WET SOIL CONDITIONS FAVORABLE FOR WIREWORMS

Wireworms are the larvae of click beetles (Coleoptera: Elateridae), and feed on most field crops grown in North Dakota. Wireworm larvae (Fig. 1) are hard, smooth, slender worms varying from 1½ to 2 inches in length when mature. They are white, yellow or dark brown with three pairs of small, thin legs behind the head. The last body segment is forked or notched.

Wireworms prefer cereal crops like wheat, barley, oats, but will also feed on row crops like sunflowers. This week, agronomists scouting wheat fields in the north central ND observed wireworms feeding on newly planted wheat seeds and dingy cutworm larvae crawling around. The moist soil conditions are more favorable for wireworm development and larval movements within the soil profile. As soil temperatures start to warm up to 50-55°F in the spring, wireworms will move to the soil surface and become more active feeding on seeds / roots, and tunneling into stems / seed (Fig. 2). Damage caused by wireworms include significant stand loss, reduce vigor and potential yield losses, especially in row crops like sunflowers. In recent years, wireworm activity has been increasing in severity, especially in no-till fields out in western North Dakota.

One of the ‘best’ pest management strategies against wireworms is knowing your field’s history for wireworm population levels. Wireworms have a long life cycle of 3-5 years as larvae in the soil. So, once they are detected at high densities, the field will remain ‘high’ risk for several years.

The second strategy for managing wireworm populations is insecticides and includes neonicotinoid insecticide seed treatments, or an in-furrow pyrethroid insecticide at plant. However, insecticides from both of these classes do not provide ‘adequate’ kill of wireworms in the field. Neonicotinoids only prolong morbidity periods (over 150 days) during which wireworms do not feed and pyrethroids are repellent and generally
nonlethal to wireworms. Some growers have resorted to using both insecticides, an insecticide seed treatment + a pyrethroid in-furrow, for wireworm control. However, recent research in sunflower has shown that there was no added benefit to using both insecticides, an insecticide seed treatment + a pyrethroid in-furrow, for wireworm control. Using both insecticides did not improve plant stand or increase yield compared to using either insecticide alone (Fig. 3). In addition, input costs were higher compared to using either insecticide alone. Other research suggests that blending could cause antagonistic effects by changing the behavior of wireworms. For example, wireworm morbidity induced by a nonlethal insecticides prevents sufficient ingestion of a lethal compound to cause mortality (van Herk et al. 2015. J Pest Sci 88: 717-739).

Even though the current insecticide seed treatments and pyrethroids applied either as in-furrow liquids do not kill wireworms, both insecticide had higher plant stand establishment and higher yield than the no insecticide (untreated check) (Fig. 3). In addition, increasing rates of insecticide seed treatment, pyrethroid in-furrow did not significantly improve efficacy against wireworms or increase yield (data not shown).

**Figure 3. Wireworm in Sunflower: Mean Percent Stand Loss and Percent of Increased Yield over Untreated Check for Selected Insecticide Treatments (2016-2019)**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Stand Loss</th>
<th>Yield Increase over Untreated Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>Untreated check</td>
<td>45</td>
<td>0</td>
</tr>
<tr>
<td>Insecticide seed treatment (ST)</td>
<td>29</td>
<td>28</td>
</tr>
<tr>
<td>Pyrethroid in-furrow</td>
<td>33</td>
<td>12</td>
</tr>
<tr>
<td>ST + pyrethroid in-furrow</td>
<td>26</td>
<td>17</td>
</tr>
</tbody>
</table>

**Best pest management recommendations for wireworm control include:**

- Use a registered insecticide seed treatments or a registered liquid pyrethroid in-furrow at the labeled rate to provide crop protection against wireworm feeding injury in spring.
- Know your field history of wireworm pressures, since wireworms can live as larvae for 3-5+ years in the soil.
- Control grassy weeds in fields to reduce attractiveness of field sites for egg laying by wireworms.
- Increase seeding rate by 10-20% to compensate for wireworm stand loss.

Thanks to the National Sunflower Association for their support.
FACTS ABOUT THE ASIAN GIANT HORNET

If you've read the news recently, and we’re sure you have, you've likely seen stories about an exotic and potentially invasive insect called the Asian giant hornet (Vespa mandarinia) or, as has been popularly reported in the media, ‘murder hornet’. It’s big, it packs a powerful sting, and it preys on honey bees (though not exclusively), but perhaps it’s the ‘murder’ moniker that’s gotten the public’s attention. Furthermore, any invasive insect is cause for concern, simply because of the economic and environmental loss that can occur, such as ash tree loss from the emerald ash borer and crop, tree and lawn damage from the Japanese beetle. For beekeepers in North America, the Asian giant hornet could prove costly indeed if it becomes established. Here, we’ll get to the facts about the Asian giant hornet.

Asian giant hornet (Figure 1) is native to tropical and temperate areas of southern and eastern Asia. Asian giant hornet was detected near Vancouver, British Columbia, in August of 2019. The nest was found and eradicated in September. In August and again in October, a beekeeper near Bellingham, WA, saw hornets near house (August) and attacking a hive (October), but the hornet species was not confirmed. In December of 2019, a homeowner near Blaine, WA collected a dead hornet that was later confirmed as Asian giant hornet. These detections prompted a prudent response from the Washington State Department of Agriculture and Washington State University Extension. A concerted effort with Washington beekeepers, who would be the most likely group to encounter the hornets, has not result in any new detections. At present, there are no known established populations of Asian giant hornet in North America. How the hornets were introduced to British Columbia and Washington remains unknown, but according to USDA-APHIS it is possible they arrived as illegal imports for food or medicinal uses. Early detection and response is critical. Public education and monitoring efforts for Asian giant hornet continues. The fact that no further detections occurred this April, when overwintered females begin to emerge, is good news but is not conclusive, as queens are difficult to detect because there are so few of them. Workers are more numerous, and are active in the summer and fall months. Only queens can disperse to form new nests.

Asian giant hornets are predators of other insects, especially bees in the genus Apis, to which our common western or ‘European’ honey bee (Apis mellifera) belongs. Asian giant hornets send out scouts from the nest to find bee hives, and once they do the scouts place pheromone markers for other hornets to follow. Asian giant hornets utilize bee pupae and larvae as food, but kill the adult bees and then guard their new food source aggressively. These hornets are heavily sclerotized, and bees can’t sting through the hornet’s integument. It takes only a few hornets a few hours to kill all of the adults and take over a bee colony. The Japanese honey bee (Apis cerana) has evolved an interesting defense mechanism. Japanese honey bees can detect the hornet’s pheromone and follow it back to the hornet nest where perhaps one hundred bees ambush a hornet scout, form themselves into a tight ball around the hornet, and vibrate their wings vigorously to raise the temperature around the hornet to over 115F, which ultimately kills the hornet. Unfortunately, the European honey bee has no natural defense against the Asian giant hornet. That’s why it’s such a concern for beekeepers, who are already dealing with substantial colony losses due to varroa mites and other stresses.

Asian giant hornet is the world’s largest hornet, with females attaining lengths of nearly 2½ inches. Because of their large size, Asian giant hornets can deliver more venom than smaller hornets, and like other hornets, can sting repeatedly. However, even in its native range human deaths due to Asian giant hornet stings are quite rare, and most are due to allergic reaction, although multiple stings (more than 30) from multiple hornets could potentially deliver a lethal dose of venom. Asian giant hornet is not usually aggressive, and encounters occur when the hornets are defending their nests or their food sources. Here in the United States, about 60 deaths occur each year due to bee, wasp and hornet stings according to the Center for Disease Control and Prevention.
Asian giant hornet is highly unlikely to occur here in North Dakota. The largest wasp or hornet in North Dakota is the eastern cicada killer (Figure 2), which can reach nearly 2 inches in length. Female cicada killers provision their nests with cicadas, and are not aggressive.

The bottom line is that there is no immediate concern about Asian giant hornet occurring in North Dakota, and there is no threat to the public. We ask beekeepers, especially those returning to North Dakota from the Pacific Northwest, to remain vigilant and report any potential sightings and send any suspect specimens to the NDSU Plant Diagnostic Lab for species determination.

For more fact-based information, including resources we used for this article, please consult the following:

- **Sizing up the Asian giant hornet** - Washington State Department of Agriculture
- **YouTube Video on Asian Giant Hornet** – Washington State Department of Agriculture
- **Asian Giant Hornet** – Washington State University Extension website
- **Asian Giant Hornet** - Washington State University Extension Fact sheet
- **New Pest Response Guidelines: Vespa mandarinia – Asian Giant Hornet** – USDA National Invasive Species Information Center

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**Patrick Beauzay**  
Research Specialist and State IPM Coordinator

**Janet J. Knodel**  
Extension Entomologist

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**COLD WEATHER IMPACTS ON EMERGED AND EMERGING CROPS**

The recent cold temperatures that have blanketed the state are nearly unprecedented for this time of the year. Monday morning, temperatures as low as 15 degrees were recorded at some NDAWN stations. Moreover, most regions of the state and northeastern Minnesota experienced temperatures of 25 degrees or less. Since the rate of evaporation of soil water is largely determined by temperature, these low temperatures have dramatically slowed the rate of soil drying in regions that are still too wet to plant. This coupled with the recent rain and snow will no doubt further delay planting progress this year.

I have been asked if these sub-freezing temperatures damaged crops that have already been planted, including winter rye and winter wheat that are beginning to tiller. Small grains crops tolerate temperature as low as 25 degree. The extent of damage caused by sub-freezing temperatures depends on their growth stage, the temperature and the duration of the cold. Until the jointing stage, the growing point of small grains is partially protected from freeze damage as it is below the surface of the soil. Freeze damage most commonly results in the upper portions of exposed leaves becoming necrotic within 24 to 48 hours after the freeze event. Generally, these plants will grow out of the damage without any yield reduction. However, if air temperatures are cold enough for a prolonged period (a few or more hours depending on the soil type and moisture status), the soil temperature around the growing point can drop to the point that it will be lethal to the plant. There is greater risk of this type of freeze damage to small grains when they are grown...
in sandy soils and/or dry soils as these types of soils hold less heat than heavier and/or moist soils. Moreover, it is not uncommon to see more foliar freeze damage in no-till fields than in tilled fields as residues slows the movement of heat stored in the soil to the soil surface to help moderate temperature.

To determine if the growing point has been damaged, dig up a few plants and remove the damaged leaves to expose the growing point. If the growing point is white in color it most likely is still alive. Growing points that appear yellow or brown are most likely dead. Winter wheat, winter triticale and winter rye are able to tolerate extremely cold temperatures after they are hardened in the fall. Nevertheless, winter cereals that have broken dormancy in the spring (started to regrow when temperatures in the spring are favorable), can be as susceptible to cold weather injury as spring cereals. See injury to winter triticale in Figure 1. Our winter wheat at Casselton did not show any freeze injury symptoms, and there were only a few damaged leaves on recently emerged spring wheat just north of NDSU. We expect these plants to develop normally once warmer weather returns.

I am not aware of any emerged corn in the state; there have been too few growing degree days this past month to permit emergence. Like small grains, however, the growing point of corn is below the surface of the soil until about the V6 stage, so corn can tolerate some freeze damage without adversely affecting yield potential. Corn, however, is more sensitive to cold temperatures than small grains as the lethal temperature for corn is 28 degrees. Though there are few planted acres in the state, the main concern with corn is the potential for mortality of the germinating seed when soils temperatures drop below 28 degrees. Keep an eye out for reduced emergence in low lying areas of fields where the bare soil temperature at a nearby NDAWN station dropped below 28 degrees.

Joel Ransom
Extension Agronomist, Cereal Crops

GROWING CHICKPEA IN NORTH DAKOTA

NDSU authors have recently revised the “Growing Chickpea in North Dakota” (A1236 Figure 1). The publication is intended for agricultural producers growing chickpea as a crop. The text covers basic plant adaptation, crop production, variety and field selection, fertilization, inoculation, seeding, weed control, diseases, insects, rotational benefits and harvesting.

Chickpea (Cicer arietinum L.) is classified as kabuli or desi type, based primarily on seed color and shape. Kabuli chickpea, sometimes called garbanzo bean, has a white to cream-colored seed coat with a “ram’s head” shape and range in size from small to large.
small to large (greater than 100 to less than 50 seeds per ounce). Desi chickpea has a pigmented (tan to black) seed coat and small, angular seeds.

Before selecting a variety, contact potential buyers to ensure it is accepted in the market you are targeting. Variety information is available on the NDSU variety trial website at https://www.ag.ndsu.edu/varietytrials/chickpea

Chickpea yields range widely in North Dakota. Although some varieties possess some level of Ascochyta tolerance, many varieties have very low levels of tolerance. Pythium, Rhizoctonia, and Ascochyta blight are the primary diseases of concern in chickpea production, and without proper management, severe losses may result.

FLAX PRODUCTION

NDSU Extension staff have revised the “Flax Production in North Dakota” (A1038, Figure 1) brochure. The publication is intended for producers, consultants, and those interested in flax production. The text covers history and use of flax, plant growth and development, fertilizing, seeding, basic plant adaptation, crop production, variety and field selection, fertilization, seeding, weed control, pest management, harvesting and storage.

Flax production has a long history. Flax remnants were found in Stone Age dwellings in Switzerland, and ancient Egyptians made fine linens from flax fiber. Flax production moved west across the northern U.S. and Canada during the 1800s. North Dakota is the leading producer of flax for oil and food use in the U.S.

Select a variety adapted to your area. Variety descriptions and recent yield performance can be obtained in NDSU Extension publication A1105, “North Dakota Flax Variety Trial Results and Selection Guide,” available on the NDSU Extension website.

Flax should be sown into firm, moist soil. A well-prepared, firm seedbed will ensure sowing at the proper depth. This, in turn, will result in uniform germination and rapid, even emergence. We recommend a planting depth of 0.75 to 1.5 inches. A stand of 70 plants per square foot is desired. However, if uniform, stands of 30 to 40 plants per square foot may provide a satisfactory yield. As stands drop below 30 plants per square foot, weed competition and delayed maturity are potential problems.

Early seeded flax generally produces the highest yields. Early seeding normally occurs in late April for most of the state except the northeast, where early May seeding is more likely.

Flax is a self-pollinating crop. Seed is produced in a boll or capsule. A complete boll can have 10 seeds, but most bolls will have fewer, averaging around six seeds. Heat stress during flowering may reduce the pollen viability and pollination, which results in a reduced number of seeds per boll and or fewer bolls per plant.

Hans Kandel
Extension Agronomist Broadleaf Crops
SOYBEAN PLANTING RATE, ROW SPACING AND PLANTING DATE

North Dakota State University has a long tradition of recommending the establishment of a soybean population of 150,000 plants per acre across row spacings. This recommendation continues to exist across the state to optimize soybean seed yield.

This article summarizes the evaluation of data generated by 37 NDSU soybean planting rate and row spacing trials conducted during 2008 through 2019. A total of 390 data points (observations) comprise the database. Seed yield was normalized for each trial by comparing treatment mean (combination of seeding rate x row spacing) to the trial average. The treatment mean within each individual trial was divided by the trial average and multiplied by 100 to get the relative yield in percent (the trial mean was set at 100%). With all yield data on the same scale (relative percent) data was evaluated across trials. The blue dots in the figures represent the averaged relative yield for each factor evaluated. For example, in Figure 1, the blue dot for 100,000 planting rate is an average of 15 trial mean numbers and the 150,000 planting rate is the average of 27 trial mean numbers. The figures include trendlines and R-squared values.

Figure 1. Soybean relative seed yield with planting rates averaged across row spacings, North Dakota 2018-2019.

The average relative soybean seed yield among planting rates, ranging from 80,000 to 220,000 pure live seeds (PLS) per acre, and averaged across row spacings and all North Dakota site-years is shown in Figure 1. Planting rates of 125,000 to 200,000 PLS per acre generally provided above-average yield, with 169,000 PLS per acre optimizing yield. In eastern North Dakota trials, 8% of planted PLS per acre did not develop into viable soybean plants. Assuming that on average 8% of the PLS does not result in established plants and the general planting rate that provided highest yield across all trials was 169,000 PLS, we can expect about 155,000 established plants per acre to maximize yield.
The average relative soybean seed yield among row spacings, ranging from 7- to 30-inches, and averaged across planting rates and all North Dakota site-years is shown in Figure 2. Based on the regression equation, the relative yield increases by 0.5% for each inch the spacing is narrower from 30 inches up to the 7-inch row spacing. Narrow rows (less than 15 inches) provided above-average yield, with 7-inch rows, based on the regression equation, providing about 106% yield compared to trial averages of 100%.

In a large survey of North Dakota growers during 2014-2017, producers were asked about planting date and yield. Figure 3 indicates that the yield potential decreases with later planting. The first half of May generally is an excellent time to plant soybean if favorable soil conditions exist.
UPDATE ON EARLY EMERGING WATERHEMP

Last week, Dr. Tom Peter’s wrote an article about observations of waterhemp emergence in early May in North Dakota and Minnesota. We have received subsequent reports and pictures confirming waterhemp emergence as far north as Pembina County. One question many have asked over the past week is: will these waterhemp survive the overnight subfreezing temperatures from May 7th through 12th. I scouted the field in Cass County where emergence was observed on May 1st and the short answer is yes, waterhemp made it through the cold spell. Some plants did not survive the weather and many plants had lost their green color, but will likely start growing again once warmer temperatures arrive. Several plants also seemed unaffected by the cold temperatures. I was not able to find plants that had produced a true leaf yet, indicating that the waterhemp had not actively grown during a 12-day window since emergence on May 1st.

Waterhemp that emerged approximately May 1st. Pictures were taken on May 12th, after several nights of sub-freezing temperatures. Plants are showing a mix of no injury to severe injury from cold temperatures.
The fact that early emerging waterhemp survived our cold spell has implications on management moving forward. If fields have not been planted, these plants can be controlled through tillage or a burndown application. Herbicides will be more effective once these plants start actively growing as warmer temperatures arrive. If waterhemp is present in fields with emerged crops, we need to continue to scout these fields and make sure that postemergence applications are applied in a timely fashion. Lastly, it is important to remember that there will be many more flushes of waterhemp throughout the year and the war on waterhemp in 2020 is just getting started.

Joe Ikley
Extension Weed Specialist

HOW DOES COLD WEATHER AFFECT HERBICIDES?

Air temperature has been cold, but field conditions are acceptable to continue planting 2020 in some regions. I am writing for those interested in performance of burndown products in cold weather conditions. Herbicide performance in cold weather is dependent on both herbicide and weed species. Let us consider three herbicides, glyphosate, paraquat and auxin herbicides.

Glyphosate performance is best when it is warm or daytime temperatures at least in the mid 50 F. Consider increasing the glyphosate rate by a third to reduce the risk of not controlling winter or spring annuals when daytime temperatures are less than 50 F and night time temperatures range from 30 to 40 F. I suggest delaying glyphosate application until weeds resume active growth in areas receiving frost.

Paraquat is an excellent crop burndown product and should be considered in no-till or strip tillage situations and is not as temperature sensitive as glyphosate (or auxin herbicides). Please use non-ionic (NIS) surfactant with paraquat and follow mixing instructions. According to Brett Miller, Syngenta Technical Representative, NIS is the preferred adjuvant with paraquat, providing optimum distribution across the leaf surface. Miller emphasizes mixing order; add NIS to water before fertilizer solution, co-herbicide or paraquat is added to the tank. Tank mixing triazines (atrazine for corn or metribuzin in soybean) increases the speed and efficacy of paraquat in burning down weeds.

Please use caution to determine/verify paraquat formulation and rate since there are 2 and 3 pound/gallon formulations in the marketplace. Use flat fan nozzles and a carrier volume of 15 gallons per acre.

Weed control is slowed when cold temperatures follow auxin products (2,4-D and dicamba). Be sure to scout weeds to evaluate cold temperature or frost damage to weeds. In general, winter annuals will not sustain much damage from cold temperatures, so take notice of emerged spring annuals. Apply auxin herbicides two- or three-days followings lows above freezing and when there is approximately 50% undamaged leaf tissue on the spring annuals. Weeds will need some time to develop new tissue if greater than 50% of leaf tissue is damaged by cold temperatures.

Bottom line is winter, or spring annual weeds must be actively growing for burndown products to perform. Cold weather generally is not a concern for preemergence herbicides and can benefit certain products by reducing volatility or reducing microbial degradation.

Tom Peters
Extension Sugarbeet Agronomist
NDSU & U of MN
BE TICK SMART

Ticks are out looking for hosts like you to feed on your blood! The recent rainy weather in some parts of North Dakota favors tick development and reproduction, since moisture is critical for their survival. In dry conditions, they are more susceptible to desiccation and death, and populations may decline.

Two ticks that are common in North Dakota include the smaller black legged tick (or deer tick), *Ixodes scapularis*, and the larger American dog ticks, *Dermacentor variabilis* (see photographs below). **Black legged tick is the species that vectors Lyme disease.** Ticks can be a significant threat to anyone’s health if you enjoy hiking, camping, hunting, playing or working outside in undisturbed grassy or wooded areas. **Be safe this summer and do periodic ‘tick inspections’ every 2-3 hours when outdoors to prevent tick-borne diseases.**

![American dog tick, *Dermacentor variabilis*.](image1)  
(Gary Albert, Harvard University, Bugwood.org)

![Black legged tick or deer tick, *Ixodes scapularis* (vectors Lyme disease).](image2)  
(P. Beauzay, NDSU Ext. Ent.)

An adult female blacklegged tick, engorged after a blood meal, rests on a leaf. (Scott Bauer, USDA ARS, Bugwood)

The **Center for Disease Control and Prevention** (CDC) states that Lyme disease is the most commonly reported vector borne illness in the United States. Lyme disease is concentrated in in the Northeast and upper Midwest. The black legged tick is most common in eastern North Dakota but is increasing in western North Dakota. The **North Dakota Department of Health** confirmed 56 cases of Lyme disease in 17 counties in 2017 (see map on next page). We can compare that to only 2 and 0 cases back in 2000 and 2001, respectively. The number of positive and confirmed records of Lyme disease in North Dakota continues to trend upwards each year since 2005 (see graph on next page).
2017 Human Lyme Disease Cases by County in North Dakota

Source: North Dakota Department of Health

Number of Cases of Lyme Disease from 2000-2017 in North Dakota
(Source: ND Department of Health)
Lyme disease is caused by the bacterium *Borrelia burgdorferi*. Symptoms of Lyme disease include: Bull’s eye rash, headache, fever and fatigue. In a worst case scenario, infections can cause arthritic joints, and affect the nervous system causing facial paralysis, and spinal cord, brain or heart problems. Lyme disease must be treated immediately with antibiotics. It can take 2 to 3 weeks to recovery if treated early. The later you wait for treatment; your symptoms will become more severe and more difficult to cure. For more information, please see the CDC website: https://www.cdc.gov/ticks/tickborne-diseases/lyme.html

The Center for Disease Control and Prevention (CDC) recommends the following strategies for field workers and others engaged in outdoor activities to prevent tick bites:

- Minimizing Direct Contact with Ticks by avoiding woody and high grass areas and walking in center of trails, if possible. Ticks are most active in May through August in North Dakota.
- Wear light-colored protective clothing, so it is easier to see ticks crawling up.
- Tuck pant legs into socks.
- Spray bug repellent with 20-30% DEET or 20% picaridin (synthesized pepper plant) on exposed skin and clothing, especially on lower legs. This should provide some protection up to 12 hours. Or wear clothing treated with permethrin, which can be washed up to 70 times before losing effectiveness. Do not apply permethrin directly to your skin.
- Quickly find and remove any ticks from body by using a tweezers. Grasp tick close to skin and pull straight up to avoid breaking off the tick’s mouthparts in the skin. Clean bite area with rubbing alcohol or soap and water. Apply an antiseptic to the bite site.
- Inspect yourself every 2-3 hours to find any ticks crawling on you and to remove them before they attach to feed on your blood. Ticks like to hides in hair, behind ears and other areas and may be difficult to find.
- Wash any clothing that you were wearing soon and then dry in high heat for an hour to kill any ticks. Otherwise, ticks can attach to you later after hitchhiking on your clothes into home.
- Reduce tick habitat near home.
  - Keep lawns mowed around home.
  - Place a 3-ft wide barrier of wood chips or gravel between lawns, patio or play areas and wooded areas to prevent tick movement.
  - Exclude wildlife (especially deer) that may be carrying ticks into your yard.
- Some insecticides registered for control of ticks by homeowners in residential areas (yards) include: carbaryl (Sevin®), cyfluthrin (Tempo®, Powerforce™), permethrin (Astro®, Ortho® products, Bonide® products), and pyrethrin (Pyrenone®, Kicker®). Always read and follow the EPA approved label on the product container.

Janet J. Knodel
Extension Entomologist
WILDLIFE DAMAGE TO TREES AND SHRUBS

As we come out of winter, many people are noticing damage to their trees and shrubs caused by wildlife. Rabbits, voles or other animals have girdled branches and stems – that is, they’ve stripped the bark all the way down to the wood. Another common type of damage is where branch tips have been eaten by rabbits.

Unfortunately, there’s very little that can be done at this point. Mostly we need to take a wait-and-see approach. Pruning paints will not help the tree ‘heal’ itself.

For shrubs, this type of damage causes little permanent harm. The shrub will send out new shoots and leaves either from undamaged areas low on the stem (see the photo), or sometimes sending up brand new shoots from the root system.
For fruit trees, the source of the sprouts is important in managing the tree in the future, if the tree was grafted. Sprouts originating above the graft union will come back as the chosen cultivar. Sprouts originating below the graft union will be true to the rootstock, which will not produce the fruit that’s desired. For example, if a Sweet 16 apple was grafted onto a Dolgo crabapple rootstock, then sprouts that form after damage could be either Sweet 16 or Dolgo, depending on their source. If the sprouts form above the graft, they will be Sweet 16. Sprouts forming below the graft union will be Dolgo.

Prevention is the only truly effective way to deal with wildlife damage. Putting up some type of barrier will usually keep rabbits and voles away from trees and shrubs, but even these are no guarantee if winter snow piles up so high that the animals can get above the protected areas.
To reiterate, at this point, the damage is done. Wait and see how the trees or shrubs recover, and manage the re-sprouts.

Joe Zeleznik  
NDSU Extension Forestry Specialist
AROUND THE STATE

NORTH CENTRAL ND

Planting continues across the North Central region as peas, lentils, faba bean, oats and small grains continue to go into area fields. However, a brief delay may occur due to weather conditions. About 2 inches of snow fell Saturday morning, May 9th, in South Minot, however, temperatures warmed enough for complete melting by the end of the day. In total, about 0.48 inches of liquid precipitation fell at the NCREC for May 9th. Some low temperatures fell below freezing in Minot with some upper 20s being observed. Here are some precipitation reports from the last week (starting May 3rd): Minot: 0.60”; Bottineau: 0.51”; Garrison: 0.30”; Karlsruhe: 0.58”; Mohall: 0.27”; Plaza: 0.32”; and Rugby: 0.48”.

Bare soil temperatures at the NCREC was observed at 47 °F as of May 11th.

Low populations of Canola Flea Beetle continue to be observed in the traps at the NCREC. Warmer temperatures in the forecast may help numbers increase in the next few weeks. Dandelions and kochia have been observed in a sparsely scattered manner at some field sites.

TJ Prochaska
Extension Crop Protection Specialist
NDSU North Central Research Extension Center

NORTHWEST ND

Despite a cold front coming through late last week, planting continues in Northwest ND. Warm temperatures in the first half of last week gave way to highs in the 40’s and lows in the 20’s over the weekend. Scattered thundershowers also moved through Friday, May 8th overnight in to Saturday. These storms did not drop a lot of rain, however, with most NDAWN stations recording 0.1-0.25”. The 7-day forecast predicts a warm up mid-week with high’s returning to the 60’s and 70’s through next week.

Winter wheat at the Williston REC is tillering with stands showing 2-4 tillers. Peas and small grains planted two weeks ago are starting to emerge. Crops are emerging slowly with the cooler than normal temperatures. Cool temperatures don’t seem to be slowing down the weeds much as I’ve seen some sizeable tansy mustard around and shepherd’s purse starting to flower. Now would be a good time to control emerged winter annual weeds like horseweed and narrow leaf hawksbeard prior to planting. As a reminder, we do have glyphosate resistant horseweed in the area, so growers are advised to use more than just glyphosate in their burndown. 2,4-D can be used in front of barley and wheat while Sharpen is a good choice before pulse crops.

Clair Keene
Extension Cropping Systems Specialist
NDSU Williston Research Extension Center
NEW PODCAST FOCUSES ON GROWING PULSE CROPS

Anyone interested in growing pulse crops (chickpeas, peas and lentils) will have an opportunity to learn more through a podcast series that North Dakota State University plant pathologist Audrey Kalil initiated in collaboration with Future of Ag, Soil Sense podcaster Tim Hammerich.

The first four episodes of the podcast in the Growing Pulse Crops series is available at https://www.growingpulsecrops.com/ or through cellphone podcast apps. New episodes will be released biweekly. Thirteen episodes will be released this season.

The series will follow pulse crop farmers through the growing season and dive into the research that’s helping them through some of the challenges they face. They also will feature other industry stakeholders along the way.

“Topics include weed, disease and pest management, as well as market updates.” says Kalil, who is based at NDSU’s Williston Research Extension Center.

Presenters will include Brian Jenks, weed scientist at NDSU’s North Central Research Extension Center near Minot; Michael Wunsch, plant pathologist at NDSU’s Carrington Research Extension Center; Mary Burrows, professor of plant science and plant pathology at Montana State University; and Lyndon Porter, research plant pathologist at the U.S. Department of Agriculture’s Agricultural Research Service in Pullman, Wash and many others.

“This series was developed by members by of the Pulse Crop Working Group in response to stakeholder interest in this format,” Kalil says. “The goal of the Pulse Crop Working Group is to foster collaborative relationships among researchers, Extension professionals and stakeholders through face-to-face meetings and virtual interaction to address integrated pest management priorities in pulse crops.”

The group is funded by the North Central IPM Center. Visit https://www.ncipmc.org/projects/working-group-projects/ to learn more about the group.

To receive the podcast on a cellphone, subscribe to the series through Apple podcasts (iPhone), Google podcasts (Android) or any other pod catcher app. Once subscribed, the podcast will download to your phone automatically when each new episode is released.

For more information about the podcast, contact Kalil at 701-774-4315 or audrey.kalil@ndsu.edu.

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NORTHEAST ND

Our region has very little seeding progress in the last week. Moisture, in terms of snow, came over the weekend in the northern tier counties. Some areas are struggling with excessive water and slow dry up conditions. It’s been cold, lows in the 20s. For the unharvested canola fields, many farmers are electing to burn them. The Langdon REC has started to seed off-station plots while we wait for our soils to warm and dry up.

Lesley Lubenow
Extension Cropping Systems Specialist
NDSU Langdon Research Extension Center
SOUTH-CENTRAL/SOUTHEAST ND

Crop planting and plant development have been slow during the past week due to cool air and soil temperatures, and generally wet soils (including light snow on May 9-10). According to NDAWN, daily average low temperatures during May 10-11 were in the 20s to low 30s, with the lowest temperature at McHenry at 19 degrees on May 11. Rainfall during May 1-11 ranged from 0.2 inches (Robinson) to 1.6 inches (Dazey, McHenry and Streeter), with the Carrington REC receiving 0.9 inch.

Alfalfa regrowth is at <6-inch height. Winter rye and winter wheat are in the tillering to jointing stages. Seeding progress with small grain in the region is quite variable, possibly averaging 20-25% of acres completed. Barley and spring wheat seeded late April are at 1- to 2-leaf. Corn planting may be 10% complete and mid-April planted corn should be emerging this weekend. Soybean planting has also started. Besides the challenges with timely crop planting this spring, 2019 corn harvest is still a task in fields scattered throughout the region. Prevented plant acres likely will be significant, especially going eastward in this region.

SOUTHWEST ND

Planting continues across the region. There are some with much more moisture than others. Cold temperatures and light scattered showers have slowed progress on planting and spraying, but overall we seem to be further ahead in the southwest corner of ND than the surrounding regions. With a couple days with temperatures below freezing there is some concern about emerged canola. Patience will be important, although it may look rough now, most stands will be fine. It’ll be important to keep an eye out especially in low spots. For corn that may have been planted early my biggest
concern would be cold water imbibition or cold shock and if any pulses or soybeans had already emerged be sure to keep a close eye on stands.

According to NDAWN from May 5th to May 12th Dickinson received 0.2 inch of rain, some in the surrounding region have received more. The bare soil temperature over the same period has ranged from 44 to 58 degrees. Here at the Dickinson REC we have a majority of trials planted and will be planting an acidic soil soybean amendment trial this week if weather allows. Once all research is in the ground we’ll be planting a cover crop demonstration to showcase a wide range of species and mixes and how they grow in our region. It does appear that more acres than previous years are being planted into cover crops this season, a similar demonstration will be at the Hettinger REC as well.

Research trial being planted last week at the NDSU Dickinson REC.

Ryan Buetow
Extension Cropping Systems Specialist
NDSU Dickinson Research Extension Center
WEATHER FORECAST

The May 14 through May 20, 2019 Weather Summary and Outlook

The past week was about as cold as you will ever experience for this time of year. Temperatures ranged from 10 to 15 degrees below average (Figure 1). This next week will see a dramatic change with temperatures on some days well above average, but those warmer temperatures may come with localized heavy rainfall, which I will discuss in more detail later in this report.

Figure 2. Departure from Normal Average Temperature from May 6 to May 12, 2020 at selected NDAWN stations

Because of deadlines, Figure 2 only goes through Tuesday, May 12, but Figure 3 includes rain through 10:30 AM yesterday (May 13). The rain from Wednesday was mostly on the light side courtesy of the cold dry air that was in place. As the rain moved across the region, much of it evaporated before reaching the ground. There will be some scattered, mostly light rain across the northern part of the area today (Thursday), then another system with rain that will impact locations near and south of Interstate 94 on Friday Night into Saturday Morning.
The rain on Friday Night and Saturday is associated with a strong push of warm air that will temporarily be moving into the northern plains. The warmest days look to be Monday and Tuesday of next week. Temperatures those two days look to be in the 70s and even some 80s. In fact, I would not be surprise if an NDAWN station or two hits or comes close to 90° if all goes according to plan. That warm air will be associated with a warm front, that as of this writing looks to stall over the region next week. That boundary between warm and somewhat humid air and the cooler air that will be nearby will probably serve as a focus for rain and thunderstorms. That unfortunately, would bring the prospect
for heavier rain in parts of North Dakota into northwestern Minnesota. Where that boundary sets up will determine where that potential heavier rain may fall. Therefore, yes, there is good news that temperatures will finally bring the needed heat units (Growing Degree Days) that are needed, but the warmer air will also bring threats of bands of heavier rain that most areas would not welcome. After that period warmth for a few days, cooler air will return, but no where near as cold as it was this past week.

The projected Growing Degree Days (GDDs) base 32°, 44° and 50° for the period of May 14 through May 20, 2020 can be found in Figure 4. Most of the GDDs projected for the next 7 days will come during the Sunday through Tuesday timeframe.