Japanese Beetle Detected In Traps
................................................1
Potato Psyllid Detected in North Dakota .................2
Canola Flea Beetle Feeding on Pods
................................................2
European Corn Borer Scouting......2
Corn Aphids ..................................3
Wanted: Soybean Aphids..............4
‘Good Bugs’ Out In Fields............4
Painted Lady Butterflies Flying.....5
Estimating Pea Yield....................5
Tools for Monitoring Weather Impact on Corn Development 6
Rust on Dry Beans Being Found in North Dakota and Minnesota .7
Growth Regulator Symptoms on Soybeans......................9
Around the State .......................12
North Central ND ....................12
Northwest ND ......................13
Northeast ND .....................13
Southwest ND .....................13
Weather Forecast: ....................15

Outside this Issue...

JAPANESE BEETLE DETECTED IN TRAPS

Japanese beetles have begun to emerge as adults. Live adults were collected from traps at 4 nurseries on the east side of the state in Cass and Richland Counties. No Japanese beetles were captured in any traps at non-nursery field sites. Japanese beetle adults damage plants by feeding on the leaves causing defoliation and skeletonizing leaves. However, no plant defoliation has been observed. Pheromone traps are an effective method of monitoring male and female Japanese beetles. Pheromone lures contain both a floral and sex pheromone that can attract beetles from more than ½ mile away. We are hopeful that the 1,500 traps that were placed in the field will capture any Japanese beetles that were accidently introduced on nursery stock. Traps are being operated by the ND Department of Agriculture, NDSU Extension Service, Master Gardeners, homeowners and other volunteers.

For more control information, see the NDSU Extension Service publication on Integrated Pest Management of Japanese Beetle in North Dakota E1631.

Homeowners, growers and property owners are being asked to be vigilant for Japanese beetle this summer! Look for Japanese beetle adults or grubs both visually on plants and/or monitor with a pheromone trap. Please report any positive detections to your local County Extension office.

Charles Elhard                           Janet J. Knodel
ND Department of Agriculture           Extension Entomology
POTATO PSYLLID DETECTED IN NORTH DAKOTA

Potato psyllid, *Bactericera cockerelli*, was detected last week in a commercial potato field near Tappen in central North Dakota. Several yellow sticky cards were submitted to the NDSU Plant Diagnostic Lab and Extension Entomology by a crop consultant. One of the cards contained three potato psyllids. Species identification was confirmed using DNA analysis. The potato psyllids also were tested for *Liberibacter*, the causal agent of zebra chip disease in potatoes. All three potato psyllids tested negative for *Liberibacter*.

Potato growers should be monitoring their fields for potato psyllids. For more information on potato psyllids, including biology and control information, please consult *Management of Potato Psyllids – 2016*.

Patrick Beauzay  
Research Specialist, Extension Entomology

Janet J. Knodel  
Extension Entomologist

CANOLA FLEA BEETLE FEEDING ON PODS

The new generation of crucifer flea beetles is emerging, and feeds on the green foliage and developing pods. Field reports of significant feeding injury have been observed near Napoleon in south central ND. Usually the upper or younger pods and later seeded crops are most impacted. This feeding damage results in poor seed fill, premature pod drying, shriveled seeds, or pod shattering, and provides an entry point for fungal growth within pods in damp weather. However, it is usually not economic since most of the yield comes from the lower pods. If canola is under drought stress, damage could be more severe. There is no established threshold for managing flea beetles this late in crop development. If you are considering spraying an insecticide, it is important to observe the different Pre-Harvest Intervals (PHI) of the insecticides registered in canola. Any pyrethroid insecticide will offer good control of flea beetles and residual activity until harvest. Examples of active ingredients and PHI include:  
- bifenthrin - 35 days PHI (Sniper, Tundra EC, Brigade 2EC, others);  
- deltamethrin - 7 days PHI (Delta Gold);  
- gamma-cyhalothrin - 7 days PHI (Declare);  
- lambda-cyhalothrin - 7 days PHI (Grizzly Too, Silencer, Warrior II, others) and zeta-cypermethrin - 7 days PHI (Mustang Maxx).

*Note: Mention of a product does not constitute an endorsement by NDSU Extension Service or the author.*

EUROPEAN CORN BORER SCOUTING

With more non-Bt corn planted this year, it is important to scout corn fields for European corn borer. Limited spraying for corn borer has been reported in the Valley City area. Corn borer moths of the single generation should be emerging in late July into August. Look for egg masses, active larval feeding (shot-holing) in leaves, and the presence of frass. Egg masses look like fish-scales and are white to cream colored. Each egg mass contains about 20 to 30 eggs. Just prior to hatching, the black heads of the larvae become visible through the shell; this stage is referred to as the “black-head” stage. Full-grown larvae of the European corn borer are about 1 inch long, have a black head, and are gray to creamy white with spots.
Observing moth activity around field margins or within the field may alert you to developing infestations.

When larvae are about 10 days old, they reach a length about equal to the diameter of a dime and begin to tunnel into the midvein of the leaf, then burrow into the stalk. Foliar insecticides must be applied before larvae bore into the corn plant where they are protected from insecticides.

For economic thresholds, use the following table for making a decision about insecticide application.

<table>
<thead>
<tr>
<th>Control Costs² ($/acre)</th>
<th>Value of Corn Crop¹ ($/acre)</th>
<th>200</th>
<th>250</th>
<th>300</th>
<th>350</th>
<th>400</th>
<th>450</th>
<th>500</th>
<th>550</th>
<th>600</th>
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</thead>
<tbody>
<tr>
<td>6</td>
<td></td>
<td>0.75</td>
<td>0.60</td>
<td>0.50</td>
<td>0.43</td>
<td>0.38</td>
<td>0.34</td>
<td>0.30</td>
<td>0.27</td>
<td>0.25</td>
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<tr>
<td>7</td>
<td></td>
<td>0.88</td>
<td>0.70</td>
<td>0.58</td>
<td>0.50</td>
<td>0.44</td>
<td>0.39</td>
<td>0.35</td>
<td>0.32</td>
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<td>0.80</td>
<td>0.67</td>
<td>0.57</td>
<td>0.50</td>
<td>0.45</td>
<td>0.40</td>
<td>0.37</td>
<td>0.34</td>
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<tr>
<td>9</td>
<td></td>
<td>1.12</td>
<td>0.90</td>
<td>0.75</td>
<td>0.64</td>
<td>0.56</td>
<td>0.50</td>
<td>0.45</td>
<td>0.41</td>
<td>0.38</td>
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<td>10</td>
<td></td>
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<td>1.00</td>
<td>0.83</td>
<td>0.71</td>
<td>0.63</td>
<td>0.56</td>
<td>0.50</td>
<td>0.46</td>
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<td>11</td>
<td></td>
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<td>1.10</td>
<td>0.92</td>
<td>0.79</td>
<td>0.69</td>
<td>0.61</td>
<td>0.55</td>
<td>0.50</td>
<td>0.46</td>
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<tr>
<td>12</td>
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<td>1.20</td>
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<td>0.86</td>
<td>0.75</td>
<td>0.67</td>
<td>0.60</td>
<td>0.55</td>
<td>0.50</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>1.63</td>
<td>1.30</td>
<td>1.08</td>
<td>0.93</td>
<td>0.81</td>
<td>0.72</td>
<td>0.65</td>
<td>0.59</td>
<td>0.54</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>1.75</td>
<td>1.40</td>
<td>1.17</td>
<td>1.00</td>
<td>0.88</td>
<td>0.78</td>
<td>0.70</td>
<td>0.64</td>
<td>0.59</td>
</tr>
<tr>
<td>15</td>
<td></td>
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<td>1.50</td>
<td>1.25</td>
<td>1.07</td>
<td>0.94</td>
<td>0.84</td>
<td>0.75</td>
<td>0.68</td>
<td>0.63</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>2.00</td>
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<td>1.00</td>
<td>0.89</td>
<td>0.80</td>
<td>0.73</td>
<td>0.68</td>
</tr>
</tbody>
</table>

¹ Crop value = expected yield (bu/acre) X projected price ($/bu)
² Control costs = insecticide price ($/acre) + application costs ($/acre)

CORN APHIDS

Large numbers of aphids are being reported in field corn in southeast North Dakota. The critical period for injury by corn leaf aphid is from tassel emergence through pollination. Treatment is suggested only when 50% of the corn plants have 100+ aphids per plant during tassel emergence and plants are drought stressed. Usually high numbers of beneficial insects help to reduce aphid populations. When natural enemies are present in large numbers, and the crop is well developed, farmers are discouraged from spraying fields.
WANTED: SOYBEAN APHIDS

Minnesota Extension Entomologists have reported pyrethroid resistance in soybean aphids in southwest and northwest Minnesota for the past 3 years. See recent article in Minnesota Crop News July 31, 2017 by Robert Koch, Bruce Potter and Phil Glogoza. We haven’t documented any insecticide resistance in soybean aphids in North Dakota. However, we are interested in collecting soybean aphids in sprayed fields that failed to provide good control so we can test these aphids for insecticide resistance. Scout fields 3-5 days after spraying to determine if your insecticide provided the desired level of control. Please let us know if you have any insecticide failures, especially a.i. bifenthrin and lambda-cyhalothrin: contact Jan (janet.knodel@ndsu.edu; 701-541-4094) or Pat (patrick.beauzay@ndsu.edu). Thank you for your help.

Continue to be vigilant on scouting for soybean aphids. When applying insecticides, be sure to use labeled rates and ensure adequate water volume (3-5 gpa via air, 10-20 gpa via ground) and high pressure (40 psi) for optimal control.

‘GOOD BUGS’ OUT IN FIELDS

While scouting, it is easy to find many ‘good bugs’ in fields, especially fields with aphid infestations. Here’s some highlights on ‘good bugs’ seen. Match up the numbers with names.

- Lacewing larva – Predator, look like an alligator with mandibles, <1 inch, pink to brown
- Syrphid fly larva – Predator, sluglike larvae, about ¾ inch long, yellow, green or brown
- Lady beetle larva – Predator, black with orange/red spots, body often has spines
- Ambush bug – Predator, large raptorial forelegs for grapping prey in flowers/plants
- Parasitoid – Parasitized dead aphid called ‘mummy’ from tiny beneficial wasps, looks like a balloon, green, brown to black mummies

**ANSWERS**

Top row (left to right) – 1. Lady beetle larva (Anitha Chirumamilla, NDSU Ext. Agent Cavalier County); 2. Syrphid fly larva and 3. Lacewing larva (both photographs by Pat Beauzay, NDSU Ext. Entomology)
Bottom row (left to right): 4. Ambush bug nymph (Jeran Honeyman, crop consultant, Bismarck area) and 5. Parasitized aphid mummy (Corey Stremick, grower in Langdon)
PAINTED LADY BUTTERFLIES FLYING

Swarms of painted lady butterflies can be seen when driving by soybean and other fields. Thanks for all of the emails, texts and videos sent from most of North Dakota. The painted lady butterfly (adult stage) migrates into ND from southern states in spring. The butterflies we are seeing now are the new generation that completed their life cycle from eggs laid by migratory butterflies. Painted lady butterflies are pollinators and not crop pests. However, the larval stage or thistle caterpillar can defoliate leaves of soybeans, sunflowers, dry beans, flax and canola. It’s hard to say if they will re-infest this year’s crops and cause any defoliation in August or not. After emerging from the chrysalis, butterflies tend to disperse and move into other areas. Scouting will be key to see if they go back into fields or not. Thresholds are available to help make spray decisions and prevent any yield losses in field crops.

ESTIMATING PEA YIELD

Like other crops, dry field pea yield can be estimated prior to harvest. The general yield formula is: plants per square foot x pods per plant x average seeds per pod x square feet per acre (43,560) = seeds per acre. However, the number of seeds per pound differ for various varieties. Table 1 provides some seed per pound numbers for selected varieties tested in 2016. Data from other tested varieties in 2016 can be found in the North Dakota Dry Pea Variety Trial Results for 2016 and Selection Guide A1469-16. As can be seen in Table 1, the number of seeds per pound is determined by environment in which the crop is grown. The numbers in the table are intended to provide an approximate value of seeds per pound. The number on the bottom of the columns represents the average of all the peas in the trial, with 23 and 18 varieties tested in Minot and Hettinger, respectively. It is likely that the seed weight might be lower under drought conditions resulting in more seeds per pound.
Table 1. Seeds per pound for selected pea varieties grown in Minot and Hettinger in 2016.

<table>
<thead>
<tr>
<th>Variety</th>
<th>Seeds per pound&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Seeds per pound&lt;sup&gt;1&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minot 2016</td>
<td>Hettinger 2016</td>
</tr>
<tr>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agassiz</td>
<td>1,999</td>
<td>2,110</td>
</tr>
<tr>
<td>DS Admiral</td>
<td>1,925</td>
<td>2,227</td>
</tr>
<tr>
<td>Spider</td>
<td>2,100</td>
<td>1,934</td>
</tr>
<tr>
<td>SW Midas</td>
<td>2,216</td>
<td>2,247</td>
</tr>
<tr>
<td>Green</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arcadia</td>
<td>2,057</td>
<td>2,521</td>
</tr>
<tr>
<td>CDC Striker</td>
<td>2,174</td>
<td>2,336</td>
</tr>
<tr>
<td>Cruiser</td>
<td>2,167</td>
<td>2,394</td>
</tr>
<tr>
<td>Average whole trial</td>
<td>1,978</td>
<td>2,107</td>
</tr>
</tbody>
</table>

<sup>1</sup>Seeds per pound are expressed at 13.5 percent moisture content.

To get the pea yield in pounds per acre, the number of seeds per acre from the formula, mentioned above, can be divided by the number of approximate seeds per pound for the variety being evaluated. Finally, the number in pounds needs to be divided by the standard 60 pound per bushel to get the yield in bushel per acre adjusted to 13.5 percent moisture. Averaging multiple observations per field will increase the accuracy of the yield estimate.

Hans Kandel
Extension Agronomist Broadleaf Crops

TOOLS FOR MONITORING WEATHER IMPACT ON CORN DEVELOPMENT

We are slightly more than halfway through the growing season for corn. This allows us to look at how fast corn is developing this season relative to other seasons to make a more informed guess as to when it might mature. Corn development is strongly correlated with growing degree day (GDD) accumulations. Many seed companies provide information on the number of GDDs required for a hybrid to reach silking and black layer (physiological maturity). NDAWN is an excellent source of information on the status of GDD accumulations. This information is obtained by going to the “Corn GDD” application within NDAWN (on the main page select “Applications” in the left hand column, then select “Corn GDD”). I am in Bismarck this morning, so from the “Corn GDD” application menu, I selected Mandan as the weather station, May 1 as the planting date and indicated I wanted to compare this year’s data with the long-term average. The results of this query indicate that Mandan has accumulated 1300 GDDs, which is 145 GDDs greater than normal. In other words, the season has been warmer than average and the crop will likely mature ahead of normal.

Another tool that I like for its ease of use and because it also predicts dates for key development stages is called “U2U Decision Support Tools - Corn GDD”. It was developed by a team of land grant researchers and is available at [https://hprcc.unl.edu/gdd.php](https://hprcc.unl.edu/gdd.php). With this tool, you may select your location from a map and then indicate the relative maturity of your hybrid and the planting date. It will generate data on the accumulated GDDs, predict the silking date of your hybrid, and project the most-likely date your crop will reach black layer (including a range of potential dates this will occur). For example, this morning I selected Bismarck as my location, May 1 as the planting date, and indicated that I planted an 85 RM hybrid. The results indicate that this location has accumulated 1274 GDDs (compared to the long-term average of 1193), that the hybrid reached the silking stage on July 16 (compared to the average of July 19), and that it will reach black layer on September 6 (compared to the average of September 15). It also indicates that the potential range of the dates for reaching black layer are between August 17 (the warmest scenario) and never (meaning that during the coldest-case scenario the crop would not accumulate sufficient GDDs prior to freezing to reach black layer). Though the range in outcomes for this theoretical corn crop near Bismarck is quite large, the data does suggest that in this area of the state the crop is developing ahead of average, and that it will likely mature ahead of normal. This is good news, because the sooner the crop matures, the greater the chance will be that it will dry sufficiently so that little to no post-harvest drying will be required.
This year moisture, not temperature, has been the main concern. The “Crop Water Use” application within NDAWN application menu provides us with a means of estimating water use. The input variables needed are the NDAWN weather station, crop, and emergence date. For example, I selected Mandan, corn, and May 20 as an emergence date. The results from this query indicate that the corn crop this season has used 11 inches of water and is running a water deficit of 7.21 inches (water use minus rainfall during the season – it does not account for stored soil moisture). The deficit is 1.78 inches greater than last year, and 2.88 inches greater than the 5-year average. These results suggest that the crop has probably depleted most of the stored soil moisture. A soil that does not restrict root growth can provide 6 to 10 inches of moisture depending on its texture and moisture status in the top 4 feet at the beginning of the season. These results reinforce the fact that the corn crop is in urgent need of rainfall if we are to achieve reasonable yields from what at the moment looks like a very productive corn crop.

Joel Ransom
Extension Agronomist for Cereal Crops

RUST ON DRY BEANS BEING FOUND IN NORTH DAKOTA AND MINNESOTA

We have received multiple reports and photographs of common rust occurring on dry beans. In much of the dry bean production regions conditions have been very favorable for the development of rust (warm temperatures and mornings with dew) and will likely be favorable into the future. These conditions could allow the disease to emerge quickly. Rust can be very damaging when it occurs early if it is not managed. Fortunately, fungicides (specifically triazoles and strobilurins) can be very efficacious on rust if applied early in an epidemic. I strongly encourage dry edible beans growers to scout fields for rust and be prepared to manage rust if it is found. Below are questions and answers about rust that we hope will help you as the dry beans continue to grow.

What are the favorable conditions for rust? Free moisture on leaf tissue is critical for the development of rust. Heavy dew on plants (or fog) provide sufficient moisture for infection to occur; rain is not necessary. Moderate to warm temperatures are also favorable for rust infection and spread. Our current weather pattern in much of eastern ND and NW MN has been favorable for rust development.

In addition to favorable environmental conditions, two other factors may favor rust development this year. First, with the environment in some bean growing regions being relatively warm and dry, fewer fungicides for white mold might be applied. While some fungicides applied for white mold are not always the most efficacious products on rust, they help kept rust in check.

Secondly, rust occurred widely in the region last year, particularly on the North Dakota side of the river. Although it likely caused little yield loss last year, the pathogen likely overwintered in many locations.

What are the signs and symptoms? When a rust epidemic begins, symptoms usually are only found on the lower leaves and in ‘hot spots’, which are clusters of plants with relatively severe damage (Figure 1). Hot spots are often small and may be a few feet to several yards in diameter. Hot spots can occur anywhere in a field, but are more common near shelter belts (where plants have dew longer) or last year’s crop residue.

Figure 1. Close up of a rust hot spot in dry edible beans
Rust is usually first observed as dusty cinnamon-brown pustules on leaf tissue. The spores (urediniospores) can be rubbed off the tissue easily, leaving a dusty brown streak (Figure 2). Pustules on the upper sides of the leaves will sometimes have a small yellow halo around them (Figure 3). Commonly, rust is easier to find on the undersides of the leaves because pustules are more visible (Figure 4).

**How does rust spread?** Rust spores are easily and quickly dispersed by wind. Once rust is established and reaches the upper canopy, it will spread very quickly through a field and to nearby fields. If conditions remain favorable for infection, a rust spore can be dispersed, cause an infection and produce a new pustule with spores in as little as 7-10 days. A ‘hot spot’ can turn into an epidemic very fast.

**Tip of the iceberg?** When you first see rust in a field, you are only seeing a fraction of what’s actually infected; just the tip of the iceberg. Why? When a rust spore infects the leaf, there is a ‘latent’ period where the disease is actively growing in the leaf, but hasn’t yet produced a pustule. Commonly, this latent period may be 7 to 10 days long. For this reason, the rust you are actually able to see in the field is less than what is actually growing in the leaf tissue (i.e., the epidemic in your field may be worse than it looks). While this latent period phenomenon occurs in many diseases we see, it is particularly long in rusts.

**When does a fungicide help protect yield?** Critically, not every field gets rust. Even though rust was reasonably widespread last year and spores disperse long distances with wind, rust is still somewhat sporadic in nature. As such, scouting is critical. Scouting for hot spots in areas close to a previous year’s dry beans, in an area protected from wind and the sun (shelterbelt) or an area particularly prone to dew or fog may be the best areas to start. Although hot spots can be found anywhere in a field.

*If rust is found* and plants still have a long way to go before maturity, applying a fungicide is likely to help protect yield. The best timing for a fungicide application to manage rust is shortly after it is first found *if you are actively scouting*. Ideally, you want to apply a fungicide vary early in the epidemic, but not necessarily as a preventative. Once pintos begin to stripe (or the equivalent growth stages in other beans) management is not necessary and rust will simply help mature the crop.

**What fungicides are effective?** Strobilurin fungicides [FRAC 11] (Aproach, Headline, Quadris, etc.), Triazole fungicides [FRAC 3] (Tebuconazole generics, Proline, etc.) and fungicides containing one of those fungicide groups in a premix (Priaxor, Aprovia Top, ProPulse, etc.) have
consistently been the most effective in our research trials. Other modes of action will offer some protection as well, but more variability exits among chemicals and among our trials.

**What to expect if you apply a fungicide?** As a consequence of the long latent period, once you apply a fungicide it may appear that rust continues to develop. Fungicides will not stop all the new pustules from forming if the disease is already well established in the leaves. It is more likely to limit many of the new infections that will occur in the next 14 days.

**A thank you.**
We appreciate those who contacted us about the appearance of rust in the region.

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**GROWTH REGULATOR SYMPTOMS ON SOYBEANS**

The photo below was sent inquiring if the cause was from dicamba drift or the rapid response syndrome.

Soybean symptoms from dicamba have the distinctive leaf cupping as seen in the photo to the right.
Determining the difference between rapid growth syndrome and dicamba drift maybe difficult. I assume there may be confusion with growers also. As dry as it has been across the state I doubt symptoms from rapid growth syndrome will be expressed much. However, if an area received a rain event at this time of the season and soybeans undergo rapid growth then leaf blistering could be expressed. Last year I wrote a crop and pest report article on rapid growth syndrome and included a photo (see attached). The symptoms in the photo showing rapid growth syndrome are similar yet a little different than your photo above. Cupping is distinctive with dicamba but the blistering without cupping is distinctive with rapid growth syndrome.

To help determine similarities and difference between soybean symptoms from rapid growth syndrome and dicamba drift I reviewed photos recently taken from my research plots where dicamba had moved a few feet on Liberty link soybean (see below). The dicamba drift shows soybean leaf blistering without much cupping on some leaves.

As soybean is most likely the most susceptible species to dicamba it is reasonable to assume that both events could manifest itself on soybean leaves but expression of rapid growth syndrome would only occur after adequate soil moisture and a conditions to support rapid growth.

The following is the article published in the 2016 Crop and Pest Report #14.

**Question:** Over the last 10 days or so, especially since we received the 6+ inches of rain, I've been coming across several soybean fields that are exhibiting substantial cupping and/or puckering of the leaves, primarily on the newest growth. Automatically the blame gets shed onto growth regulator (GR) herbicide drift/ volatilization since certain GR herbicides do indeed cause cupped soybean leaves. However I find this hard to believe since applications of dicamba on corn fields were applied 3+ weeks prior to these symptoms showing up on the soybeans. I didn’t believe it to be possible for dicamba to pick up, and move that long after applied, especially with after a heavy rain which should’ve moved dicamba farther into the soil.
Answer: Samples have come in showing classic growth regulator (GR) symptoms on soybean. In reviewing the field and chemical histories there was no indication of herbicide carryover, spray tank contamination, or droplet particle or vapor drift from the nearby area. This phenomenon has been seen certain years across the Midwest at this time of the year when soybean plants show accelerated growth. The leaf strapping and blistering from rapid soybean growth is classic symptoms that mimic growth regulator herbicides. Applied glyphosate which would normally not cause any expression of abnormal growth may also contribute to observed symptoms and may interact with environment and rapid plant growth to cause these GR type symptoms.

There are a few factors that can differentiate this from actually GR herbicide/plant interactions. Leaf strapping and blistering from rapid soybean growth would be observed mainly on the leaves. GR herbicides can also cause these symptoms but in addition may cause epinasty (bending and curving) of leaf petioles. Soybean varieties may also show varying levels of symptoms expression – one variety may show prominent symptoms while another may show no abnormal growth.

A “loose” rule of thumb for soybean symptoms from GR herbicides is:

2,4-D = leaf strapping, blistering and leaf petiole epinasty. Stem cracking and callus growth may form on stems.
Dicamba = leaf blistering and upward cupping.
Clopyralid = Fiddlenecked leaves and growing points and some leaf strapping.

This year many have seen growth reduction/stunting in addition to the growth regulator symptoms on soybean plants. This does not fit the normal expression of rapid growth symptoms. There may not be a good explanation for this excessive symptomology except some varieties seem more susceptible than others. I have observed the same stunting and rapid growth symptoms on soybeans in my research plots with no evidence of carryover or drift from a growth regulator herbicide.

Rich Zollinger
Extension Weed Specialist
AROUND THE STATE

NORTH CENTRAL ND

A few hit and miss rain showers arrived in the North Central (NC) region over the last week, though, probably not enough put a dent in the drought. However, some small chances of rain could bring relief to some areas over the next week. The NDSU small grain disease model continues to remain low across the area. On the insect side of things, a few English grain aphids have been found on small grains in parts of the area, though, I have not observed them at economic levels. However, scouting may be beneficial. Grasshoppers continue to be found along field edges through data observed through the IPM scouting program. Again, continue scouting protocols.

We have had some exciting events over the last few weeks with plot tours in Renville and Pierce counties and field day at the NCREC. Agronomy updates were provided along with information on UAV technology and pollinator information. We are not done yet as the NCREC will host one more field day on August 22nd at 9 am. For this event, we will play co-host with the NRCS with a focus on good bugs within an agricultural setting. Please note, registration is limited to the first 80 participants. Lunch will be provided. Early bird registration ends on August 1 ($30 cost). After this date, the registration cost will rise to $40. This will cover your educational materials and meal. A block of rooms has been set aside at the Astoria Hotel in Minot for those who would like to travel to this event. Registration and event information can be found on the NCREC website.
NORTHWEST ND

Some areas of Northwest ND caught a little rain last week. Portions of Divide, Burke, and eastern Mountrail Counties received about ½”. Scattered storms in McKenzie added up to about ½” in spots while nothing much fell in most of Williams. Though welcome, this rain likely isn’t enough to make a difference to most of the crops as they are maturing quickly with the hot and dry conditions. Long season crops like soybean, sunflower, and safflower could still make use of additional moisture, but most of our small grains and pulses are turning color.

Here at the Williston REC, we started cutting barley, spring wheat, and durum this week. Most of the small grains are ready to harvest and then we will move on to broadleaves. Our peas and lentils are ready or are very close while canola still has a way to go before it dries down.

Hot and dry conditions are predicted to continue in the coming week with highs in the 90’s expected most days. As you begin harvest, please use caution and be aware of the high potential for fires. Keep fire extinguishers and water tanks ready.

Clair Keene
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NORTHEAST ND

Soybean aphids are being found across the northeast region. Numbers vary from a few aphids per plant up to the IPM threshold. Remember to refrain from spraying until aphids reach the IPM decision threshold of 250 aphids per plant in 80% of the field with aphids increasing. Soybeans are susceptible to soybean aphid injury through the R5 stage. Spraying aphids too early has several negative consequences: having to double your insect control cost by requiring a second spray, killing the natural aphid predators in the field that may be keeping aphids below the threshold, and promoting the risk of aphids developing pyrethroid insecticide resistance. Pyrethroid resistance has been found in Polk and Norman Counties in MN, so if you have ND fields where soybean aphids appear to be surviving after a pyrethroid application, Extension is interested in tracking this. Reach out to us.

Spring wheat is at the milk stages to soft dough. Grain aphids still present in wheat. While your field looks concerning, do not spray as we are past the recommended IPM threshold at heading crop stage. Pea aphids have been found at IPM threshold levels on early pod field peas in Cavalier County. On the disease side, scab has been found in wheat plots at the LREC station. We haven’t seen white mold infection develop in canola yet on station. Dry bean growers should scout for rust.

Lesley Lubenow
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SOUTHWEST ND

Scattered storms brought hail to parts of the region last week along with some rain. From July 19th to July 25th, NDAWN observed 0.74 inch of rain in Beach, 0.30 inch of rain in Dickinson and 1.13 inch of rain in Mott. Peas are continuing to be harvested with low yields.

Moisture is variable across small grain fields, especially with differences in soil type. Some have begun harvesting small grains like barley and some are starting spring wheat, but most in the region are still a little green. Small grain and canola harvest will begin in full swing soon.
Corn across the region is 1-5 feet tall, with most on the shorter end, and beginning to tassel. Sunflowers (below) are either in late bud or beginning to flower. Be sure to scout for seed weevils in sunflower. In the bud stage the weevils tend to feed and hide in the bracts. By spraying Deet on the face of the heads you can get the weevils to emerge.

With moisture differences throughout the field there is high variability in growth stage throughout many of the fields.
WEATHER FORECAST:
The July 27 through August 2, 2017 Weather Summary/Outlook

Clearly not everyone got a beneficial rain, but this past week was one of the wettest periods across the North Dakota Agricultural Weather Network (NDAWN) mesonet this growing season with all 91 stations recording measurable precipitation. The NDAWN stations in south central and southwestern North Dakota recorded around 50% or in some instances greater than 50% of their total rain since June 1 in the past week. It appears rainfall totals will be far less in the next 7 days.

As has been the case most of the past three months, western North Dakota recorded above average temperatures with much of eastern North Dakota and northwestern Minnesota recording temperatures closer to the current 30 year average.
One of the principal reasons for the past two weeks being a bit wetter than other periods this year was a slight adjustment to the upper-level wind flow. The wind aloft was more from the west, rather than the northwest recently, but has now become more northwest dominate once again. A westerly flow allows storms more time to draw in moisture from the Gulf of Mexico in comparison to storms coming in from the northwest. This means that although there will likely be some rain in the next several days, it is expected to be spottier in coverage and produced lesser amount of rain. This of course is similar to the conditions much of the region has experienced in the past few months.

Temperatures are expected to be a bit above average for the time of year during this forecast period. The projected growing degree days (GDDs), base 32°, 44° and 50° for the period July 27 through August 2 is presented below. Most of North Dakota and northwestern Minnesota will record about 20% more GDDs this period than this past week.

With few rain events, more sunshine and an overall drier atmosphere, the number of hours with relative humidity (RH) values above 85% is expected to be less this week than what most locations experienced in the past seven days. The projected hours with high RH values for this period is presented below.
Using May 10, 2017 as an average planting date, the number of corn growing degree days (Base 50°) accumulated through July 25 is depicted below. The exact numbers based on your actual planting date(s) can be found here: [https://ndawn.ndsu.nodak.edu/corn-growing-degree-days.html](https://ndawn.ndsu.nodak.edu/corn-growing-degree-days.html)


Using a planting date of May 1, 2017, the number of wheat growing degree days (Base 32°) accumulated through July 25 is presented below. The exact numbers based on your actual planting date(s) can be found here: [https://ndawn.ndsu.nodak.edu/wheat-growing-degree-days.html](https://ndawn.ndsu.nodak.edu/wheat-growing-degree-days.html)


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