (GDDs) Base 32°, 44° and 50° for the period of July 12 through July 18 are presented in Figure 4.
With some rainfall expected in the next seven days, plus several days with high dew points, the projected hours with relative humidity above 85% may exceed 40 hours over much of eastern North Dakota (Figure 5). Some drier air is expected early next week (with the cooler temperatures mentioned), meaning the highest disease risk looks to be through Sunday.

Figure 4 Projected Growing Degree Days for the next 7 days

Figure 5 Projected Hours with Relative Humidity >85% for the period of July 12 through July 18, 2018
Using May 5 as a planting date, the accumulated wheat growing degree days (Based 32°) through July 10, 2018 are presented in Figure 6. Use this link to find your exact GDDs for your planting date(s).


Using May 10 as a planting date, the corn accumulated growing degree days (Base 50°) through July 10, 2018 are presented in Figure 7. Use this link to find your exact GDDs for your planting date(s).


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