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entomology

COOL SPRING SLOWS INSECT PEST DEVELOPMENT

Due to the cool wet spring, insect development has been delayed since insects are cold-blooded or their body temperatures are at whatever the outside temperature may be.

Alfalfa weevils (Fig. 1) should be starting to emerge mid- to late May. However, the degree day model for alfalfa weevil shows that we are behind due to the cool spring. Only the southwest to northwest areas of the state have accumulated enough degree days (200 ADD) for adults to start emergence (Fig. 2, next page).

Adult alfalfa weevils overwinter in shelterbelts and wooded areas outside the alfalfa field. Adults are only ¼ inch long, brown with a distinctive dark brown stripe running down the center of the back (Fig. 1). Antennae are elbowed, clubbed and the snout is blunt. Alfalfa weevil larvae feed on the leaves causing small pinholes from early instar larvae to heavily skeletonized leaves (Fig. 3) from later (mature) instar larvae. They even may cause crown injury, especially during drought like experienced in 2021. The recent moisture will help weevil damaged alfalfa fields to recover this year. It is still important to scout fields for economic populations of alfalfa weevil and treat with an insecticide if necessary. In North Dakota, alfalfa weevil is most damaging to the alfalfa before the first cutting.

Scouting should begin immediately after egg hatch, and fields should be scouted weekly up through the first cutting. Egg hatch occurs at 300 accumulated degree-days. A 15-inch sweep net is useful for finding adults and larvae in alfalfa fields. More on scouting and thresholds in the next issue.

For more information, see the NDSU Extension publication [Integrated Pest Management of Alfalfa Weevil in North Dakota E1676](#)

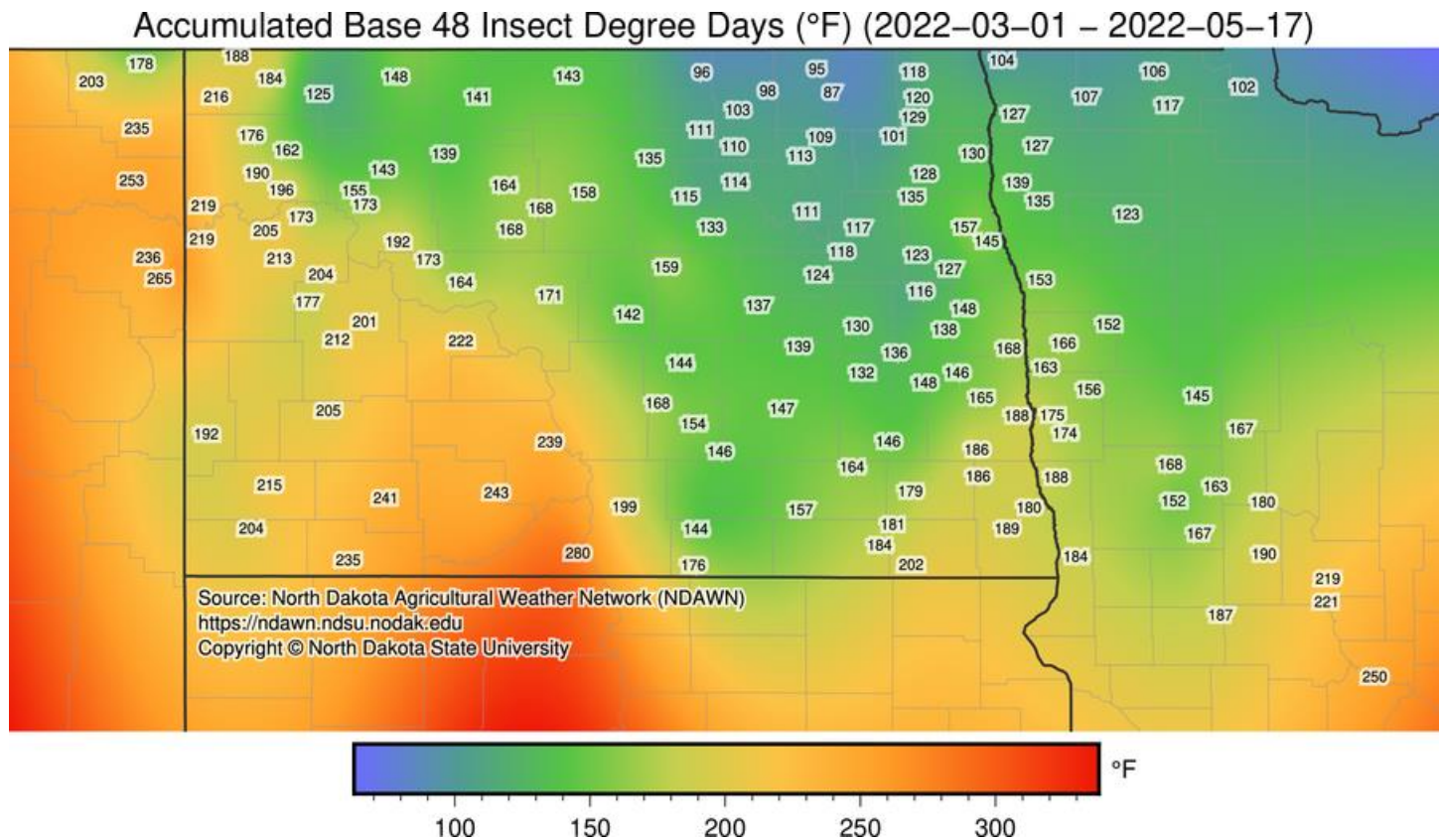


Figure 1. Adult alfalfa weevil
(Patrick Beaulay, NDSU)



Figure 3. Defoliation caused by alfalfa weevil larvae

Figure 2. Current Alfalfa Weevil Degree-Day Accumulations (base 48°F) as May 17, 2022 (Source: NDAWN)



[Janet J. Knodel](#)

Extension Entomologist



SUMMARY OF SOYBEAN CYST NEMATODE SURVEY: 2013-2021

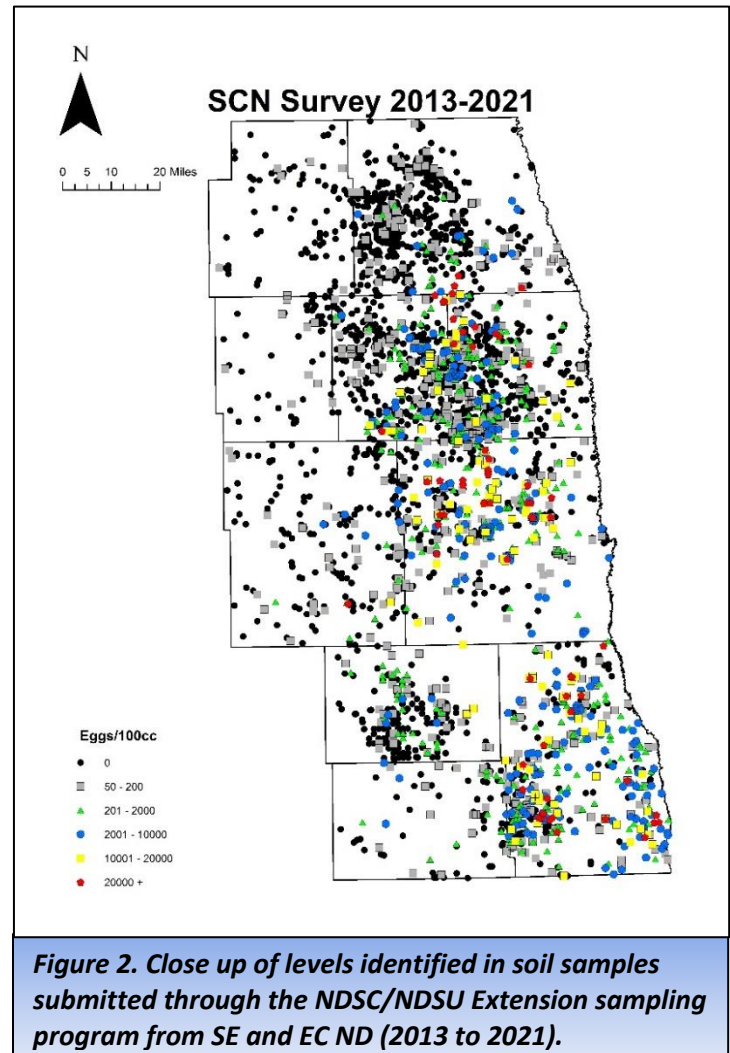
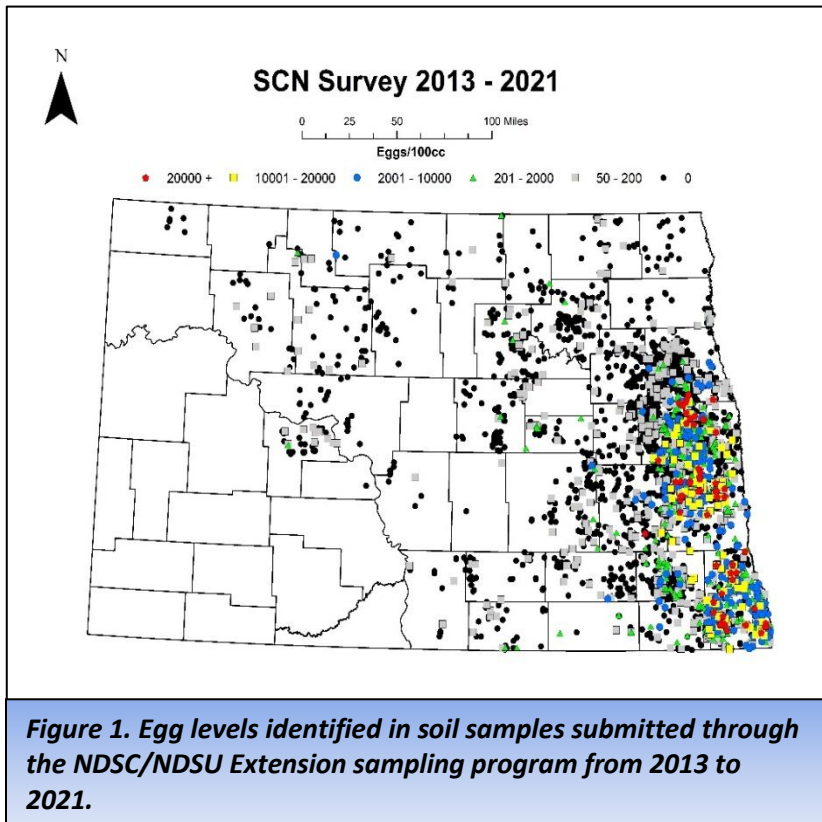
Between 2013 and 2021, approximately 4700 SCN soil samples have been submitted by North Dakota growers using the Soybean Cyst Nematode (SCN) sampling program supported by the North Dakota Soybean Council and operated by NDSU Extension (Figure 1). The North Dakota Soybean Council has financially supported the SCN sampling program by covering the cost of the laboratory fees when growers used pre-marked bags, which are available at the County Extension Offices in the fall. This program will continue in 2022 this fall. We thank the NDSC for their support!

What is SCN?

SCN is a nematode, a microscopic worm, that feeds and reproduces on root tissue. SCN is the top yield-robbing pest of soybeans in the US, causing over \$1B in losses every year to the national soybean crop. SCN is notorious for causing yield loss before above-ground symptoms appear, making it difficult to detect. Consequently, soil sampling is the best way to detect SCN.

Where is SCN in ND?

Results of the statewide sampling program indicate the SCN is common in soybean fields is most frequently identified in the Southeastern and East central part of North Dakota (Figure 1 and 2). Test results show egg levels in additional counties, but they are less frequently identified and in lower numbers.



How do I interpret the numbers?

When a soil sampling is submitted for SCN, scientists microscopically evaluate the soil for nematode eggs, and present that number as eggs/100 cc soil (basically, how many eggs occur in about 3.3 ounces of soil). It's not always easy to identify and count eggs (there can be false negatives and positives both), and sampling has its own variability, so interpretation of results is important.

In our maps:

- Black circles are negatives. It doesn't mean you don't have SCN for sure, but no eggs were found in a sample.
- Gray boxes (50-200 eggs/100cc) are very low levels, which could be real, or could be false positives (other nematodes produce eggs in soil too). I often suggest these are 'inconclusive', but it is critical you sample for SCN in the future.
- Green triangles (200-2,000 eggs/100cc) are low-level positives.
- Blue circles (2,001-10,000 eggs/100cc) are positives.
- Yellow squares (10,000-20,000 eggs/100cc) indicate high levels of SCN.
- Red pentagons (20,000+ eggs/100cc) are extremely high levels of SCN.

Yield loss becomes more likely as egg levels increase, but it is notable that yield loss is possible at any level of SCN. *Why?* First, SCN can reproduce very fast and numbers can go from 1,000 eggs/cc to 30,000 eggs/cc on a susceptible variety when the environment is favorable. Second, SCN is notoriously variable in fields and farms, and you will have both lower and higher spots in your field. The take home message? *If you have SCN at any level, it is very important to manage it.*

What can I do?

If you don't know if you have SCN, sampling for SCN is the first and most important step towards management. This can be done in the spring (see the press release from The SCN Coalition) or most commonly in the fall. The NDSC and NDSU Extension are again supporting the SCN sampling program this fall, and more information will be available in future Crop & Pest Reports.

If you know you have SCN, sampling can be a great way to determine if your management tools are working. If you see your egg levels staying the same or dropping, your management tools are likely working. If those levels rise, you may consider adjusting the way you are managing SCN.

Where can I get more information?

NDSU Extension published a new 'Soybean Cyst Nematode (SCN) management guide in April (2022), available mobile friendly (<https://www.ndsu.edu/agriculture/extension/publications/soybean-cyst-nematode>) and in original publication form (<https://www.ndsu.edu/agriculture/sites/default/files/2022-04/pp1732.pdf>)

The SCN Coalition (www.thescncoalition.com) is the website of a public-private partnership whose objective is to manage SCN. The website is full of resources, videos and more.

[Sam Markell](#)

Extension Plant Pathologist, Broad-leaf Crops



AGRICULTURAL DRAINAGE

Last year we had a drought in North Dakota and in 2022 we have excess moisture in many parts of the state. Drainage is needed in many soils in the region, due to poor natural internal drainage. Many fields remain waterlogged for several days after excess rain without artificial drainage. This prolonged wetness prevents timely fieldwork and seeding. Wet conditions after seeding may cause stress to growing crops, because saturated soils do not provide sufficient aeration for crop root development. The roots of most crops grown in North Dakota and northwest Minnesota cannot tolerate excessively wet conditions for more than a couple of days. Soil conditions that make drainage a necessity for some agricultural fields include those with slow water permeability or dense soil layers that restrict water movement.

Agricultural drainage is the use of surface ditches, subsurface permeable pipes, or both, to remove standing or excess water from poorly drained lands. During the late 1800s, European settlers in the Upper Midwest began making drainage ditches and channelizing (straightening and reshaping) streams to carry water from the wet areas of their farms to nearby streams and rivers. Later, farmers increased drainage by installing subsurface drainage pipes generally at a depth of three to six feet. Until the 1970s, most subsurface drainage pipes were made from short, cylindrical

sections of concrete or clay called "tile." That is why terms like tile, tile drainage, and tiling are still used, even though most drainage pipe today is perforated polyethylene tubing. When installing a subsurface drainage system, pipes are either strategically placed in a field to remove water from isolated wet areas or installed in a pattern to drain an entire field. In some areas, surface inlets or intakes (risers extended from underground pipes to the surface) remove excess surface water from low spots in fields. In a short [video](#), I explain and demonstrate how tile drainage works.

Farmers are willing to make a significant financial investment when installing an agricultural drainage system for two major reasons:

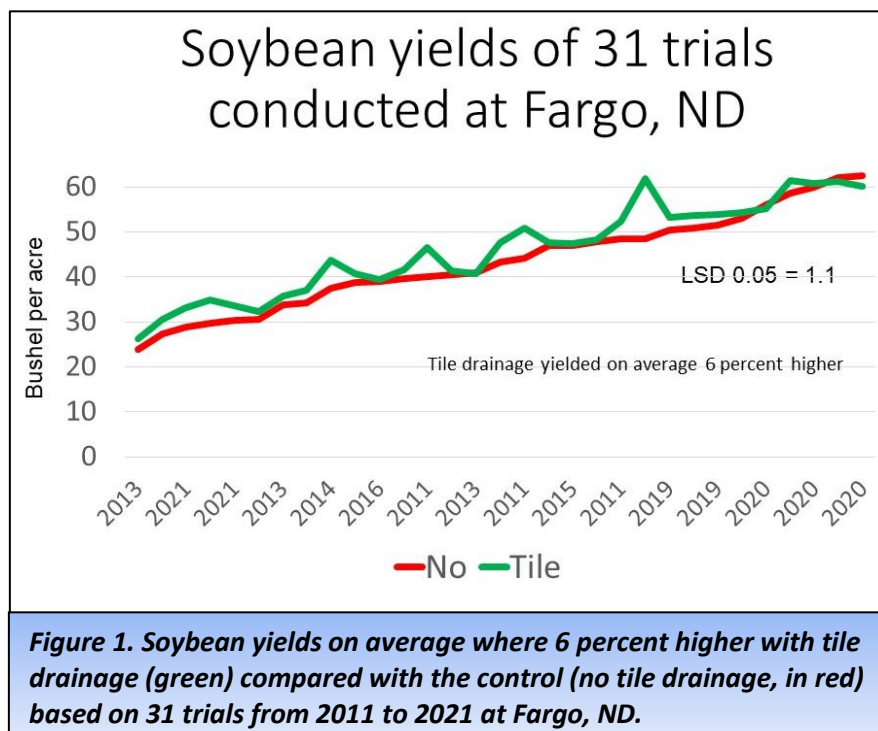
1. Agricultural drainage systems usually increase crop yields on poorly drained soils by providing a better environment for plants to grow, especially in wet years.
2. The systems generally help improve field conditions for timely tillage, planting, and harvesting.

Figure 1 provides an overview of tile drainage research, comparing soybean yield with and without tile drainage. This research indicated an average yield increase of 6% with tile drainage, including some dry years, when there was no water flow out of the tile lines. Yield benefits will depend on the year, crop, and crop management.

Analysis of experimental and producer survey data (including North Dakota data) revealed a [4 to 8% benefit](#) of



Photo: Installing subsurface drain tile.



subsurface drainage in soybean yield in environments of the North Central - US region (Mourtzinis et al.). For agronomic reasons why producers use tile drainage, see my [video](#) explanation. For answers to frequently, asked questions on tile drainage see [publication AE1690](#).

Reference:

Mourtzinis, S., J.F. Andrade, P. Grassini, J.I. Rattalino, H. Kandel, S. Naeve, K. Nelson, M. Helmers, S.P. Conley. 2021. Soybean yield increase due to artificial drainage in the Northern Central US Region. https://coolbean.info/wp-content/uploads/sites/3/2020/08/2020_SoybeanDrainage_final.pdf

[Hans Kandel](#)

Extension Agronomist Broadleaf Crops

BLACK BEAN YIELD RESPONSE TO ROW SPACING AND PLANT POPULATION

Black dry edible bean is the second most commonly grown bean market class in North Dakota and Minnesota (17.8% of total bean acres, based on the 2021 Northharvest bean [grower survey](#)). North Dakota State University's current [recommendation](#) is to establish 90,000 – 120,000 black bean plants per acre across row spacings. The 2021 survey indicates 24% of growers planted at a seeding rate of 120,000 or greater seeds per acre. Also, the survey indicates 16% of growers use rows less than 21 inches wide and 66% use row spacings of 21 to 25 inches wide.

A North Dakota study re-examined the interaction of black bean row spacing and plant population to identify potential seed yield increase with narrow rows and greater plant populations. Eclipse black bean was planted in 14-, 21- and 28-inch rows at 100,000, 125,000 and 150,000 pure live seeds per acre at Carrington in 2014 to 2018.

Black bean seed yield was statistically different among means of the two factors averaged across four years at Carrington (Table 1). Among plant populations, which averaged 101,700, 126,200 and 148,500 plants per acre, yield increased 13% to 14% with 14-inch rows compared to 28-inch rows. However, among plant populations, 21-inch rows had similar yield as 28-inch rows. Within each row spacing, yield did not differ among plant populations.

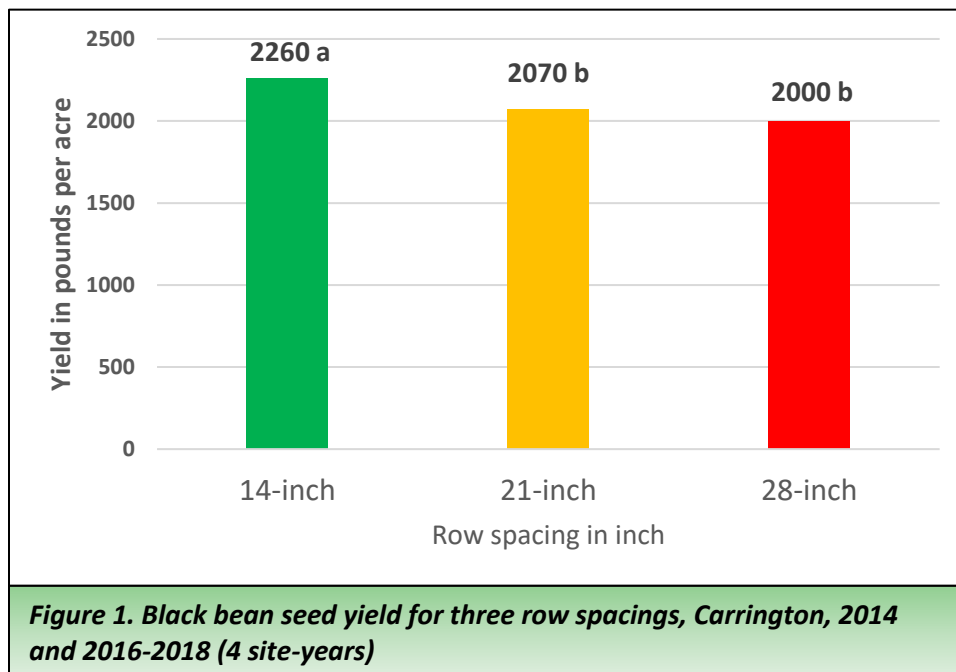
Table 1. Black bean seed yield among row spacings and plant populations, Carrington, 2014 and 2016-2018 (4 site-years).

Row spacing	Plant population		
	101,700	126,200	148,500
Inches	Seed yield in pounds per acre		
14	2210 ab	2290 a	2270 a
21	2050 bc	2080 abc	2090 abc
28	1940 c	2030 bc	2010 bc
LSD (0.05)	----- 220 -----		

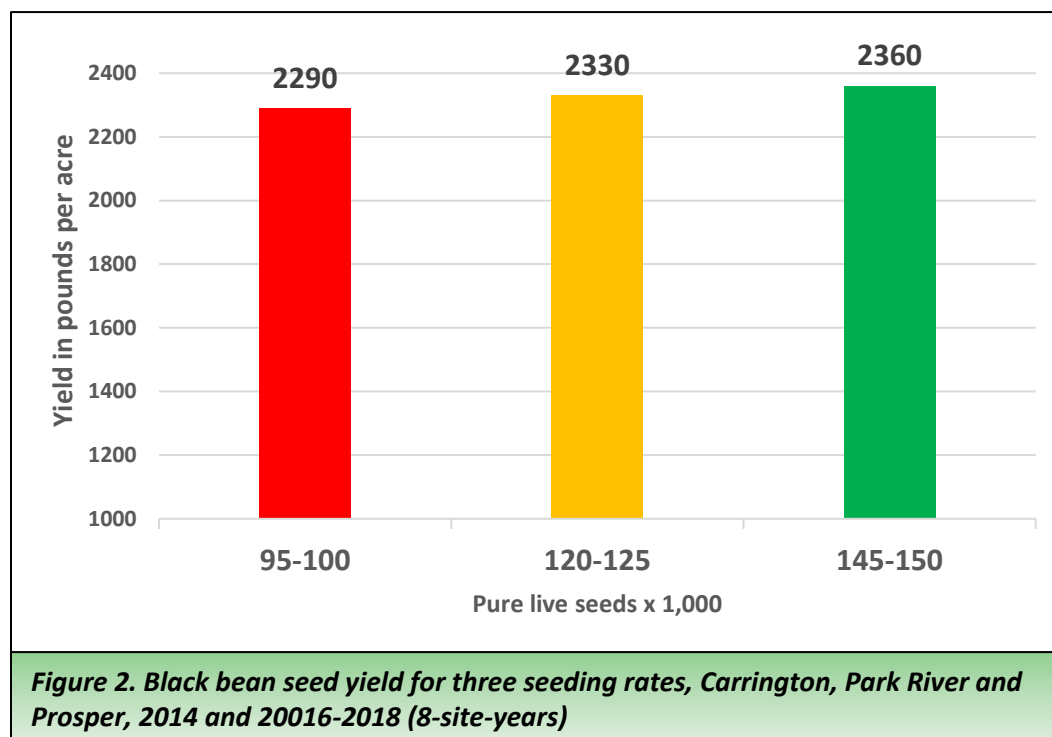
Means with no similar letters are significantly different.

Averaged across four years and plant populations at Carrington, black bean yield with 14-inch rows was 9% and 13% greater compared to yield with 21- and 28-inch rows, respectively (Figure 1). Plant emergence, flowering and physiological maturity dates generally were similar with row spacing each year of the study (data not shown). Canopy

closure visually evaluated during late July to early August and averaged over three years was 85%, 76% and 64% with 14-, 21- and 28-inch rows, respectively. Test weight and seed size generally were similar among row spacings (data not shown).



Means with different letter are significantly different. LSD (0.05) is 130 pounds per acre.



Means are not significantly different.

Averaged across eight site-years, black bean planted at the low, medium and high rates produced 99,100, 118,500 and 140,700 plants per acre, respectively. Yield was statistically similar among plant populations (Figure 2). Plant emergence, flowering and physiological maturity dates generally were similar with plant population (data not shown). Canopy closure, averaged across five site-years, generally was similar among plant populations. Also, test weight and seed size were similar with plant population at each of the eight site-years of the study.



Carrington black bean variety trial.

The study results confirm why current black bean grower are reducing row width and increasing plant populations.

Source Black and Navy Bean Response to Row Spacing and Plant Population in Eastern North Dakota, Extension [publication A1921](#) (revised April 2022)

[Greg Endres](#)

Extension Cropping Systems Specialist
NDSU Carrington Research Extension Center

[Hans Kandel](#)

Extension Agronomist Broadleaf Crops



USE THE CORRECT NITROGEN 'STABILIZER' TO FIT YOUR NEEDS

I dislike the term 'stabilizer' to define an additive intended to change the susceptibility of nitrogen fertilizers to loss. Originally it was used to help market N-Serve™ (originally Dow, now Corteva Agriscience) in the 1970's when it was introduced. Now it appears that people throw the term around to describe any effect of product on nitrogen dynamics. The following is a brief description of use of different classes of nitrogen additive, amendments. For a far more detailed description, see the NDSU circular Nitrogen Extenders and Additives

https://www.ndsu.edu/fileadmin/soils.del/pdfs/Nitrogen_Extenders_and_Additive_for_Field_Crops_2017.pdf

Nitrification inhibitors-

Nitrification inhibitors are mostly used in the fall with urea and anhydrous ammonia to keep the ammonia-based fertilizer in the ammonium form longer in the soil, and reduce the rate of conversion to nitrate, which is subject to

leaching and denitrification. Two proven chemistries act to delay and reduce the rate of nitrification. One is nitrapyrin (N-Serve, Instinct™ (Corteva Agrisciences), others). The other chemistry for delay and reduction of nitrification is DCD (dicyandiamide). These chemistries do not stop nitrification. They only delay and reduce the rate of conversion.

Urease inhibitors-

The oldest and most researched urease inhibitor is NBPT, which was the active ingredient in the original Agrotain™. Now, NBPT is present in many products, but for use to be effective it should be used at the same rate of product to urea, or product to UAN (urea ammonium nitrate solution) as Agrotain Ultra™ (Koch Industries, Wichita, KS). The active ingredient NBPT, if used at the proper rate, is completely effective for about 10 days in stopping the conversion of urea to ammonium/carbon dioxide by soil-active enzyme urease. If the temperature is hot, this effectiveness may be for a shorter time, and will be for a longer time under cooler conditions.

This spring, when field season begins in earnest, everyone will want fertilizer applied the same day. It is not possible. Likely most acres will receive a urea application after planting. Under those circumstances, application of urea treated with NBPT will be necessary to prevent ammonia volatilization, especially when there is surface residue present and/or the soil pH is greater than 7. When soil pH is under 6, ammonia loss is less likely. However, unless a grower knows through zone sampling a field that soil pH is all acidic, there is a strong possibility that a major portion of any field has pH greater than 7.

Use the nitrogen additive that will be of greatest benefit to your situation.

[Dave Franzen](#)

Extension Soil Specialist
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EARLY SEASON WEED ID SAMPLES: THE GOOD, THE BAD, AND THE UGLY

One sure sign that spring has finally sprung is an abundance of weed pictures submitted for proper identification. The pictures have been flowing in this week, so I wanted to highlight some of the most frequent offenders being found across the state. I decided to break these down into 3 categories: The Good (or rather, the weeds you shouldn't worry about), The Bad (weeds that should be dealt with, but are manageable in most systems), and The Ugly (difficult to control weeds that become more problematic if not dealt with).

The Good

While we don't often refer to weeds as good, I wanted to fit this group of weeds into my theme. Many folks would classify the following weeds as native/naturalized wildflowers, and I can't say they're wrong. These weeds often flower and complete their life cycle before we plant our crops. They are all currently flowering, or about to flower, and should have mature seed present before we apply burndown herbicides or till our fields. They are often found in abundance, as they seem to be filling a niche of utilizing soil resources in between annual crop life cycles. Most field prep activities will control the following plants:

Fairy candelabra (*Androsace occidentalis*)

Fairy candelabra is a small winter or spring annual plant in the primrose family. It is often found at high densities in fields in April and May. However, this plant will stay relatively small and will die off as the temperatures warm up. Typical seedbed preparation in both conventional and no-till will control this plant. Even if no control measures are taken, fairy candelabra will not be competitive with crops since these plants are currently nearing the end of their life cycle.



Mature fairy candelabra pulled from a flower bed.

Yellow whitlow-grass (*Draba nemorosa*)

This weed is sometimes called yellow whitlow-wort. It is a native winter or spring annual plant in the mustard family. Yellow whitlow-grass germinates in the fall or early spring like many winter annuals and rarely grows more than 4 to 5 inches tall. It will produce clusters of small, yellow, 4-petal flowers that form into small seed pods at maturity in the late spring/early summer. There is a similar species, simply known as whitlow-grass (*Draba verna*), which has white flowers instead of yellow flowers. Both whitlow-grasses are most often confused with fairy candelabra because of the similar small appearance and unique life cycle. In some cases, whitlow-grasses are confused with horseweed, but horseweed will not flower until July or August, and whitlow-grass will be dead and gone by then.



Flowering yellow whitlow-grass (picture credit: Ian Horner)



© Erin C. Hill

Flowering whitlow-grass (Picture credit: Erin Hill)

Bur buttercup (*Ceratocephala testiculata*; or *Ranunculus testiculatus*)

This plant is a winter annual weed in the buttercup (*Ranunculaceae*) family. It usually only grows to 2 to 3 inches tall and will complete its life cycle soon. The leaf shape and flowers are typical of plants in the buttercup family, but the unique seedpod/bur makes this an interesting specimen. This plant is more typically found in states to our west, but we have had some reports in fields in central and western ND.



Waterpod in a bare spot in a no-till field in early May 2021



Bur buttercup leaves, flowers, and seedpods. (Picture credit: Sarah Bedgar)

Waterpod (*Ellisia nyctelea*)

Waterpod is another weed that is showing up across the landscape this year. Though the leaf structure may remind some of common ragweed or biennial wormwood, waterpod plants are much larger and more advanced than either of those two weeds at this stage in the growing season. Waterpod will be flowering and producing seed soon and will complete its life cycle as we near the summer solstice. Like the other weeds in the Good category, typical seedbed preparation will control waterpod.

The Bad

These are a couple of winter annual weeds in the mustard family that are ubiquitous across the state. Their life cycle is a few weeks longer than the previous 4 weeds, so they will often cause early season competition with crops if not controlled prior to crop emergence. Though these plants are very common and their rosettes and white flowers can often be confused with other winter annual weeds. With the rainfall patterns of last fall, there are several dozen winter annual weeds that we can find in fields across the state that are currently bolting from their rosettes and about to flower.

Shepherd's purse (*Capsella bursa-pastoris*)

Shepherd's purse is a small winter annual flowering plant in the mustard family (*Brassicaceae*). Originating in Europe, it was introduced into North America favoring colder climates and cultivated ground. Shepherd's purse is known for its heart/triangular shaped flat seed pods resembling a purse, that are found on a bolted stem that is attached to a rosette of lobed leaves. It can grow from 0.5 to 1.5 feet tall with small white flowers.



Rosette and bolting leaves of shepherd's purse.

Field pennycress (*Thlaspi arvense*)

Field pennycress is a member of the mustard family (Brassicaceae). It can be found in agricultural lands and roadsides in a wide range of soil types and environmental conditions. Field pennycress is a winter annual broadleaf, herbaceous plant that begins as a basal rosette with slender taproot systems. Stems from the basal rosette are hairless and usually simple but can be freely branched towards the top. When growing in unfavorable conditions, the stem remains unbranched and may reach only a few inches in height, but in fertile soils with little competition, the main stem may grow up to 32 inches.



Field pennycress flowers and leaves.

The Ugly

These are the weeds that will be highly competitive with crops and will persist through most, if not all, of the crop's life cycle. These weeds don't need much introduction, but there can be some confusion with their ID this time of year. Failure to properly ID and control these weeds now can lead to an ugly cropping year.



A mat of seedling kochia. Note the linear cotyledons and densely hairy leaves that are linear and taper to a point.

Kochia (*Bassia scoparia*)

Our 2022 Weed of the Year is living up to its reputation as a tough early-season weed. Kochia often germinates in very dense mats consisting of numerous individual plants. These mats often appear to be dull green due to kochia's leaf color. Young kochia seedlings are very densely hairy and will often be described as "puffballs" due to the dense hairs. Kochia cotyledons are linear. Leaves are linear to lanceolate and taper to a point.

Horseweed (*Erigeron canadensis*)

Our 2020 Weed of the Year is back with a vengeance. Most of our horseweed will germinate in the fall, then overwinter as a rosette, and begin to bolt in the spring. These rosettes are now bolting, but are rarely misidentified. However, the rainfall patterns this spring have enabled several flushed of spring-emerging horseweed, that can be confused with kochia. Unlike kochia, horseweed seedlings will rarely be found growing in dense mats. Horseweed cotyledons are oval shaped and easily distinguished from kochia cotyledons. Young leaves are oval shaped and become more linear as the plant matures. Most horseweed leaf margins are toothed or lobed.



Seedling horseweed plants. Note oval cotyledons and oval to linear shaped leaves.



**Rosette of narrowleaf hawksbeard.
(Picture Credit: Brian Jenks)**

Narrowleaf hawksbeard (*Crepis tectorum*)

Our 2018 Weed of the year is also back with a vengeance. Many areas in western ND did not deal with this weed last year due to the drought. However, we received enough precipitation last fall to stimulate emergence of this winter annual weed. Narrowleaf hawksbeard is in the Asteraceae (composite) family. It grows 2 to 3 feet tall from a taproot, with milky sap found throughout the plant. Yellow flower heads are 1/2 to 3/4 inches in diameter resembling a dandelion or sowthistle flower. Fall rosette stage Narrowleaf hawksbeard can look somewhat similar to dandelion, however, hawksbeard leaf lobes protrude straight out rather than toward the center of the plant like seen with dandelion

[Joe Ikley](#)

Extension Weed Specialist

WEED CONTROL, STATUS REPORT, WEEK OF MAY 15, 2022

Producers in northeast North Dakota and northwest Minnesota are in an interesting place. Weeds are beginning to emerge in fields but fields are muddy below the soil surface making tillage to remove weeds a compromise between a clean start, clean seedbed vs. perhaps compromising the seed bed at plant. In addition, wheat, corn, and sugarbeet will be emerging at the same time as broadleaf weeds. What to do?

I try not to compromise the seedbed as we normally have to live with the mistakes we make at plant for the entire season. I would consider vertical tillage or use of a multi-seeder and consider burndown herbicides to control emerged broadleaf weeds. Paraquat makes a lot of sense for me now. Consider my logic path:

- Paraquat is a contact herbicide so complete coverage of foliage is essential to maximize control of weeds. Spray nozzles producing medium to coarse droplets are recommended. Consider greater than 10 gpa carrier to facilitate good coverage.
- Mixing order is important with paraquat alone or in mixtures. Fill spray tank 1/2 full with carrier. Add non-ionic surfactant to tank and begin tank agitation and continue throughout mixing and spraying. Add co-herbicides; dry formulations (WP, DF) first followed by liquid formulations (SC, EC, L). Finally, add paraquat and fill remainder of spray tank.
- Adjuvant is key with paraquat products. I suggest NIS but the label also suggests methylated seed or crop oil concentrate.
- Paraquat has good tank mix compatibility with many products
- Apply paraquat at 0.375 lb/A. There are many paraquat products. Use the appropriate rate depending on formulation.

Paraquat products are dangerous products and must be used with careful paranoia. Mixers, loaders and applicators need to dress properly including long-sleeve shirt and pant, protective eyewear, gloves, and a NIOSH-approved particulate respirator. Or consider asking your ag-retailer to make the application.

One other key decision is incorporating your soil residual herbicide into soil. Use of paraquat probably locks you into a PRE program. However, I am asking sugarbeet growers to shallow incorporate sugarbeet residuals preplant to ensure they will immediately control emerging weeds.

[Tom Peters](#)

Extension Sugarbeet Agronomist
NDSU & U of MN



around the state

AROUND THE STATE

NORTH CENTRAL ND

An active May continues to be the trend across the north central region. During that time, the NCREC received about 2.25" of rainfall (since May 9th). The following are precipitation observations across the area as noted by local NDAWN stations: Bottineau: 2.23"; Garrison: 1.39"; Karlsruhe: 1.92"; Mohall: 3.74"; Plaza: 1.60"; and Rugby: 1.73". Some precipitation is in the forecast for the upcoming week, but if the forecast holds true, a drier pattern maybe in store for next week.

Growers are anxious to get into the field. Field work has been a struggle, likely less than 1% has been completed in the region. Some will try to take advantage of the dry weather early this week, but may be sidelined later in the week. There are wheat fields in the region at tillering stage. Some farmers are prioritizing to plant corn at this point in time. The fields are too wet and we can often see standing water across the fields.



Figure 1. From the top left clockwise: field with soybean stubble; field with standing water; wheat field; wheat field.

[TJ Prochaska](#)

Extension Crop Protection Specialist
NDSU North Central Research Extension Center

[Leo Bortolon](#)

Extension Cropping Systems Specialist
NDSU North Central Research Extension Center

NORTHEAST ND

A majority of the region is still wet pushing back the planting season. Very few high areas and lighter soils are being worked and planted. Sugarbeets, small grains, dry beans and corn are being planted in some parts of the region. Small grains are up in some areas that were planted before the blizzard. Producers are anxious to get into the fields. Some of them are already switching to early maturing varieties. Lots of questions have been asked regarding prevent plant acres and cover crops options. Temperatures are warming up to the favorable levels for insects to emerge from their dormancy. Flea beetles will be showing up soon. No reports of grasshopper emergence yet. Pastures are greening up.

[Anitha Chirumamilla](#)

Extension Agent Cavalier County

SOUTH-CENTRAL/SOUTHEAST ND

According to NDAWN, the region's current rainfall during May 1-16 ranged from 0.8 inch (Harvey) to 5.9 inches (McHenry), with most areas receiving 1.5-3 inches. With abundant spring moisture, it's doubtful anyone involved with crop production is hoping for additional rain during the balance of May!

While the Carrington REC planted a few crop trials on May 6, our primary start date was May 16. Winter cereals (rye and wheat) are in the tillering- to early stem-elongation growth stages.

The region's intended small grain and corn acres may currently be at 5-10% planted. Besides cropland preparation and planting challenges, weeds are emerging in abundance of species and populations (see picture). Pastures and hayland are green, and waterholes are filled, contrasting from our extreme environment last year.

Revised Guide for Late-Planting Crops

The NDSU Extension publication 'Replanting or Late Planting Crops' has recently been revised that provides information for farmers and crop advisers as options are considered with the delayed crop planting situation. Tables in the publication should be useful to estimate potential yield loss with delayed planting of cool-season and warm-season crops. Also, an additional table provides

guidelines on periods to increase planting rates of cereal crops or to switch to earlier maturity hybrids or varieties. The publication is available electronically at <https://www.ndsu.edu/agriculture/ag-hub/publications/replanting-or-late-planting-crops>, or hard copies may be obtained at NDSU Extension county offices or Research Extension Centers.



Wild oat (cool-season grass) and foxtail (warm-season grass) emerging together along with wild buckwheat and common lambsquarters (May 16).

[Greg Endres](#)

Extension Cropping Systems Specialist
NDSU Carrington Research Extension Center

SOUTHWEST ND

Not much to update from last week. Winter wheat is tillering and some spring wheat is beginning to emerge. Weeds continue to flourish, but sprayer activity has been high this week. Planting and spraying will continue to be hit hard until the forecasted cold and wet weather Thursday into Friday occurs.

We've begun to lay out some of our surface applied lime trials at the Dickinson REC. This trial is important for assisting us in putting together recommendations for no-till systems. At this point surface application seems like a viable option when the acidity is in the first couple of inches from surface N applications. However, this option might not be the most timely when the acidity is deeper down from the anhydrous applications. Continued research is needed and we hope to collect some very applicable data this growing season.



Winter wheat field with lime rates of 0, 0.5, 1, 2, and 4 tons/acre. The plan is to have 15 of these sites in varying crops across acid soil fields in North Dakota.

[Ryan Buetow](#)

Extension Cropping Systems Specialist
NDSU Dickinson Research Extension Center



WEATHER FORECAST

The May 19 to May 25, 2022 Weather Summary and Outlook

Most of the rain that fell in the past 7 days occurred late last week, on Thursday May 12 and Friday May 13 (Figure 1). Much of the rain that falls in the next 7 days will also occur on a Thursday (today) and Friday. Total rain should be lower, in most locations, yet any amount of rain will continue to keep the area wet. In fact, even snow may fall over the area, especially on Friday. The pattern over North America has made a noticeable shift, and the issue comes with the time of year. We are entering the wettest time of the year, so it is difficult to go a week or more with no precipitation in late May into June. Once the precipitation from today (Thursday) and tomorrow moves on, like this past week, moisture will be more hit and miss this weekend into next week.

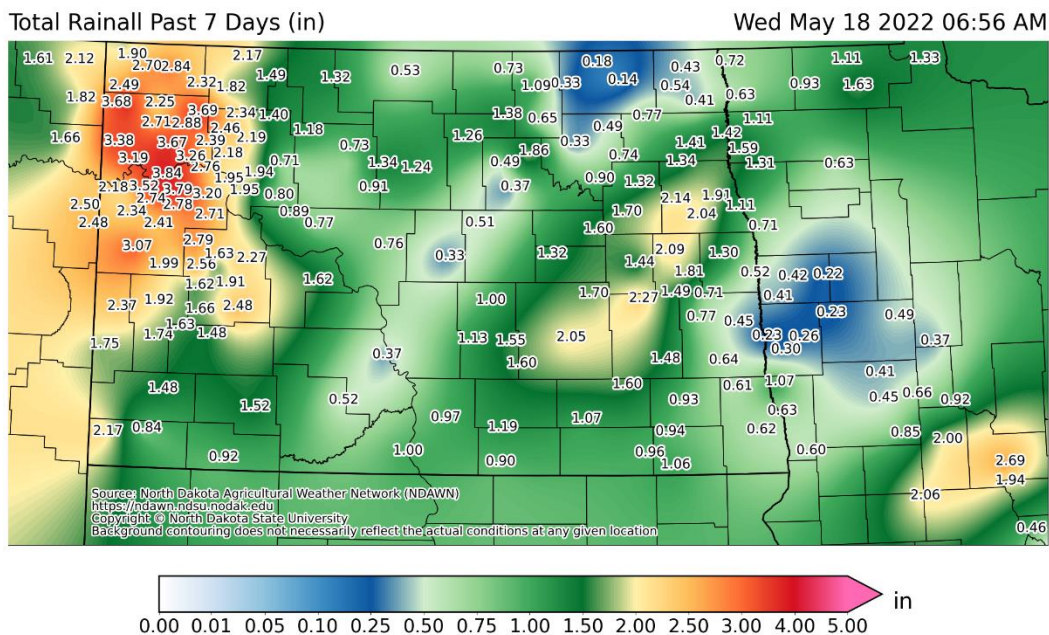


Figure 1. Total rainfall for the 168-hour period ending near 7:00 AM on May 18, 2022 at NDAWN stations

It may not have felt like it, but the period from May 11 through May 17 finished with above average temperatures for much of the region (Figure 2). That will not be the case for the next 7 days. It will be turning very cold for the time of year, on Friday through the weekend. Frost (36°) or a Freeze (32°) will be likely on Saturday and Sunday morning. A hard freeze (28°) will be possible in lower areas that are often colder. Because of the late or no planting to this point, these freezing temperatures should have minimal impacts outside of homeowners and others that have more sensitive plants outside.

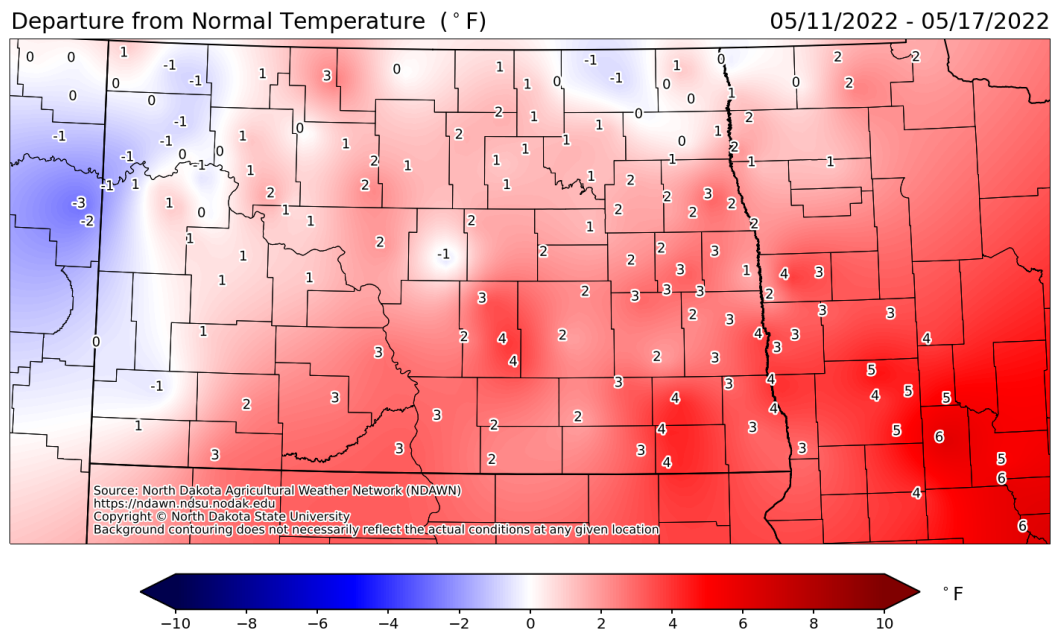


Figure 2. Departure from Normal temperature at NDAWN stations for the period of May 11-17, 2022

Figures 3 and 4 below are forecasted estimates of Growing Degree Days (GDDs) base 32° (wheat and small grains) and 50° (Corn and Soybeans). Because of the cooler temperatures moving into the area, very few GDDs are expected in this period and most of what is recorded will occur next week.

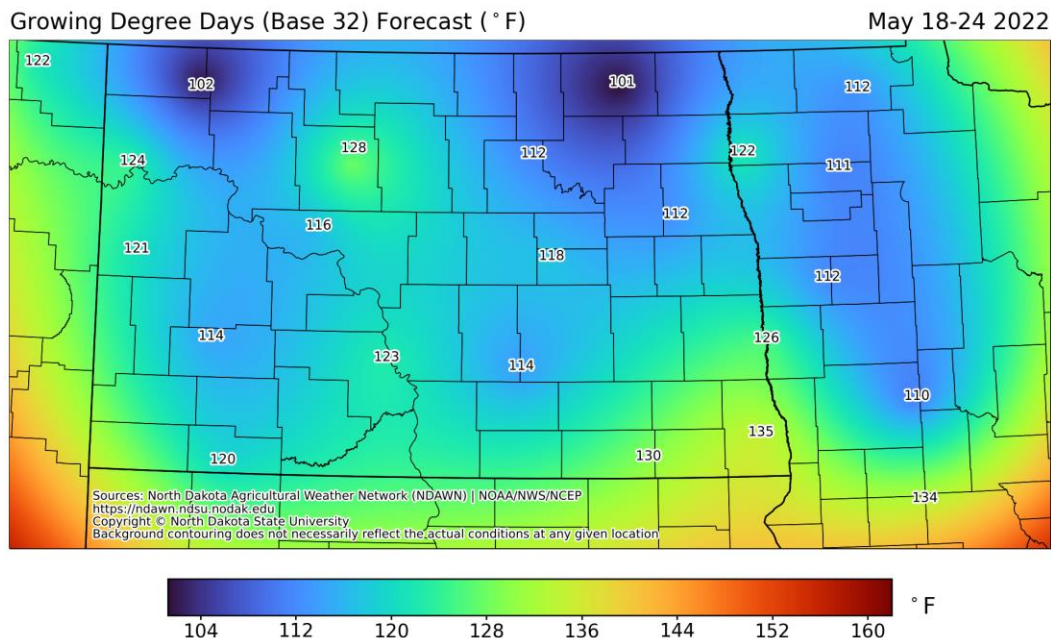


Figure 3. Estimated growing degree days base 32° for the period of May 18 to May 24, 2022.

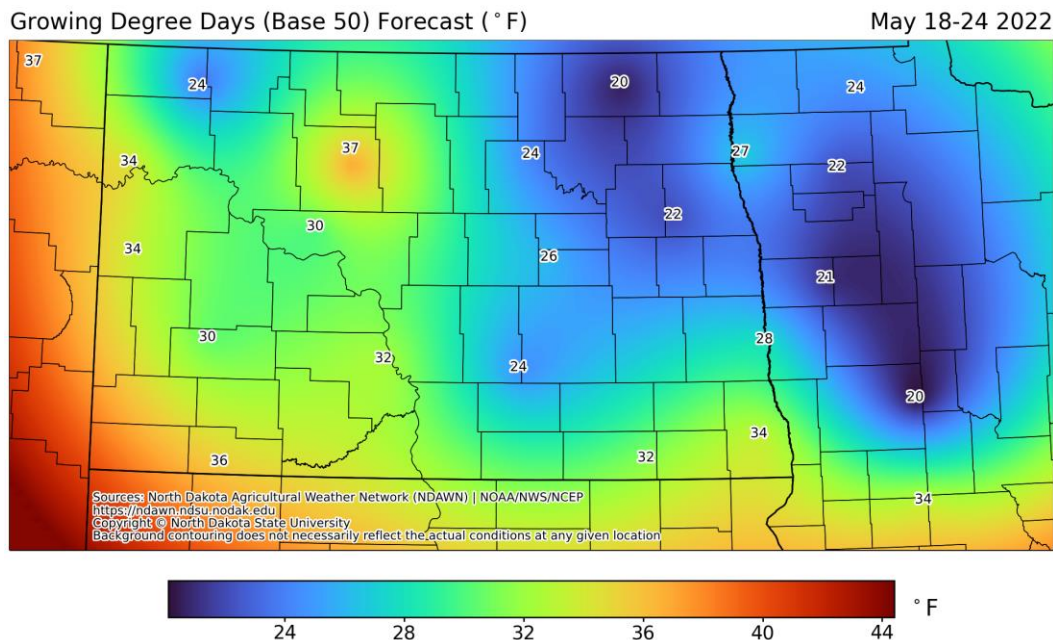


Figure 4. Estimated growing degree days base 50° for the period of May 18 to May 24, 2022.

Almost one-half of NDAWN (North Dakota Agricultural Weather Network) stations now have soil moisture probes in place. These probes are placed at the standard depths of 2", 4", 8", 20" and 40". The NDAWN staff is scheduled to install soil moisture probes at an additional 25 stations this summer. No surprise that all stations have either excess or high optimal water in the top several inches of the soil. (Figure 5).

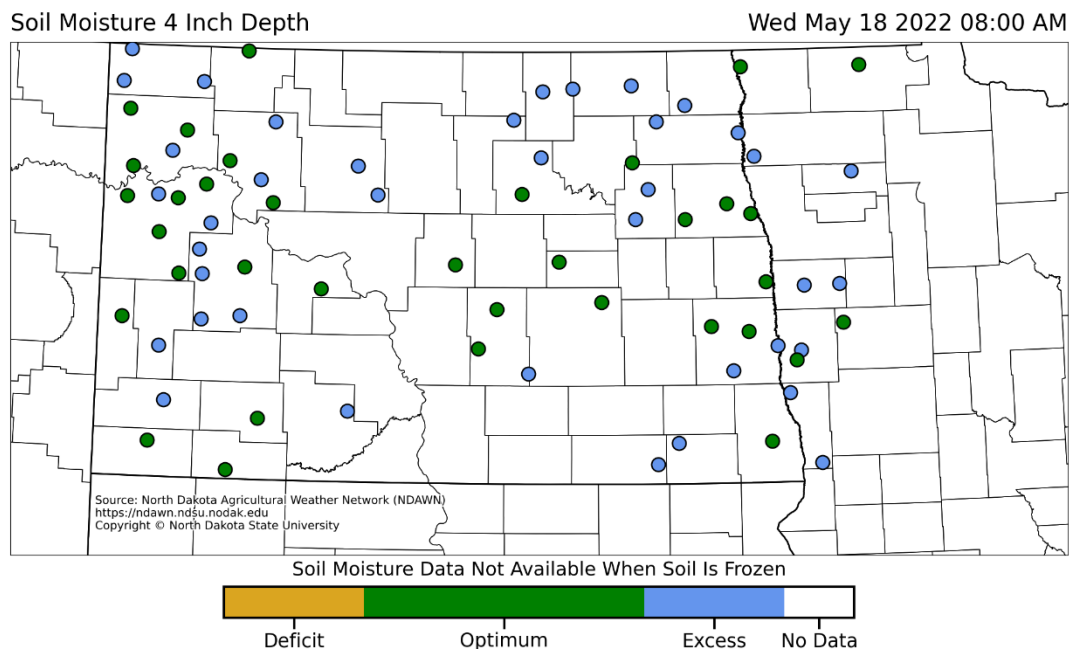


Figure 5. Soil Moisture content at a 4-inch depth on May 18, 2022 at 8:00 AM at NDAWN stations with Soil Moisture Probes.

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