

No. 16 August 12, 2021

## Inside this Issue...

|  |
|--|
| IPM Crop Survey - Insect Update ..1                            |
| Corn Rootworm Trap Update.....2                                |
| European Corn Borer Low .....3                                 |
| Continue to Scout for Sunflower<br>Insects.....4               |
| Frogeye Leaf Spot on Soybean.....5                             |
| Sugarbeet Crop Update .....6                                   |
| Soil Sampling Tips.....7                                       |
| Flea Beetles Infesting Home<br>Garden Crops and Flowers .....9 |
| Around the State .....10                                       |
| North Central ND .....10                                       |
| Northeast ND .....10   |
| Northwest ND .....10   |
| South-Central/Southeast ND .....11                             |
| Southwest ND .....12   |
| Weather Forecast.....13  |



## IPM CROP SURVEY - INSECT UPDATE

**Frequent scouting is the key to early detection and making timely pest management decisions using Economic Thresholds (E.T.).**

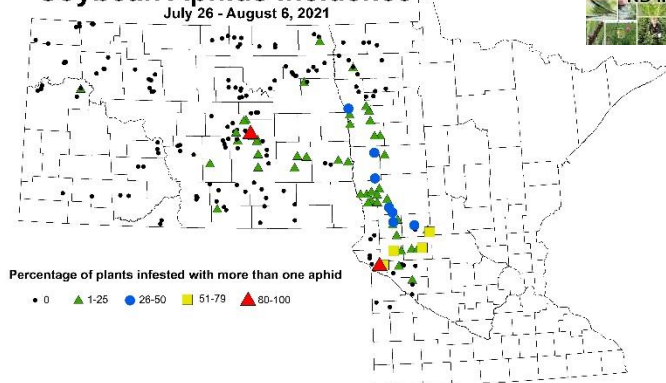
IPM maps are available at: <https://www.ag.ndsu.edu/ndipm>

**Soybean:** Growth stages of soybeans ranged from R3 (beginning pod) to R6 (full seed) in soybean fields scouted last week.

**Soybean aphid numbers** increased slightly and were observed in about 28% of the soybean fields scouted last week, mainly in the east central areas of ND and west central MN. The percent of plants infested ranged from 3-94% with an average of 1-9 aphids per plant among the positive observations. All soybean fields were below the economic threshold (average of 250 aphids per plant and 80% incidence).

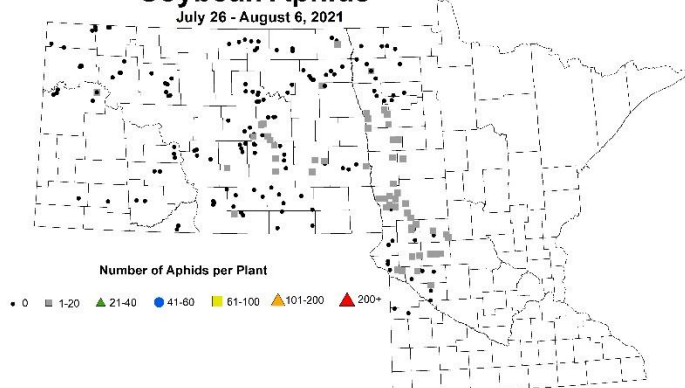
### Soybean Aphids Incidence

July 26 - August 6, 2021



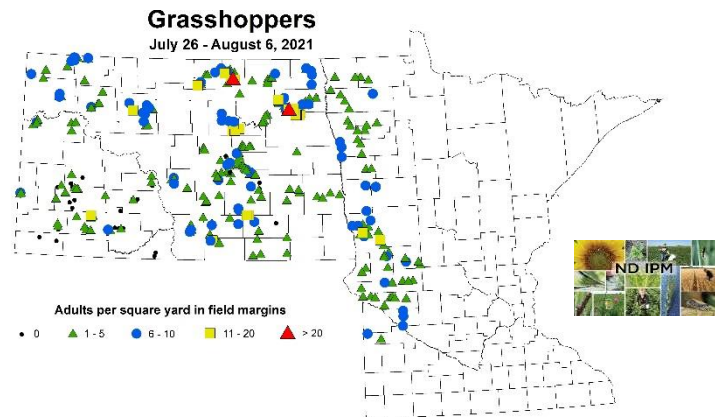
### Soybean Aphids

July 26 - August 6, 2021



**Spider mite** infestations increased on field edges and were observed in 38% of soybean fields surveyed last week, compared to only 14.5% one week ago and 3% two weeks ago. Spider mites are also being found in the interior of fields in about 26% of soybean fields surveyed last week. More field spraying for spider mites in eastern ND has been reported, and we have received many calls on what to use for control. See the previous [Crop & Pest Report #13, July 22, 2021](#) for more information on scouting procedures and pesticides for spider mite control. Spider mites will continue to feed and cause injury on soybeans through R6.

**Grasshoppers** were detected in 89% of the IPM fields (including wheat, barley, soybean, sunflower) scouted last week.



Grasshoppers will continue feeding until crops mature or are harvested, or a hard frost occurs.

This week's photo shows grasshopper damage in a canola field near Velva, ND.

**Armyworm and Black Cutworm Trapping Network in Wheat** - True armyworm increased in the northeast and north central trap sites. However, black cutworm decreased significantly. True armyworms were detected at 30% of the trap sites and increased from a total of 15 moths captured 2 weeks ago to 115 moths this past week. Black cutworms were detected at 10% of the trap sites with low numbers of moths captured, a total of 2 moths last week. Most crops are either being harvested or past susceptible stages for significant feeding injury by these insect pests. This is the last trap report. Trap maps can be found at: <https://www.ag.ndsu.edu/ndipm/wheat-insect-trap>

## CORN ROOTWORM TRAP UPDATE

Adult corn rootworms continue to emerge at low numbers, based on yellow sticky traps. Based on total counts, 82% were northern corn rootworm (NCR) adults and 18% were western corn rootworm (WCR) adults. NCRs were observed last week in corn fields near Casselton - Cass County, Cuba - Barnes County, Shenford - Ransom County, and Colfax & Antelope - Richland County. WCRs were observed near Sheldon - Ransom County. No corn rootworms were observed in Griggs, Nelson, Steele, Traill, and Grand Forks counties.

**All fields were below the economic threshold (E.T.) of  $\geq 2$  beetles per trap per day (or  $\geq 56$  beetles per 4 traps per week as shown in Table 1).** When numbers are above the E.T., a high corn rootworm population is expected the following year and a corn rootworm management tool will likely be necessary to protect the following year's corn crop.

| Area                  | County      | Nearest town | July 16-22 | July 23-29 | July 30-Aug. 5 |
|-----------------------|-------------|--------------|------------|------------|----------------|
| EC                    | Barnes      | Cuba         | 0          | 0          | 1              |
| EC                    | Cass        | Casselton    | 4          | 5          | 3              |
| EC                    | Cass        | Kindred      | 0          | 0          | 0              |
| EC                    | Griggs      | Cooperstown  | 0          | 0          | 0              |
| EC                    | Steele      | Finley       | 0          | 0          | 0              |
| EC                    | Traill      | Alton        | 0          | 0          | 0              |
| NE                    | Grand Forks | Gilby/Mcanna | 0          | 0          | 0              |
| NE                    | Nelson      | Lakota       | 0          | 0          | 0              |
| SE                    | Ransom      | Shenford     | 1          | 1          | 6              |
| SE                    | Ransom      | Sheldon      | 0          | 4          | 2              |
| SE                    | Richland    | Colfax       | 1          | 3          | 4              |
| SE                    | Richland    | Antelope     | 0          | 1          | 1              |
| Total corn rootworm = |             |              | 6          | 14         | 17             |
| Percentage of NCR =   |             |              | 83%        | 71%        | 82%            |
| Percentage of WCR =   |             |              | 17%        | 29%        | 18%            |

[Veronica Calles-Torrez](#)  
Post-doctoral Scientist

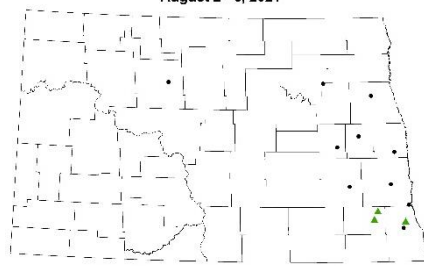
[Janet J. Knodel](#)  
Extension Entomologist

**EUROPEAN CORN BORER LOW**

European corn borer (ECB) moth flight is ending. ECB Z-race moths (univoltine) were detected at 3 of the 13 trap sites and ECB E-race (bivoltine) at 1 of the 13 trap sites last week (Table 1). The ECB-Z and ECB-E-race moths peaked the week of July 2-8. The ECB-Z moths were 90% of the total trap catch last week, while ECB-E moths were only 10%. Corn crop stages were R2 to R3.

**European Corn Borer Trapping**  
Iowa (or Z-race)

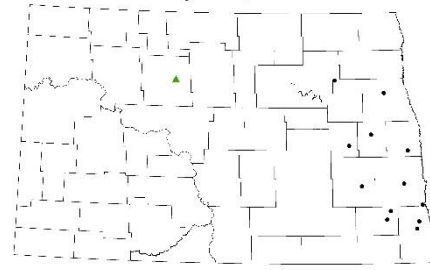
August 2 - 6, 2021



Total number of moths per trap per corn field  
 • 0 ▲ 0.1-50 ● 50.1-100 ■ 100.1-200 ▲ > 200

**European Corn Borer Trapping**  
New York (or E-race)

August 2 - 6, 2021



Total number of moths per trap per corn field  
 • 0 ▲ 0.1-5 ● 5.1-10 ■ > 10

**Table 1. Summary of pheromone trap catches for European corn borer in ND field corn, 2021.**

| Area           | County      | Nearest town | Race | June 18-24 | June 25-July 1 | July 2-8 | July 9-15 | July 16-22 | July 23-29 | July 30-Aug. 5 |
|----------------|-------------|--------------|------|------------|----------------|----------|-----------|------------|------------|----------------|
| EC             | Barnes      | Cuba         | Z    | 0          | 0              | 0        | 0         | 0          | 0          | 0              |
| EC             | Barnes      | Cuba         | E    | 0          | 0              | 0        | 0         | 0          | 0          | 0              |
| EC             | Cass        | Casselton    | Z    | 0          | 0              | 0        | 0         | 4          | 0          | 0              |
| EC             | Cass        | Casselton    | E    | 0          | 0              | 1        | 0         | 0          | 0          | 0              |
| EC             | Cass        | Kindred      | Z    | 0          | 0              | 6        | 5         | 4          | 1          | 0              |
| EC             | Cass        | Kindred      | E    | 0          | 0              | 0        | 1         | 0          | 0          | 0              |
| EC             | Griggs      | Cooperstown  | Z    | 0          | 1              | 1        | 0         | 1          | 1          | 0              |
| EC             | Griggs      | Cooperstown  | E    | 0          | 0              | 0        | 0         | 0          | 1          | 0              |
| EC             | Steele      | Finley       | Z    | 0          | 0              | 25       | 8         | 3          | 11         | 0              |
| EC             | Steele      | Finley       | E    | 0          | 0              | 0        | 0         | 1          | 0          | 0              |
| EC             | Traill      | Alton        | Z    | 0          | 0              | 49       | 1         | 14         | 14         | 0              |
| EC             | Traill      | Alton        | E    | 0          | 0              | 1        | 0         | 1          | 0          | 0              |
| NC             | Ward        | Minot        | Z    | 1          | 1              | 0        | 1         | 0          | 1          | 0              |
| NC             | Ward        | Minot        | E    | 0          | 1              | 1        | 1         | 1          | 1          | 1              |
| NE             | Grand Forks | Gilby/Mcanna | Z    | 0          | 1              | 9        | 0         | 2          | 0          | 0              |
| NE             | Grand Forks | Gilby/Mcanna | E    | 0          | 0              | 0        | 0         | 0          | 0          | 0              |
| NE             | Nelson      | Lakota       | Z    | 0          | 8              | 31       | 22        | 38         | 10         | 0              |
| NE             | Nelson      | Lakota       | E    | 0          | 0              | 0        | 0         | 0          | 0          | 0              |
| SE             | Ransom      | Shenford     | Z    | 28         | 106            | 121      | 65        | 9          | 22         | 2              |
| SE             | Ransom      | Shenford     | E    | 0          | 0              | 8        | 1         | 0          | 0          | 0              |
| SE             | Ransom      | Sheldon      | Z    | 3          | 30             | 10       | 25        | 17         | 13         | 5              |
| SE             | Ransom      | Sheldon      | E    | 0          | 0              | 1        | 0         | 0          | 0          | 0              |
| SE             | Richland    | Colfax       | Z    | 0          | 1              | 5        | 8         | 0          | 3          | 2              |
| SE             | Richland    | Colfax       | E    | 0          | 0              | 0        | 0         | 0          | 1          | 0              |
| SE             | Richland    | Antelope     | Z    | 0          | 0              | 2        | 2         | 0          | 0          | 0              |
| SE             | Richland    | Antelope     | E    | 0          | 0              | 0        | 0         | 0          | 0          | 0              |
| Total # of Z = |             |              |      | 32         | 148            | 259      | 137       | 92         | 76         | 9              |
| Total # of E = |             |              |      | 0          | 1              | 12       | 3         | 3          | 3          | 1              |

[Veronica Calles-Torrez](#)  
Post-doctoral Scientist

[T.J. Prochaska](#)  
Extension Crop Protection Specialist  
NDSU North Central Research Extension Center

[Janet J. Knodel](#)  
Extension Entomologist

## CONTINUE TO SCOUT FOR SUNFLOWER INSECTS

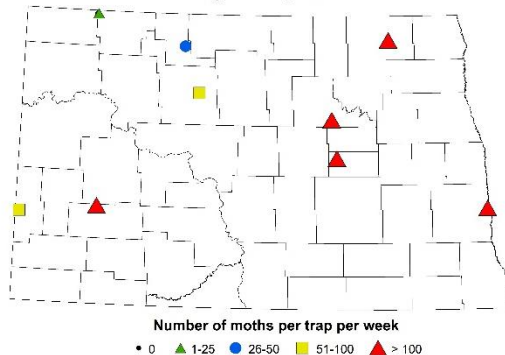
Sunflower crop stages were in the R2 (bud <1 inch from leaf) to R5.9 (90% flowered) stages in IPM fields scouted or trapped last week.

Total trap captures for **BANDED SUNFLOWER MOTH AND ARTHURI SUNFLOWER MOTH** are still at high trap numbers, but did not increase much from the previous week (see table). The highest trap numbers of banded sunflower moths, >100 moths per trap per week, were located in Cass, Foster, Benson, Cavalier and Stark counties (see map).

### Banded Sunflower Moth Trapping Network

*Cochylis hospes*

August 2 - 6, 2021



### Total Trap Catches for Banded sunflower moth (BSM) and Arthuri sunflower moths (ASM) in ND, 2021.

| Trap Week      | BSM  | ASM | Total |
|----------------|------|-----|-------|
| June 28-July 2 | 0    | 2   | 2     |
| July 5-9       | 164  | 12  | 176   |
| July 12-16     | 479  | 88  | 567   |
| July 19-23     | 652  | 321 | 973   |
| July 26-23     | 1073 | 349 | 1422  |
| August 2-6     | 1097 | 399 | 1496  |

**SUNFLOWER MOTHS** continue to be non-economic with positive trap catches at only 2 trapping sites in Ward and Cavalier counties. If traps catches are less than 7 moths per trap per week, the infestation is considered non-economic.

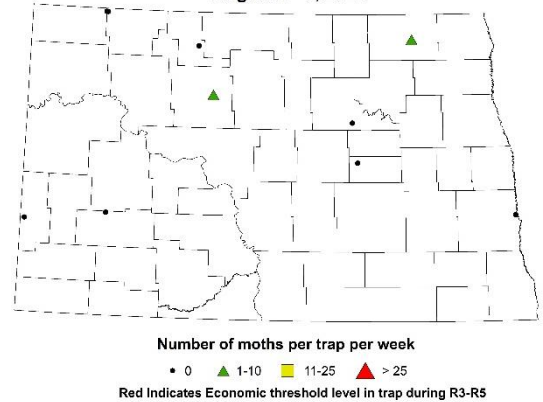
For pheromone trapping, the Economic Threshold (E.T.) is 28 sunflower moths per trap per week. For field scouting, E.T. is 1 to 2 moths per 5 plants to warrant an insecticide treatment.

For more information on scouting protocol for sunflower moth, see the previous [Crop & Pest Report #15, August 5, 2021](#).

### Sunflower Moth Trapping Network

*Homoeosoma electellum*

August 2 - 6, 2021



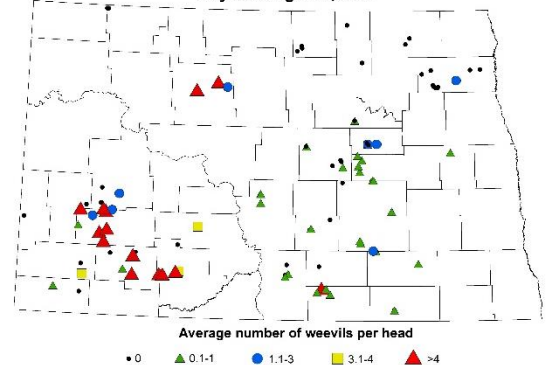
**RED SUNFLOWER SEED WEEVILS** were detected at 52% of the sunflower fields scouted last week, an increase from 45% of fields with seed weevils detected the previous week. About only 20% were at the economic threshold of  $\geq 3$ -4 weevils per head, an increase from 12.5% the previous week. Continue to scout for weevils until sunflowers are past the susceptible crop stage, R5.7 (70% flowered).

See last week's [Crop and Pest Report #15, July 29, 2021](#) for scouting and E.T. of the red sunflower seed weevil.

Preliminary results of the **pyrethroid resistant bioassay study** conducted at 10 oilseed sunflower fields throughout ND indicated that the ND populations of the red sunflower weevils are still susceptible to the pyrethroids tested (esfenvalerate, lambda-cyhalothrin, and zeta-cypermethrin) in 2021. This study is supported by the National Sunflower Association.

### Red Sunflower Seed Weevils in Sunflower


July 26 - August 6, 2021



[Janet J. Knodel](#)

Extension Entomologist





# plant pathology

## FROGEYE LEAF SPOT ON SOYBEAN

We are seeing some limited Frogeye Leaf Spot in North Dakota. Given the low severity and advanced growth stages, yield loss is not a concern. Further, without frequent rains, an increase in disease is not likely.

Symptoms of Frogeye leaf spot begin as small dark spots, and enlarge to 1/8-1/4 inch, circular to irregular leaf lesions. Lesions centers are commonly gray-brown with a darker reddish-purple border. Visible gray fungal growth may be visible on the underside of the lesions (Figures 1). Other diseases and chemical injury can mimic Frogeye symptoms, and an excellent [publication produced by a multi-state group of pathologists examines common look-alikes](#).

While yield loss is not a concern this year, it is important take note if you find frogeye leaf spot. The disease was first identified in North Dakota late in the 2020 growing season. With support from the North Dakota Soybean Council, we conducted a survey in the first week of September 2020. Frogeye leaf spot was common throughout the SE counties of the state. Additionally, of the over 300 pathogen isolates we collected, 23% were already resistant to FRAC 11 (QoI, strobilurin) fungicides.



**Figure 1. Upper and underside of Frogeye leaf spot lesion**

[Sam Markell](#)

Extension Plant Pathologist, Broad-leaf Crops

**SUGARBEET CROP UPDATE**

The trend of warm and dry conditions continue in the sugarbeet production areas of Minnesota and North Dakota. The crop is progressing relatively slower than last year with tonnage gain slower than normal because of dry conditions. Sugar concentration is relatively high. The three sugar cooperatives in the area will start pre-pile around the week of August 23.

Warm but dry conditions are not favorable for the development of *Cercospora* leaf spot. As such, growers have had excellent control of *Cercospora* leaf spot to date. All are invited to the CLS field demonstration (Figure 1) near Foxhome on August 24 starting at 10:00 a.m. Continuing education credits will be offered to Certified Crop Advisors and lunch will be at the Foxhole Café in Foxhome, MN. The GPS coordinates for the site are: 46.31149 N 96.34241 W. The driving directions are as follows:

From the intersection of Hwy 75 and 210 in Breckenridge  
Go East for 11.7 miles on Hwy 210  
Turn North on 310th Ave for 2 miles  
Plots are northeast of the intersection at 310th Ave and 320th St.

Growers will get the opportunity to observe the performance of new CR (CLS tolerant) varieties under inoculated conditions (Figure 2), the performance of individual fungicides labeled for use for control of CLS on sugarbeet, and fungicide mixture combinations in a rotation program. Please feel free to contact Mohamed Khan if you have any questions.



**Figure 1. *Cercospora* research site near Foxhome, MN.**

(Figure 2 on next page)





**Figure 2. *Cercospora* leaf spot trial using susceptible and new improved tolerant varieties near Foxhome, July 15, 2021. Pictures were provided by Mr. Luke Skansgaard, KWS.**

[Mohamed Khan](#)

Extension Sugarbeet Specialist  
NDSU & U of MN  
701-231-8596  
218-790-8596



#### SOIL SAMPLING TIPS

Due to the large amount of residual nitrate left after the short crops in the state, there will be more soil sampling than usual. Here are a few tips to increase the practical use of the results from sampling.

1. The soil may be hard where there has not been recent rain. It will be important for the sampler to make certain that the core is the correct depth and not to give up if the going gets tough. If a core comes out of the sampling tube incomplete, discard it and redo the sample a few feet over.
2. Don't work the land before the sampler arrives. The ability to take a 0-6 inch core required for P, K, organic matter, zinc, and surface nitrates (necessary for sugar beet recommendations) is much degraded if the soil is worked, particularly after chisel plowing or (God forbid) deep chiseling or plowing.
3. When sampling, do not take samples from the headlands, or the turn rows around sloughs, because these areas have legacy overlap inherent with fertilizer/manure application. Make a mental note not to sample within 100 feet roughly of the edge of the field or around obstacles that would have resulted in applicator turning. The exception to this is in zone sampled fields with salty areas next to roads/sloughs. These should be sampled as a zone, because the NPK fertility in these areas will probably be vastly different than the rest of the field and fertilizer savings can be achieved by identifying these areas.

4. To build zones, use multi-year yield mapping data, aerial imagery of growing crops, satellite imagery from growing crops, soil EC or EM sensor data if available, and topography if it can be identified and properly modeled (raw elevation data should not be used as it usually does not indicate a landscape position). The Web soil survey should not be used as a first zone development tool. It was not designed for this purpose and the boundaries are usually misleading.
5. Know that nitrate sampling, or sampling for K for that matter, are moving targets and there is a plus-minus value at the end of analysis. Persistent dry weather after sampling will result in a spring value that is similar in nitrate to what is found now. Wetter weather may result in a bloom of nitrate, but this late in the season the increase in nitrate will be small, if seen at all. Nitrate may be immediately tied up in residue breakdown, with the awakened microorganisms that have been dormant all season. K values are at their lowest now through early September and if it stays dry, the K values will be low through fall. However, freeze-thaw and any moisture during winter/early spring will increase values, so next April the highest K values of the year are seen. It is best to analyze for K at about the same time during the year each time K is analyzed (it doesn't have to be every year) to make sure that the relative values of K can be tracked and not be confusing.

#### What did the soil used to look like?

The annual 4-H/FFA Land Judging competition was held last week on Forest River Community land northwest of Inkster, ND. The competition consists of 4 practice soil pits, about 12 feet long, and about 4 feet deep that contestants can work with their teams on in the morning and 4 contest soil pits of similar dimensions in the afternoon. As one of the soil card scorers, I was particularly excited to see a buried 'A' horizon in one of the practice soil pits. It was located on the north side of a low ridge. I speculate that during one or a series of major dust storms about 100 years ago, the soil surface, protected from the destruction by the low ridge, was buried by particles streaming and churning by. The remaining A horizon was buried by 1 to 1.5 feet of wind-blown sediments and has retained much of its original organic matter.

I took a sample of the buried A material and had the NDSU soil testing lab analyze the organic matter. It came back at 5.9%. The soil all around it ranges from 2 to 2.5% organic matter today. But 100 years ago, this soil had organic matter at least a foot thick with at least 6% organic matter. There should be no mystery why, when weather was favorable, the 1902 soil survey of Grand Forks County stated that some fields averaged 40 bushels per acre of spring wheat (without any fertilizer).



***Soil pit northwest of Inkster showing a former 'A' horizon (the dark layer) covered by 1 to 1.5 feet of wind-blown sediments deposited during a major dust storm or a series of dust storms, probably 90-100 years ago. The buried A is 1 to 1 ¼ feet thick with organic matter analyzed at 5.9%. Note how below the darkest layer, there is a layer of brown sediments- this is the natural buried original 'B' horizon, also contributing to the original fertility of the soil. The other pits excavated at this farm (and in most farms in North Dakota) have the topsoil as higher organic matter than below, with an abrupt boundary to the whitish/yellowing 'C' horizon below. There is no real 'B' horizon soil in most of our current soil series.***

[Dave Franzen](#)

Extension Soil Specialist  
701-799-2565





## FLEA BEETLES INFESTING HOME GARDEN CROPS AND FLOWERS

As canola is swathed or harvested, flea beetles, mainly *Phyllotreta* species, move in large numbers into town gardens to feed on crucifer vegetable plants and flowers. Flea beetles are small, oval-shaped, dark beetles with an iridescent blue sheen on the black wing covers, measuring about  $\frac{1}{8}$  inch in length. Flea beetles have enlarged hind femora (thighs) on their hind legs, which they use to jump quickly when disturbed. Flea beetles feed on many vegetable crops - radishes, broccoli, cabbage, turnips, eggplant, peppers, tomatoes, potatoes, spinach and melons. They also like several flowers, like baby's breath and nasturtium. Flea beetle feeding injury causes pitting and irregular holes in the leaves or defoliation.

It is best to cover the Brassicaceae vegetables or flowers with a garden row cover cloth, since garden / flower insecticides labeled for homeowners will only provide partial control of flea beetles and require repeated applications to protect plants. I don't know too many people who want to eat vegetables that are sprayed with multiple applications of insecticides, and insecticides on flowers can harm beneficial pollinators. For flowers, another alternative is to pull infested flowers out and plant marigolds, geraniums, or petunias, flowering plants that are disliked by flea beetles. Consider these flowers for next year, too.

In general, flea beetles are very difficult for the homeowner to control. It would take repeated applications of garden/flower insecticides. If the homeowner prefers to use insecticides, I suggest naturally derived botanical insecticides: spinosad (Entrust SC, Monterey Garden Insect Spray), neem (Rango), pyrethrin/pyrethrum (PyGanic Gardening, Monterey Take Down Spray), or a premix of neem + Pyrethrin (Azera Gardening). Other insecticides include pyrethroids - esfenvalerate (Ortho Bug-B-Gon Garden & Landscape Insect Killer); lambda cyhalothrin (Spectracide); permethrin, synergized pyrethrins (Spectracide Bug Stop and other brands), and carbamate - carbaryl (Sevin).

It will take multiple applications at weekly intervals or 2+ sprays per week depending on flea beetle densities. Please avoid spraying insecticides on flowers during the day when pollinators are foraging. To mitigate pollinator mortality, spray in late evening after 9 PM or before 7 AM. I personally do not recommend spraying any insecticides on flowers or when plants are blooming. I usually cut off all of the blooms before spraying, then spray in late evening or early morning and cover plants until the insecticide is dry (to keep the pollinators off of them).

Please always read, understand and follow the pesticide labels for instructions and rates. It's the law!



***Flea beetle feeding injury on nasturtium flowers in McClusky, ND (S. Crimmins, Sheridan County Extension office)***

[Janet J. Knodel](#)

Extension Entomologist

**AROUND THE STATE****NORTH CENTRAL ND**

A few “hit and miss” showers were registered in some locations in the North Central region. Here are the latest precipitation reports as observed by area NDAWN stations over the last week (beginning August 3<sup>rd</sup>): Minot: 0.08” (NCREC: 0.11”); Bottineau: 0.00”; Garrison: 0.08”; Karlsruhe: 0.01”; Mohall: 0.00”; Plaza: 0.03”; and Rugby: 0.00”. Bare soil temperature at the NCREC is observed at 80 degrees F.

Grasshopper calls are dropping but continue to be the leading entomology concern with localized spots of high numbers in the region. Please keep in mind your economic thresholds for grasshopper adults – border threshold (21-40 per square yard) and an in-field threshold (8-14 per square yard). If thresholds are met, control may be required in some circumstances. As small grains, pulses, and canola continue to dry down or be harvested, grasshopper populations will begin to move to the later maturing crops. At the current moment, I have taken some two-spotted spider mite calls from area gardeners, but still haven’t heard of any populations in area crops.

Small grain harvest is underway across the area along with some local pulse crop sites. Canola swathing has begun in the region with a lot of fields continuing to mature. Soybean fields are at the R-3 stage with a few fields up to the R-5 stage. Sunflowers are nearing the R-5 stage with a few fields still playing catchup - in the R-3 to R-4 stages.

[TJ Prochaska](#)

Extension Crop Protection Specialist  
NDSU North Central Research Extension Center

[Leo Bortolon](#)

Extension Cropping Systems Specialist  
NDSU North Central Research Extension Center

**NORTHEAST ND**

The entire region was incredibly dry up until Monday’s rain event. Some parts of the region missed the showers entirely. Wheat yields are significantly less than would be expected in a non-drought year. In some areas, protein content was higher than the wheat yield. Barley yields ranged from 35-65 bu. Fields peas ranged between 30-40 bu. Canola swathing has begun. Rain showers will help late planted canola, soybeans, corn, sugarbeets and sunflowers. Grasshoppers continue to be damaging. Producers are spraying for grasshoppers and diamondback moths. Pembina County reported a 25% of infestation of wheat stem sawfly in fields in the county. Blister beetles continue to be a concern in alfalfa. Water quality and amount of water remain a constant concern for ranchers. Sourcing of additional hay is now becoming an issue. Sales of animals still continue. Streams, dug outs, and irrigation ponds are extremely low throughout the region.

[Anitha Chirumamilla](#)

Extension Agent Cavalier County

**NORTHWEST ND**

The Northwest is still dry with only light scattered showers around the region this past week. A front that moved through August 9<sup>th</sup> brought a few hundredths of rain to most of the area with a few spots getting a little more, around 0.1-0.25”. Harvest has started with producers taking off peas and lentils this week. The pea variety trials were harvested

at the WREC last week and yields haven't been measured yet, but sample bags were light. Some small grain harvest has started as well and I had report from northern Williams County of spring wheat running in the 30 bushels per acre range.

There are no strong chances of precipitation in the forecast for the coming week which will allow harvest to progress quickly. Temperatures are predicated to stay in the 80s the rest of the week and then rise into the 90s and possibly triple digits over the weekend. Just a reminder to stay safe while harvesting and make sure vehicles have a fire extinguisher available. Unfortunately, the dry conditions continue to make fire a real risk.

[Clair Keene](#)

Extension Cropping Systems Specialist  
NDSU Williston Research Extension Center

### **SOUTH-CENTRAL/SOUTHEAST ND**

According to NDAWN, the region's April 1 to August 9 rainfall ranges from 3.4 inches (Dazey) to 11.2 inches (Jamestown). During July 1 to August 9, total rainfall less than 0.5 inch (0.08 to 0.37 inch) occurred at Carrington, Cooperstown, Courtenay, Dazey, Fingal and Robinson. Estimated daily water use during the past week (Aug 3-9) for corn and soybean plants that emerged May 20 was slightly above 0.2 inch per day.

Small grain harvest for the region is at least at the halfway mark. Preliminary reports on spring wheat grain yield ranges from zero (harvested as forage) to 70 bushels. Fields exist that have higher seed protein than yield! The Carrington REC's dryland HRS wheat variety trial averaged 56.4 bu/A, 62.3 lb/bu and 15.9% protein (data available at [www.ag.ndsu.edu/varietytrials/carrington-rec/2021](http://www.ag.ndsu.edu/varietytrials/carrington-rec/2021)).

The following are the most advanced row crop growth stages observed at the CREC earlier this week: corn, R3 (milk) but nearing R4 (dough); soybean, R6 (full seed development in pods within the upper four plant nodes); dry bean, R7 (oldest pods with fully developed seeds; 'striping' of pinto bean); and sunflower, R7 (loss of green color from back of head). Generally, dry bean and sunflower are better tolerating the adverse environment versus corn and soybean. A common decision being determined is whether corn and soybean will be harvested as grain or forage.

#### Row Crop Tour – Wednesday, Aug.25

Farmers, crop advisers and agricultural industry representatives are invited to view field research trials and receive production recommendations on corn, soybean and dry edible bean during the annual Carrington REC's row crop tour on Wednesday, Aug. 25. This field tour follows the NDSU Extension virtual soil health meeting broadcast at the Carrington REC during the morning starting at 9:30 a.m. (preregister at: [ndsu.edu/soilhealth](http://ndsu.edu/soilhealth)).

Registration for the row crop tour begins at 12:30 p.m. with a sponsored meal served at 12:45. **The program begins at 1:30 and includes the following topics:**

- \*Using web-based mapping to enhance management of crop fields
- \*Crop cultivar selection using the new NDSU website
- \*Dry bean variety performance



**2019 row crop tour participants viewing trials with winter rye cover crop in dry bean and soybean.**



- \*Research update on cover crops (with emphasis on winter rye) for soybean and dry bean
- \*Impact of row spacing and seeding rate, and fungicide application timing on white mold (sclerotinia) management in dry bean
- \*Corn starter and foliar fertilizer research update

[Greg Endres](#)

Extension Cropping Systems Specialist  
NDSU Carrington Research Extension Center

## **SOUTHWEST ND**

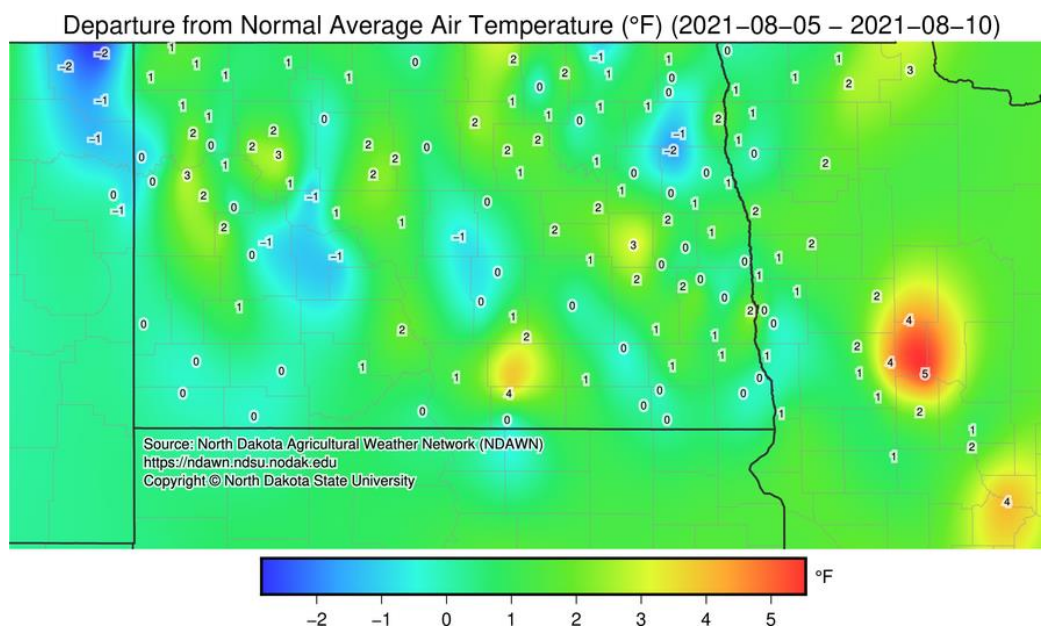
According to NDAWN, from April 1<sup>st</sup> to August 9<sup>th</sup> Dickinson received 7.02 inches of rain, Beach 4.5, Amidon 7.43, Bowman 5.82, Hettinger 7.63, Mott 10.45, Carson 7.01, Mandan 5.95, Hazen 5.95, and Dunn 6.11. Most of that rainfall came in large events with long periods without any rain in between. Heat during flowering of small grains and canola along with drought stress has reduced yield and quality in parts of the region. Heat and wind are continuing to worsen row crop conditions. Grasshoppers continue to thrive. Small grain harvest continues with many fields averaging in the 20-30 bushel range per acre with poor test weight, and some fields are worth more as forage (check for nitrates). When cutting oats or other annual forage crops, keep in mind that there will likely be a shortage of seed in 2022. Be sure to follow all plant variety protection regulations, but where possible it may be beneficial to save some of the forage crop for seed. There are pockets where the crops still look relatively good, however there isn't much for canopy closure and everything is short in height. On the positive side, crop disease incidence is low.

[Ryan Buetow](#)

Extension Cropping Systems Specialist  
NDSU Dickinson Research Extension Center

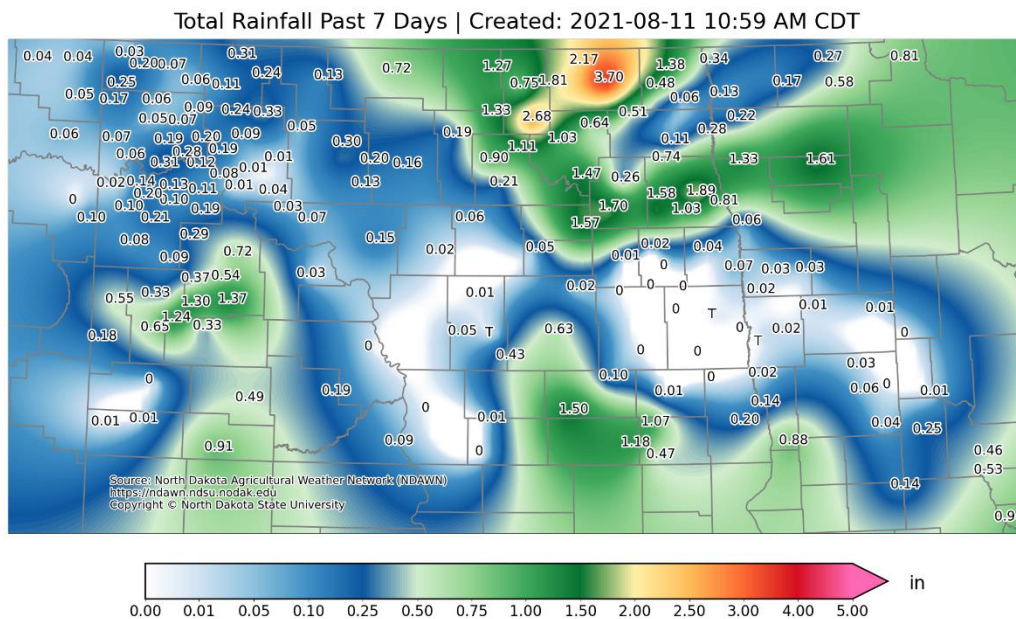
**WEATHER FORECAST****The August 12 to August 18, 2021 Weather Summary and Outlook**

This past week the temperatures across the North Dakota Agricultural Weather Network (NDAWN) finished near average, yet, many days were either well above or well below average (Figure 1). These next 7 days will start off cool and transition to well above average temperatures, especially this weekend into early next week. Although some spotty rain activity may develop during this transitions from cooler to warmer air, most locations may not record any rainfall until the middle to end of next week.



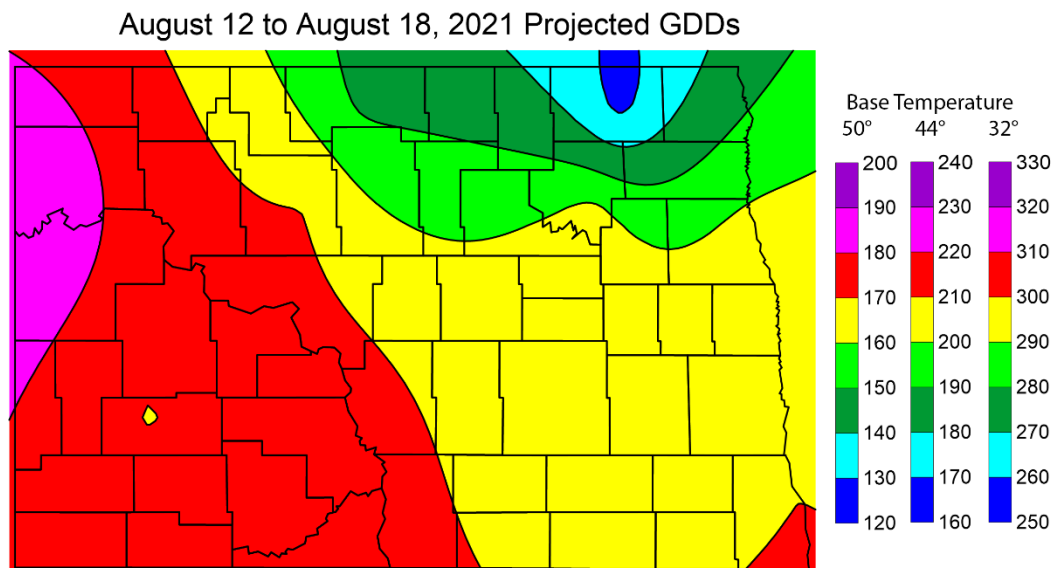
**Figure 1. Temperature departures from average at selected NDAWN stations for the period of August 5 through August 10, 2021**

There were two major precipitation events during this past week that mainly impacted southern and northeastern North Dakota (Figure 2). Both brought localized heavy rain, although rainfall in those pockets did not necessarily get recorded by NDAWN stations. Many locations near the I94 corridor, from Bismarck to Fargo, were missed by both thunderstorm complexes and, in turn, recorded little or no precipitation this past week.



**Figure 2. Total rainfall for the 168-hour period ending at 11 AM on August 11, 2021 at NDAWN weather stations**

The projected growing degree days (GDDs) base 50°, 44° and 32° for the period of August 12 through August 18, 2021 can be found in Figure 3. Another reminder that most GDD calculations are capped at 86°. These next 7 days may record several days beyond that level with some central and western NDAWN stations nearing triple digits on a couple of days.

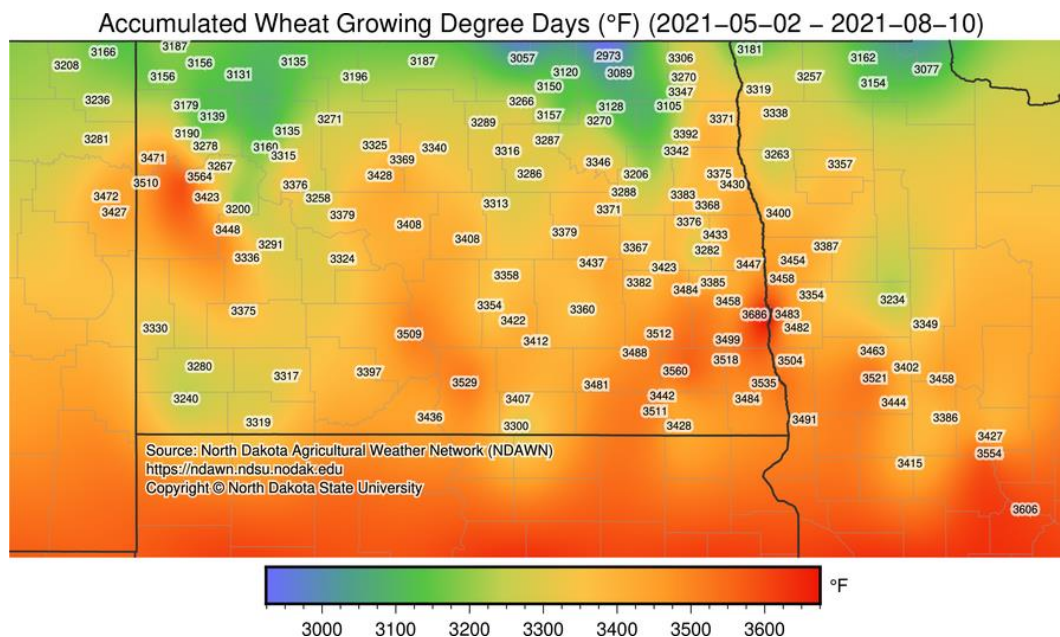


**Figure 3. Projected Growing Degree Days, Base 50°, 44° and 32° for the period of August 12 to August 18, 2021**



Using May 1 as a planting date, the accumulated growing degree days for wheat (base temperature 32°) is given in Figure 4. You can calculate wheat growing degree days based on your exact planting date(s) here:

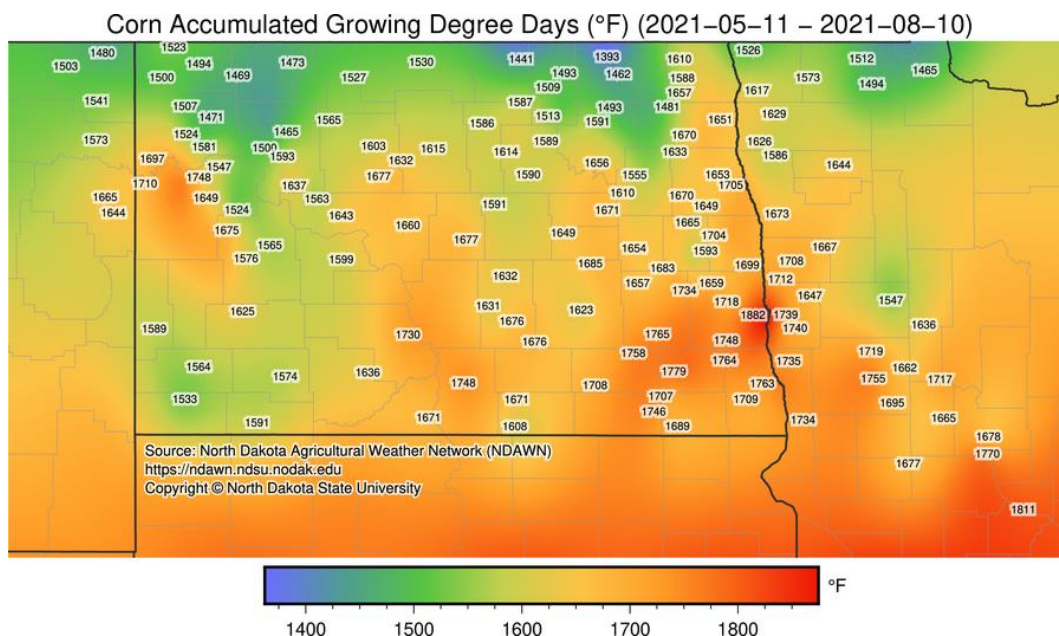
<https://ndawn.ndsu.nodak.edu/wheat-growing-degree-days.html>



**Figure 4. Accumulated Growing Degree Days for Wheat (Base 32°) since May 1, 2021**

Using May 10 as a planting date, the accumulated growing degree days for corn (base temperature 50°) is given in Figure 5. 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 5. Accumulated Growing Degree Days for Corn (Base 50°) since May 10, 2021**

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 your planting date(s) you set. That tool can be found here: <https://ndawn.ndsu.nodak.edu/soybean-growing-degree-days.html>

[Daryl Ritchison](#)

Meteorologist

Director of the North Dakota Agricultural Weather Network (NDAWN)

North Dakota State University  
**CROP & PEST REPORT**  
NDSU Dept. 7660; PO Box 6050  
Fargo, ND 58108-6050

Crop and Pest Report is on Facebook!

Ctrl + Click image below or go to [www.facebook.com/ndsuxextcpr](http://www.facebook.com/ndsuxextcpr) to 'Like' us and receive notifications and other information.



Not on the List to receive this report?  
Sign up now with your smart phone using the code to the right:

*Janet Knodel*  
Co-Editor

**Entomology**  
701-231-7915

**Plant Sciences**  
701-231-7971

**Soils**  
701-231-8881

**NDSU**

EXTENSION

EXTENDING KNOWLEDGE >> CHANGING LIVES

*Sam Markell*  
*Marcia McMullen*  
Co-Editors

**Plant Pathology**  
701-231-7056

**Weeds**  
701-231-7972

**Ag Engineering**  
701-231-7261

The information given herein is for educational purposes only. References to a commercial product or trade name are made with the understanding that no discrimination is intended and no endorsement by the North Dakota Extension is implied.

NDSU encourages you to use and share this content, but please do so under the conditions of our Creative Commons license. You may copy, distribute, transmit and adapt this work as long as you give full attribution, don't use the work for commercial purposes and share your resulting work similarly. For more information, visit [www.ag.ndsu.edu/agcomm/creative-commons](http://www.ag.ndsu.edu/agcomm/creative-commons).

North Dakota State University does not discriminate on the basis of age, color, disability, gender expression/identity, genetic information, marital status, national origin, public assistance status, race, religion, sex, sexual orientation, or status as a U.S. veteran. Direct inquiries to the Vice President for Equity, Diversity and Global Outreach, 205 Old Main, (701)231-7708.

**This publication will be made available in alternative formats for people with disabilities upon request (701) 231-7881.**  
**This publication is supported in part by the Crop Protection and Pest Management Program [grant no. 2017-70006-27144 / accession 1013592] from the USDA National Institute of Food and Agriculture.**