North Dakota State University
CROP & PEST REPORT
NDSU EXTENSION

No. 7 June 20, 2024

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2024 NDSU ANNUAL FIELD DAYS

The North Dakota State University Research Extension Centers' annual field days show N.D. Agricultural Experiment Station research in action. The events take place at the Research Extension Center sites across the state and feature speakers, presentations and tours covering a diverse array of topics. The field days are open to the public.

2024 NDSU Research Extension Center Annual Field Days
July 8 – Central Grasslands Research Extension Center

July 9 – Dickinson Research Extension Center – morning agronomy tour

July 9 – Hettinger Research Extension Center – late afternoon

July 10 – Dickinson Research Extension Center – morning livestock tour

July 10 – Williston Research Extension Center – late afternoon agronomy/horticulture tour

July 11 – Williston Research Extension Center – morning irrigation tour

July 15 – Agronomy Seed Farm – late afternoon tour

July 16 – Carrington Research Extension Center – morning and afternoon tours

July 17 – North Central Research Extension Center – morning tour

July 18 – Langdon Research Extension Center – morning tour

Entomology

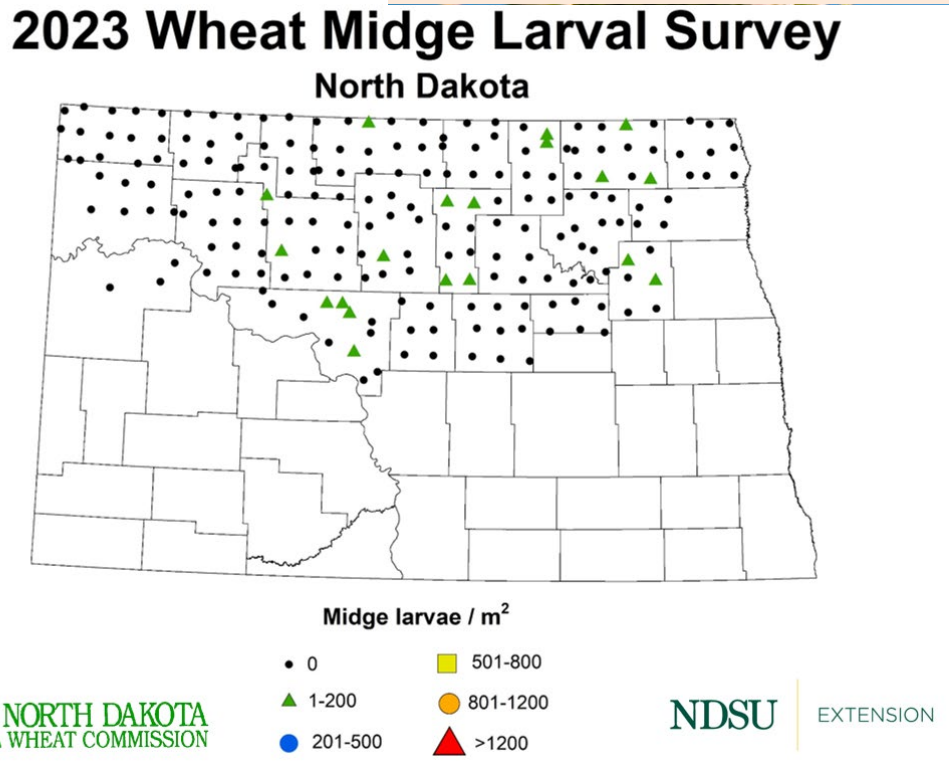
WHEAT MIDGE FORECAST FOR 2024

Soil samples in North Dakota indicate low populations of overwintering wheat midge larvae (cocoons) for the 2024 season. This is good news for North Dakota wheat farmers, reducing their inputs for wheat midge management.

Wheat midge adult (Photo courtesy of Philip Glogoza, former Extension Entomologist)

A total of 2,060 soil cores were collected from 22 counties in the fall of 2023 to estimate the statewide risk for wheat midge in the 2024 wheat growing season. The distribution of wheat midge is based on unparasitized cocoons found in the soil samples.

Wheat midge was positive at only 20 field sites (10% of the sites) in eight counties including Cavalier, Nelson and Towner Counties in the northeast, Bottineau, Pierce and McHenry Counties in the north-central region, McLean County in the west-central region, and Ward County in the northwest. These sites had low levels of wheat midge cocoons (1-200 cocoons per square meter) which does not cause yield loss in spring wheat. No soil samples had moderate or high cocoon densities of wheat midge (>500 midge larvae per square meter), which could cause economic losses in spring wheat.



The majority of the soil samples had zero wheat midge cocoons in the soil for the past four years (90% in 2023, 97.5% in 2023, 95% in 2021 and 86% in 2020). Populations of wheat midge are low due to the extended drought in northern North Dakota over the past several years. Populations could return to higher levels once the drought subsides and we return to more normal rainfall.

Dry conditions will delay when wheat midge larvae drop out to the soil for overwintering in late summer. During drought, larvae will remain in the wheat head and are often harvested with the grain, ending up in the grain truck or bin.

Dry soil conditions also increase wheat midge mortality by making it difficult for the larvae to dig into the soil for overwintering and by exposing them to predators on the soil surface.

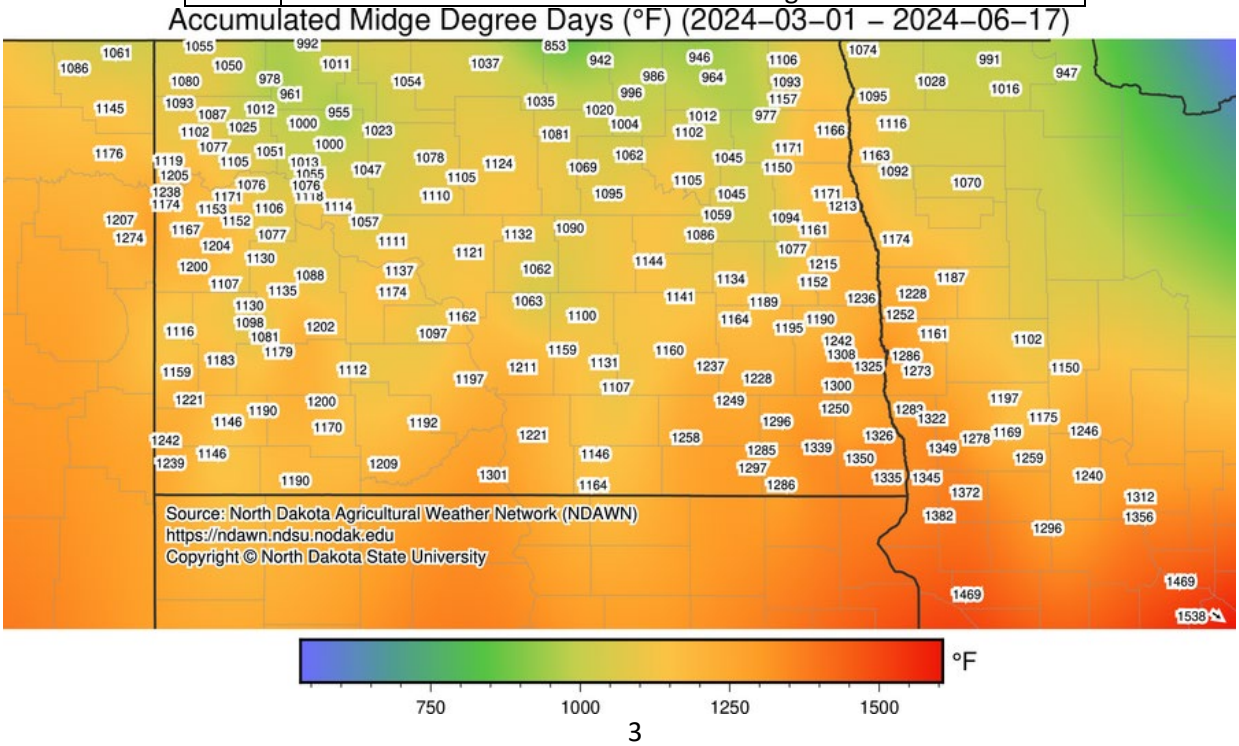
With the very low populations of wheat midge for the fourth year in a row, scouting for wheat midge will be most important in continuous wheat fields, and when moist weather occurs in late June to early July which favors wheat midge emergence and survival (like the 2024 season so far). Wheat midge cocoons also can remain dormant for several years and adults then emerge when soil moisture is adequate. These factors can cause rapid increases in the numbers of emerging adult wheat midge. The most critical time to scout spring wheat for adult wheat midge is from heading through the early-flowering stages.

The wheat midge degree-day model predicts the emergence of wheat midge using a base of 40°F and to determine when to scout, and if their wheat crop is at risk. Producers can access the wheat midge degree-day model on the North Dakota Agricultural Weather Network (NDAWN) website at https://ndawn.ndsu.nodak.edu/wheat-growing-degree-days.html

Select your nearest NDAWN station and enter your spring wheat planting date. The output indicates the expected growth stage of the wheat and whether the crop is susceptible to midge infestation, as well as the timing and percent of wheat midge emerged.

Currently, accumulated midge degrees days indicate that we are close to male wheat midge emerging in the northern tier of North Dakota. In the table below, the following DD accumulations for wheat midge biological events include:

DD	Biological Event
450	The midge breaks the larval cocoon and moves close to soil surface to form the pupal cocoon
1100	Males emerge
1300	10% of the females will have emerged
1475	About 50% of the females will have emerged
1600	About 90% of the females will have emerged

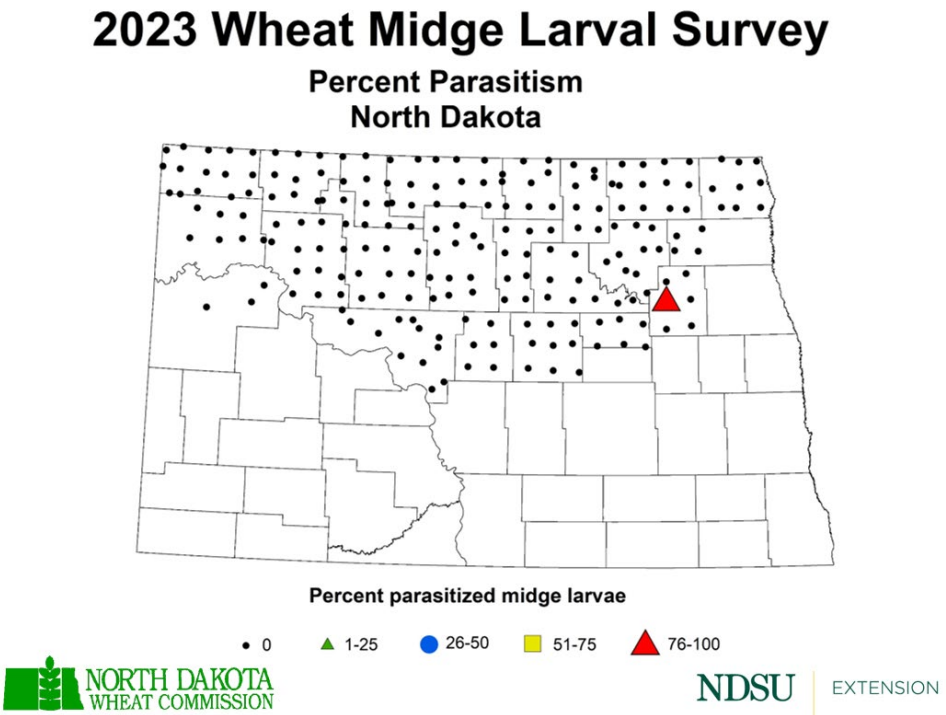


If wheat midge is detected, the **economic thresholds for wheat midge are one or more midge observed for every 4 - 5 heads on hard red spring wheat, or one or more midge observed for every 7 - 8 heads on durum wheat**. Treatments after 50% flowering are not recommended due to reduced levels of efficacy and for the protection of a parasitic wasp that attacks the midge eggs. Insecticides for the control of midge are most effective on the adult. The orange larvae are difficult to control with foliar insecticide, since larva feeds on the developing kernels within the glumes and is protected. The U.S. Court of Appeals for the Eight Circuit issued a ruling in November 2023 overturning the EPA's final rule of August 2021, which revoked all food crop tolerances for chlorpyrifos. So, chlorpyrifos insecticide products are legal for insect control in 2024, including wheat midge control. Other products labeled for wheat midge control in wheat include Besiege (chlorantraniliprole + lambda-cyhalothrin), lambda-cyhalothrin products and malathion. For more information, refer to the 2024 North Dakota Field Crop Insect Management Guide.

Wheat midge larva feeding on developing wheat kernel (Photo courtesy of Saskatoon Research Centre, Canada)

The beneficial parasitic wasp that attacks and kills wheat midge is dependent on its host, wheat midge, for its survival. Since few wheat midge cocoons were detected, only one site had parasitic wasps in the 2023 soil samples with 100% parasitism in Nelson County. Further, no parasitized cocoons were found the previous two years (2022 and 2021). In contrast, the parasitism rate was 15% in 2020, 36% in 2019 and 9% in 2018. Parasitic wasps can play an important role in natural control of wheat midge and parasitize the eggs or larvae.

Wheat midge parasitic wasp, Macroglenes penetrans (Photo courtesy of Saskatoon Research Centre, Canada)



Thanks to the NDSU Extension ANR county agents who collected the soil samples. The larval cocoons are extracted by the NDSU Extension Entomology laboratory. The North Dakota Wheat Commission supported the wheat midge larval soil survey.

Janet J. Knodel
Extension Entomologist

plant pathology

FUSARIUM HEAD BLIGHT (SCAB) RISK, FUNGICIDE SELECTION AND FUNGICIDE TIMING

Risk

Fusarium head blight risk continues to remain low for most of the state. If a very susceptible variety was grown (FHB score of 7 or higher in HRSW Variety Guide), moderate to high risk exists in northeast North Dakota (Figure 1). Most of the state received rain over the past couple days, and several areas of the state will receive more rain in the coming days. The precipitation in combination with higher relative humidity values projected next week will likely increase scab risk in the state. Based on field reports, the earliest planted spring wheat is at boot to heading stages with the late planted wheat in the early leaf stages. Given the large variation in growth stages, make sure to pay attention to the weather and scab risk as the barley crop starts to head and the spring wheat and durum crop enter heading to flowering.

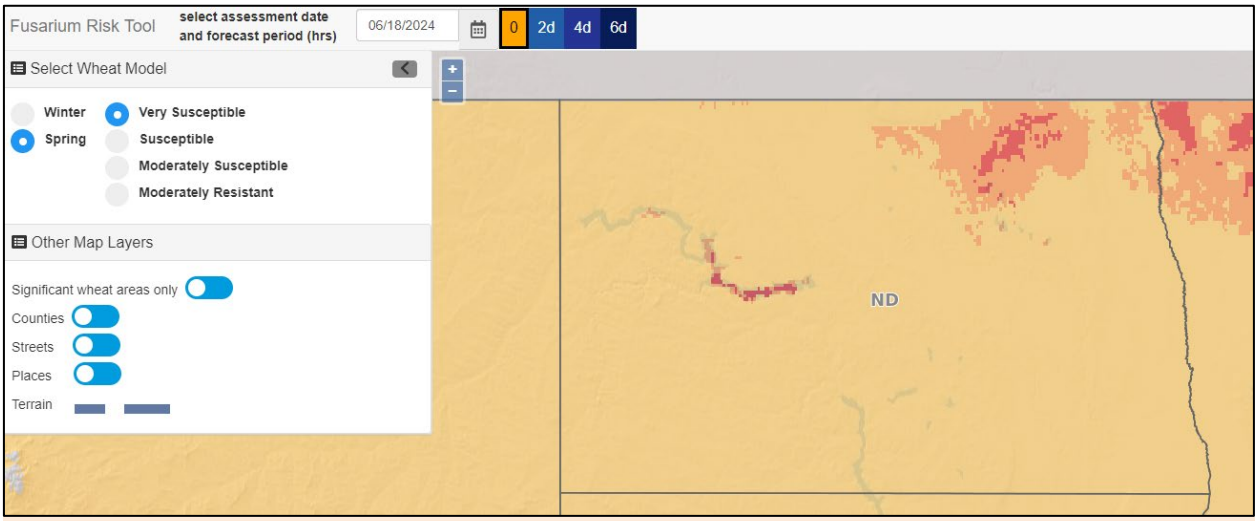


Figure 1. Fusarium head blight risk for very susceptible varieties for June 18. Darker orange indicates moderate risk and red indicates high risk.

Fungicide Selection

The most effective fungicides for Fusarium head blight are Miravis Ace®, Prosaro®, Prosaro Pro®, and Sphaerex®. These fungicides on average will provide 45-60% suppression (sometimes higher) and have an efficacy score of "good". Tebuconazole (Folicur generics) is considered a "fair" fungicide and provides 20-25% suppression. For the most updated field data on Fusarium head blight for spring wheat, durum and barley in ND, please visit: https://tours.bemorecolorful.com/v/OAzAWZgoqQp.

As a reminder, when choosing a fungicide for Fusarium head blight, strictly follow directions on the label such as labeled crops, the pre-harvest interval (PHI), and maximum use rates. Also, make sure to check with your buyer on products that are acceptable to use (do the same for all plant protection products, especially new ones).

Fungicide Timing

The best time to apply a fungicide for scab and deoxynivalenol (DON) suppression in spring wheat and durum is when a majority of the main stems are at early flowering and up to 7 days after (Figures 2 and 3). You can still get some scab suppression if fungicides are applied on full headed wheat, but not as much if applied at early-flowering and up to 7 days later. The best time to apply a fungicide in barley is when a majority of the main stems are at complete full-head emergence and up to 7 days later (Figure 4). In barley, it is critical to wait until at least full-head emergence as you will get very poor fungicide coverage and poor scab suppression on heads that are half-head or only showing awns.

Figure 2. The smaller yellow arrow is highlighting a spring wheat head at early-flowering and pointing to the small yellow anthers. The longer yellow arrow is demonstrating the most effective growth stages to suppress FHB and DON in wheat.

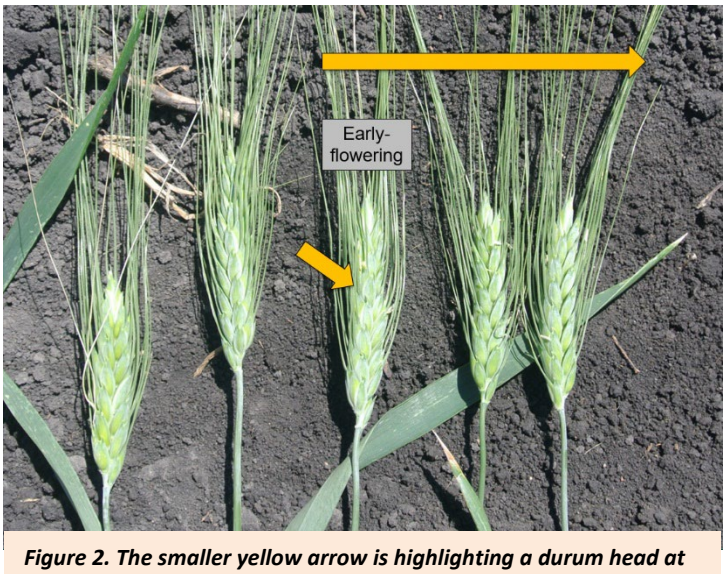


Figure 2. The smaller yellow arrow is highlighting a durum head at early-flowering and pointing to the small yellow anthers. The longer yellow arrow is demonstrating the most effective growth stages to suppress FHB and DON in wheat.

Figure 4. The smaller yellow arrow is highlighting a barley head at full-head. The longer yellow arrow is demonstrating the most effective growth stages to suppress FHB and DON in barley.

Andrew Friskop
Extension Plant Pathology, Cereal Crops

RAIN, WIND AND DUST STORMS IN THE REGION

I have had several calls regarding dust storms this spring occurring very soon after a significant rain, including a call from a National Weather Service employee. The Weather Service person was perplexed that their dust models were not working. They use the models to predict dust activity to the airlines, who probably want to know visibility issues and would rather not have abrasives sucked into their jet engines.

In more humid regions, the movement of soil would not happen until several days after a rain, because the wind speeds are much less than ours and the high humidity keeps the soil surface wet longer. Here, rain is often followed by dry air and wind speeds above 20 mph; a day of relative calm in the Northern Plains. The dry air moving with high winds begins to dry the air within hours after even a major rain event. In the Valley, fields are shaped to allow rapid runoff, further helping the drying process. With dry soil at the surface, soil particles begin to move at about 25 mph and move exponentially more with greater wind speeds. When wind speeds reach 40 mph, local dust storms should be expected. A hard, pounding rain is even more effective at achieving dust storms when the soil dries, since any aggregation made prior to the rain is destroyed by the force of the raindrops; and in smectitic clays, which we have in abundance in all but the SW of the state, the particles shrink when drying, further separating soil particles. Soils with free carbonates, as all participants in the annual 4-H & FFA Land Judging competition know, are more greatly at risk because carbonate particles separate clays and organic matter from each other, leaving the smaller soil particles at risk from loss at even lower wind speeds.

What to do? Some observers have seen dust blowing off certain no-till fields this spring. This is likely due to their previous crop. Residue is the key to no-till success, and when dry bean or any other low-residue crop is grown, establishing a cover crop following low-residue crop harvest will greatly decrease any wind erosion on that field over winter and into the spring.

The great tree-belt disappearing act

Many of the shelter belts that protected fields from wind erosion in the past have reached maturity and started dying on their own, helped probably by errant herbicide sprays. I understand that they need to be taken out. But I am perplexed that landowners don't replant them. The width of field equipment has certainly changed over the past 70 years since they were planted, but new shelterbelts can be established to accommodate the change in widths. Landowners did not plant the original shelterbelts to satisfy Ole and Lena, to remind them of Bergen. They planted the trees so that future generations would have topsoil to farm. I would strongly suggest that farmers and landowners consider replanting shelterbelts along the edges of the farm and within large fields. The local Soil Conservation District would be happy to help. Yes, shelterbelts take land out of production. However, the productivity within the field will increase, and consider what another 6 inches to a foot of soil loss would do to the farm over the next 70 years if nothing were done?

Dave Franzen
Extension Soil Specialist
701-799-2565

weeds

FATE OF RESIDUAL HERBICIDES APPLIED IN EARLY MAY

A common question this past month has revolved around the expectations of residual herbicides applied before several inches of rain fell in areas of the state. Many folks are wondering if there is any residual herbicide left after the heavy rains of the last month. I will use some examples from my research site near campus to discuss expectations.

We planted our site on May 12, applied PRE herbicides on May 13, then received a slow, soaking rainfall of 1" on May 15. That slow rainfall was ideal for incorporating the herbicides into the dry soil. Subsequent rainfalls have largely been heavy, pounding rains, and in total we have received 7" of rainfall on top of those PRE herbicides.

So, what was the fate of those products? Biology and chemistry can help explain the story. Most of our herbicides are primarily degraded by microbes. But we have still been relatively cool over the last month, with many water-logged fields. The microbes that degrade herbicides mostly prefer warm soils and moist, but not water-logged conditions (they need oxygen too). The lack of abundant days in the 80's and 90's has helped slow the degradation process. Chemistry can help explain the rest of the story, so let's discuss the water-solubility of the herbicide active ingredients.

We were finally able to walk on the field late last week and evaluate biological activity from over 100 different combinations. We could easily see our 10' x 30' rectangles of variable weed pressure based on different treatments. A new flush of waterhemp was at the cotyledon to 1-leaf stage, indicating emergence sometime earlier in the week, and there were still tremendous differences in activity. In general, our water-soluble herbicides, chemicals such as dimethenamid-P, metribuzin (0.25 lb or less), sulfentrazone, and dicamba provided the least amount of control. These products typically perform well in our drier years, but 7" of rain is asking a lot out of products that are very water soluble. Without a non-treated check, one might assume the chemical is completely gone, but we were still observing 30-40% control, 4 weeks after initial treatment.

Our herbicides that are less soluble, such pyroxasulfone, flumioxazin, and encapsulated acetochlor were providing control in the 70-90% range. Higher rates of metribuzin (between 0.25 and 0.5 lb) were also still holding up well. The treatments that really shined were anything with 2-3 effective active ingredients – hard to find a single waterhemp plant in any one plot.

So, what does this mean moving forward? These observations can help prioritize fields to scout and apply POST herbicides based on chemistry applied at planting. We are still facing a challenging forecast with more rainfall and more wind to work around. If fields only received herbicides with high water-solubility at planting, those will be the ones that probably need to be prioritized for a POST application. Fields with 2-3 effective active ingredients will hold weeds back longer, effectively buying more time to spray POST products. Every year brings a new set of challenges, but our message remains that multiple, effective active ingredients used in a residual program sets the stage for season-long control of our problematic weeds.

Joe Ikley
Assistant Professor/Extension Weed Specialist

CONTROLLING WATERHEMP ESCAPES IN SUGARBEET

Waterhemp control has been good in sugarbeet in 2024 mostly due to the spring rains that activated our preemergence herbicides. However, every year there are situations where producers need to evaluate various options for controlling escape waterhemp. I will present three options.

Ultra Blazer. Ultra Blazer is approved for use in sugarbeet with a Section 18 emergency exemption in North Dakota and Minnesota. The exemption calls for Ultra Blazer application at 1 pt/A with a nonionic surfactant once sugarbeet reach the 6-lf stage. Ultra Blazer has performed remarkably well in 2024, mostly because the waterhemp has been less than 2-inch tall at application. We recommend Ultra Blazer alone or Ultra Blazer mixed with Roundup PowerMax3 for extreme situations. Be advised that we have observed more crop response on sugarbeet when Roundup PowerMax3 is mixed with Ultra Blazer.

Inter-row cultivation. Cultivation is effective at removing small waterhemp. We prefer the sweep style shovel over the 3-tine configuration, especially on waterhemp greater than 4-inch tall. Research conducted by Nathan Haugrud demonstrated waterhemp control in a closing canopy but new waterhemp may germinate and emergence in an open canopy, especially if followed with significant rainfall. In general, inter-row cultivation did not break the herbicide barrier. However, we found inter-row cultivation is not an effective technique for activation soil residual herbicide. And finally, ground speed is dependent on field conditions and crop size.

Weed Zapper. The weed zapper, Sedalia, MO, generates an electrical charge passed through a copper bar that destroys plant cells on contact with waterhemp. The caveat is waterhemp must be taller than the plant canopy. Results are extremely visual, weeds rapidly wilt and necrosis will develop in waterhemp stems and move into the canopy depending on conditions at application. Waterhemp has many growing points so success is dependent on damaging growing points deep in the canopy. We have observed that regrowth may occur deep in the canopy if terminal growing points are destroyed with electricity. We have observed that the Weed Zapper does reduce the number and viability of new waterhemp seed. Research conducted at NDSU/UMN concluded that multiple applications might be necessary to control waterhemp at multiple stages of growth.

Tom Peters
Extension Sugarbeet Agronomist
NDSU & U of MN

NORTHEAST ND

If it's not raining its blowing in the NE region. Two thunderstorm events in four days brought in precipitation ranging from 1.43 to 3.07 inches in the region. Several fields have standing water, and some low spots are drowned out. Before rain happened, several fields experienced soil blasting from blowing winds and desiccation in some younger crops in

Pembina County. In general, plantings are done in the region and nearly all crops planted have emerged. Overall, the crops look good. Small grains are progressing well, with some advanced fields approaching boot stage. Concern for bacterial leaf streak disease is increasing with the heavy storm events in the region.

Soybean stages range from emerging to the first trifoliate stage. Soybean aphids have been reported in low numbers in Pierce County. Farmers are encouraged to scout for aphids more often considering they started early this year.
Corn is slow in its growth (V2-V4) compared to last year. Canola is emerging to 3-4 leaf stage with flea beetle pressure winding down. Diamondback moths are seen flying in some volunteer canola which means there could be a potential for high populations in canola this year. Grasshoppers are beginning to show up in some areas.

Sugarbeets are in V4-V6 stages covering the rows. Cover grain crops for beets have mostly been sprayed off, even in late planted fields. Pastures are doing well with ample moisture. Alfalfa is nearing flowering ready for the first cut.

Soybean field in Ramsey County
Photo: Lindsay Overmyer, Extension ANR Agent, Ramsey County

Canola at 4-leaf stage in Ramsey County
Photo: Lindsay Overmyer, Extension ANR Agent, Ramsey County

Diamondback moth adult in volunteer canola in a wheat field in Nelson County

Anitha Chirumamilla
Extension Cropping Systems Specialist
Langdon Research Extension Center

NORTHWEST ND

There was a big thunderstorm that hit the northwest that brought in rain and strong winds last Saturday evening (June 15). Although the storm lasted only from a couple of minutes to a couple of hours depending on the location, maximum wind speeds in the northwest counties range from 49 to 70 mph, with the highest wind speed recorded in the town of Shell Lake in Mountrail County as per NDAWN records. Rain by the thunderstorm ranged from 0.23" in Fortuna in Divide County to 1.28" in Rat Lake in Mountrail County. The rain amounts varied highly from one location to another, even when in the same area. For example, Fortuna received 0.23" but Crosby received 1.02" and both are in Divide County. Hail was also reported in some areas. Even though there were some strong winds last weekend, the crops seem to be doing fine and in only a few spots and in small patches where there were downed crops after the thunderstorm, mostly in the winter and spring small grain crops that are further along in development compared to other crops. Another shot of rain came in which lasted from Monday late afternoon (June 17) to all of Tuesday (June 18), making the fields in northwestern counties mostly wet. This poses a concern for anerobic conditions, especially in newly planted low-lying areas where waters tend to accumulate and stagnate longer, which could affect germinated seeds and roots of seedlings from new plantings of late planted crops like soybean and sunflower. With wet fields, farming operations have slowed down. There was a frost advisory issued through the morning of last Tuesday, but so far the low recorded temperatures that morning were in the low 40s °F.

In our area, spring planted small grains are booting to heading, peas are in the 10-13 leaf nodes, lentils are 3-6 multifoliate, canola are in 8-leaf to early flowering stages, soybean are 4th to 5th trifoliate, and corn is in the V4-V6 stages. Kochia is the primary weed I've seen in the fields. Pigweeds are starting to get bigger. Due to the recent rain events and windy days in the past weeks, over the top applications for weed control were delayed and there are some fields where weeds are bigger and taller at the time of application than at optimal stages.

Canola starting to flower. Recent rains events are in time to support crop reproductive stages. Timely applications to prevent/control diseases will be likely needed in canola. Picture taken 6/18/24 in Divide County.

In some hilly areas with sandy soils that didn't get as much rain, some crops, like this wheat, are booting at 10-inches tall. Picture taken 6/18/24 in Williams County.

Field pea growing well in Divide County. Picture taken 6/18/24.

Charlemagne "Charlie" Lim
Extension Cropping Systems Specialist
NDSU Williston Research Extension Center

SOUTH-CENTRAL/SOUTHEAST ND

The region received 0.77 inches of rain near Ekre in Richland County to 2.5 inches of rain near Finley in Steele County and in Griggs County, on average this past week! Eddy, Griggs, McIntosh, Steele, Stutsman, and Traill Counties received the greatest rainfall over the past week in the region. Strong winds occurred late Monday into early Tuesday morning along a line of storms. This past week was windy once again with the strongest wind gusts late Monday into early Tuesday morning along a line of severe storms. Minimal crop damage seemed to occur with the storm event over most of the region, other than flooding and ponding issues in some localized areas. The 4-inch bare soil temperature was still below normal over most of the region this past week, with Griggs County being 3.3 degrees Fahrenheit below normal, the second coldest weekly average 4-inch soil temperature on record this past week.

Planting is nearly completed in the region. About 10 percent of the corn in Richland County and some soybean fields in Sargent County were replanted this past week. Most counties will have some prevented plant acreage, but no county will have greater than 15% of prevented plant acreage, with the greatest amount of prevented plant acreage in the eastern half of the region.

Winter wheat if beyond flowering in the southern part of the region. Hard red spring wheat development is all across the board due to the range in planting dates, with the smallest plants having about two leaves and the most advanced plants beginning to head in most of the region or beginning to flower in Richland County. Corn in the region ranges from first collar up to 6 collars (in Richland County) with most in the 2 to 5 collar stage. Soybean stages range from germinating up to third trifoliate, with most in cotyledon to first trifoliate.

The small grain cereal crops are looking the best in the region. All other crops are quite variable across the region with corn looking the best in some parts of the region. Soybeans are looking tough yet in much of the region due to a fair amount still emerging and the excessive rains in other areas of the region. Most counties in the region have lost crop stands in some fields due to drown out spots from all of the rain.

No major pest issues at the moment in the region, but small grain cereal crops and soybean diseases will most likely be increasing over the next few weeks. Weed populations in the region are variable, from very clean due to great preemergence herbicide programs to lots of weeds due to lack of applying a preemergence herbicide and to not applying postemergence herbicides timely. Check fields shortly after the postemergence herbicide application to determine whether waterhemp and/or kochia are surviving the herbicides applied. If waterhemp and kochia are surviving herbicide applications, contact your local NDSU Extension County office to obtain kits to send leaves to the Plant Genomic Laboratory at NDSU for genetic testing to determine whether the plants are resistant to some herbicides.

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

*** Weed identification - identify about 60 living weed exhibits, with brief reviews on selected weed biology and control**

*** Herbicide site-of-action - identify herbicide classes by examining crop and weed injury symptoms**

*** Small grain disease identification and management - review crop stages and disease identification, effective use of fungicides**

*** Soil management – diagnosis of crop nutrient deficiencies**

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

For more details and preregistration information, visit www.tinyurl.com/payCREC or https://agext-northdakotastate-ndus.nbsstore.net/carrington-research-extension-center or contact the CREC at 701-652-2951. A completed preregistration form and $100 fee is required by June 23.

Previous attendees learning weed identification the Crop Management Field School.

Jeff Stachler
Griggs County Extension Agent

weather

WEATHER FORECAST

The June 20 to June 26, 2024 Weather Summary and Outlook

Widespread rain was recorded across the region in the past week (Figure 1). The most common question asked of me in recent days has been do you see the rainy pattern ending anytime soon. My answer is July. June is by far the rainest month of the year. There are exceptions - June of 2021, 2022 and 2023 were relatively dry, which lead to dry summers. When June is dry it is hard to catch up as our average June rain is a good percentage of our normal rainfall. In July, the average drops noticably, so using historical climate data, plus, other factors, would suggest warmer and drier weather is coming. Yet, in the short term, there will be likely be more rain coming for the rest of the month.

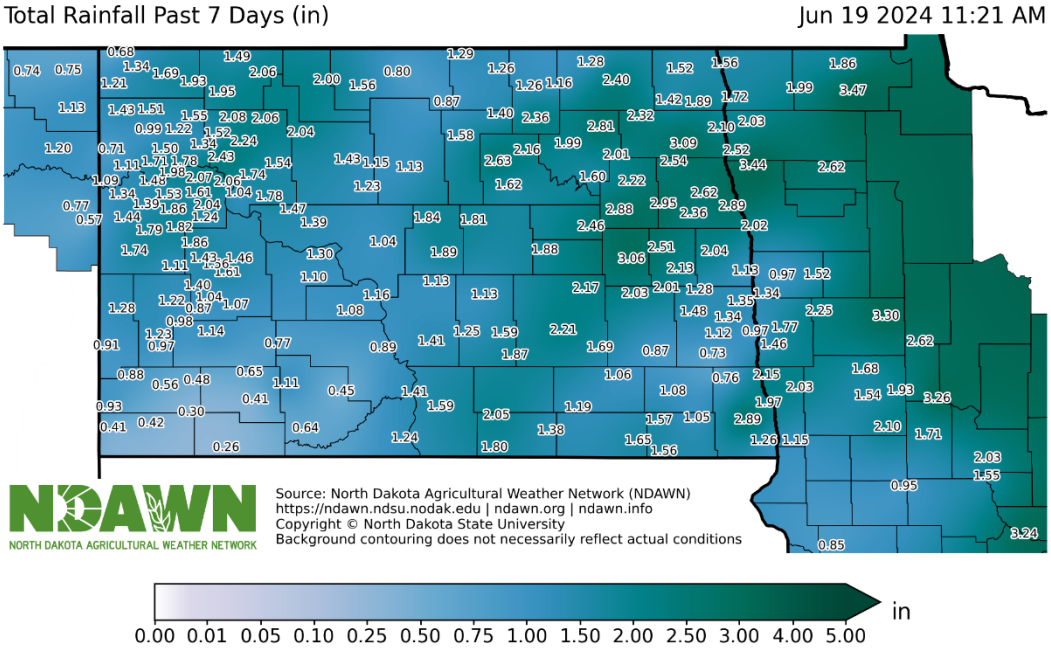


Figure 1. Total Rain at NDAWN Stations for the 168-hour (7 day) Period Ending at 11:20 AM on June 19, 2024.

Temperatures this past week (through Tuesday, June 18) were generally above average in southern North Dakota and a bit below average in northern North Dakota. It may have felt colder, but there were some warm days mixed in with the chillier ones. Speaking of the cooler days, southwestern North Dakota recorded temperatures near or at freezing on Wednesday (Figure 2). It did cause some damage to crops. This isn't unprecedented, yet it is unusual to record freezing temperatures this time of the year.

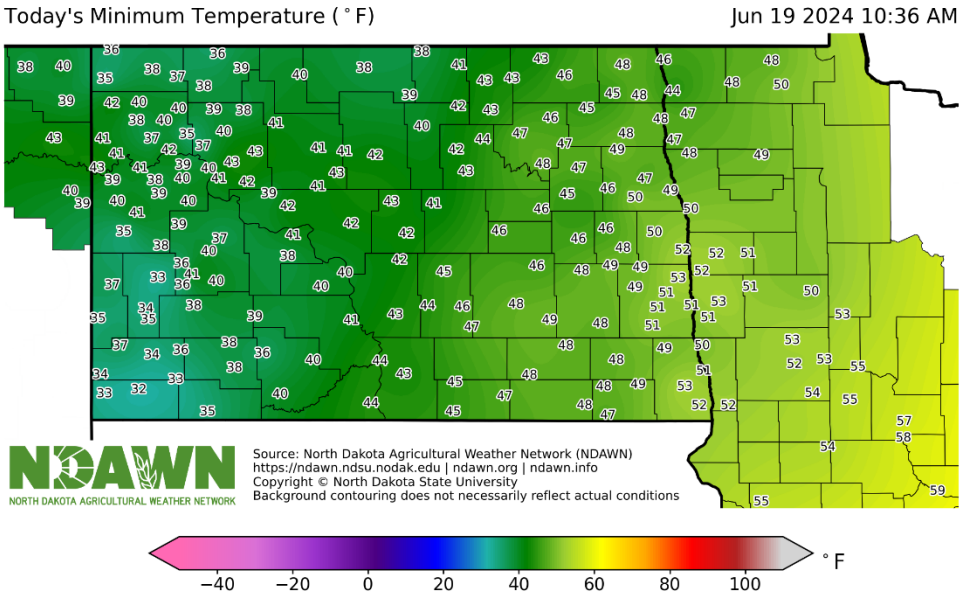


Figure 2. Minimum Temperatures at NDAWN Weather Stations on June 19, 2024.

Figures 3 and 4 below are forecasted growing degree Days (GDDs) base 32° (wheat and small grains) and base 50° (corn and soybeans) for this forecast period. We are approaching the time of year when we average 20 (Base 50°) GDDs a day in southern North Dakota and you'll notice the forecast is near that number for some areas.

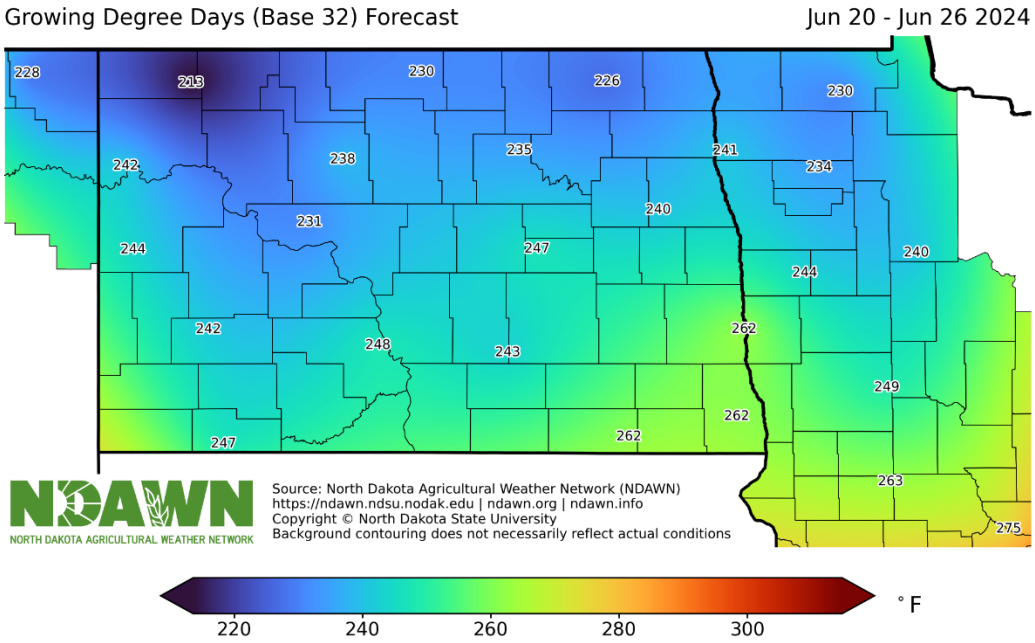


Figure 3. Estimated growing degree days base 32° for the period of June 20 to June 26, 2024.

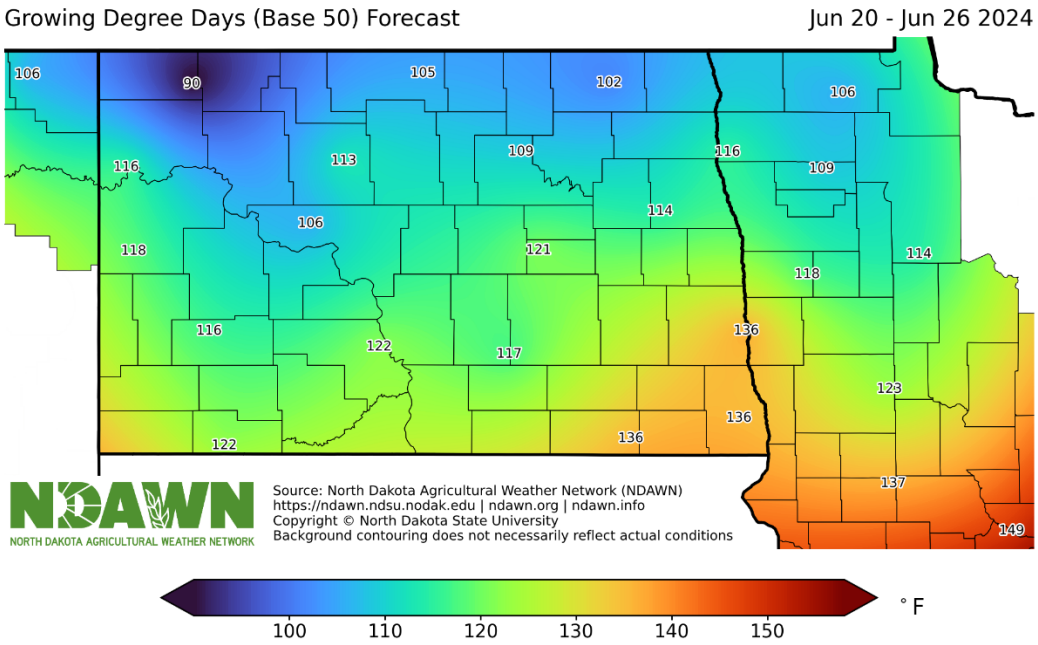


Figure 4. Estimated growing degree days base 50° for the period of June 20 to June 26, 2024.

Using May 1 as a planting date, the accumulated growing degree days for wheat (base temperature 32°) is given in Figure 5. You can calculate wheat growing degree days based on your exact planting date(s) here: https://ndawn.ndsu.nodak.edu/wheat-growing-degree-days.html

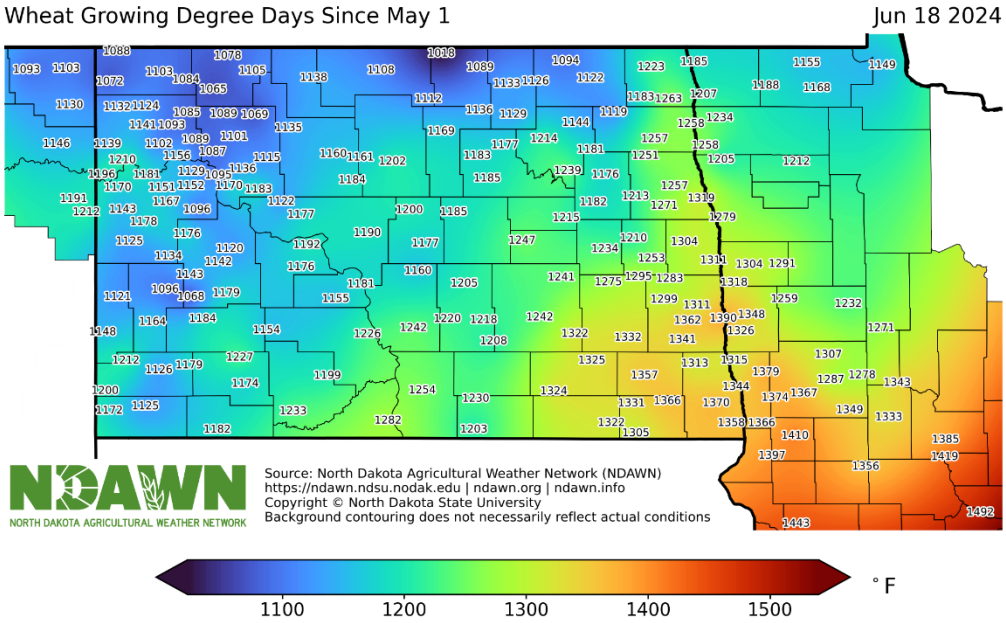


Figure 5. Wheat Growing Degree Days (Base 32°) for the period of May 1 through June 18, 2024

Using May 10 as a planting date, the accumulated growing degree days for corn (base temperature 50°) is given in Figure 6. You can calculate corn growing degree days based on your exact planting date(s) here: https://ndawn.ndsu.nodak.edu/corn-growing-degree-days.html.

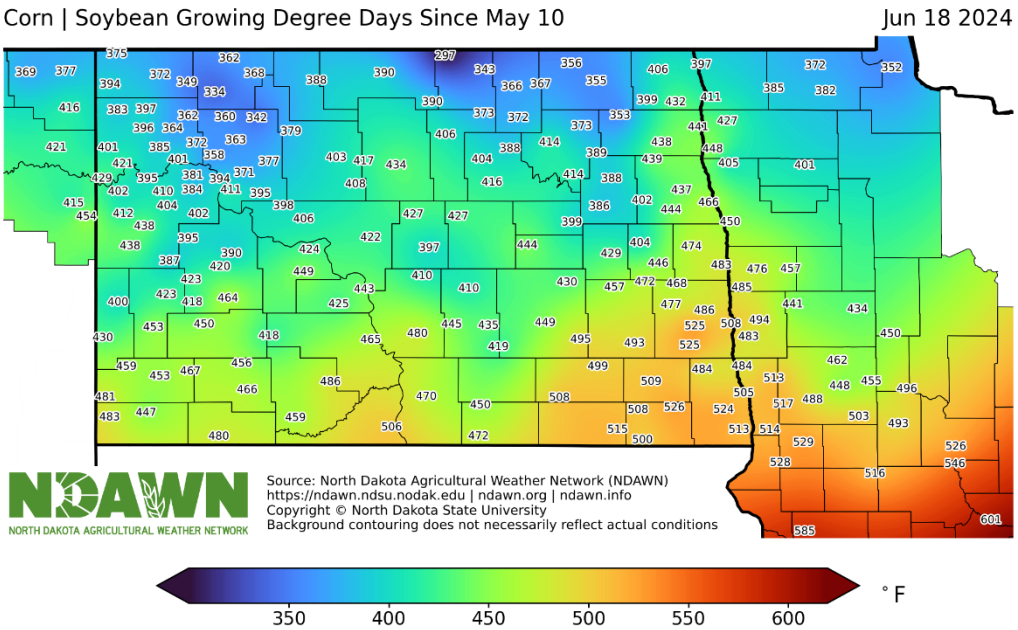


Figure 6. Corn Growing Degree Days (Base 50°) for the period of May 10 through June 18, 2024

Soybeans also use base 50° like corn, but NDAWN has a special tool for soybeans that, based on your planting date and cultivar, can estimate maturity dates based on average temperatures, as well as give you GDDs based on the planting date(s) you set. That tool can be found here: https://ndawn.ndsu.nodak.edu/soybean-growing-degree-days.html

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