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**CROP & PEST REPORT SCHEDULE**

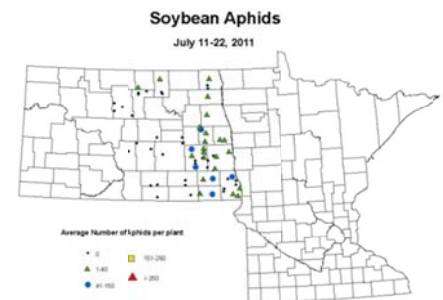
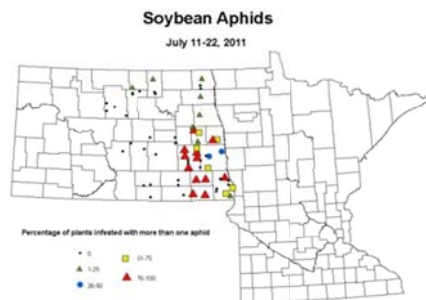
Summer is flying by and we only have three remaining issues of the NDSU *Crop & Pest Report* for the 2011 season! They will be printed on August 11, August 25 and September 15.



**SOYBEAN APHID UPDATE**

Weather has not been favorable for soybean aphid population growth with the frequent severe thunderstorms and high winds, which can wash aphids off plants and drown them. The southeast region of ND still has the highest incidence, but populations continue to be below the economic threshold level of 250 aphids per plant. See NDSU IPM maps below. Continue to be vigilant scouting through R5 (early seed).

There is some “insurance” spraying at the second application of glyphosate, where producers are tank-mixing an insecticide, even though soybean aphid numbers are not at the threshold. NDSU Extension Entomology does not recommend this practice, nor do we recommend any insecticide application when the economic threshold has not been reached. Beside the incompatibilities or phytotoxicity issue with tank-mixing insecticides and herbicides, the optimal application is different for herbicides versus insecticides. For example, glyphosate herbicide spraying is conducted with low-pressure, lower gallons of water per acreage (gpa), and large droplet-size nozzles to reduce spray drift. In contrast, insecticides are normally sprayed using high pressure (40 psi), higher gallons of water per acre (18-20 gpa by ground, 3-5 gpa by air), and small droplet-size nozzles to improve coverage and penetrate foliage.



Applying insecticides too early to control soybean aphids may result in a re-invasion of aphids, which would require a second insecticide application later. Insecticides also kill natural enemies of soybean aphids, such as lady beetles and damsel bugs, so re-invading aphid populations can increase rapidly in the absence of natural enemies. Conservation of natural enemies is important in controlling soybean aphids, so don't spray unless and until you have to. If you still need another reason not to spray early, it could trigger a secondary pest outbreak like spider mites, especially if you sprayed with a pyrethroid insecticide twice.

### SCOUT FOR APHIDS IN CANOLA

Several species of aphids (cabbage aphid, turnip aphid, green peach aphid) infest canola and other plants in the mustard family. Individual aphids are small, approximately 2 to 4 mm in length, with a pair of tube-like structures called cornicles protruding from the back. Aphids on canola are usually pale green to grayish green and found in large numbers near the top of individual plants. Infested plants often appear shiny from the honeydew they secrete. Most aphids migrate into North Dakota from southern states, and some may overwinter here. Aphids arrive in canola during late spring. As a result, late-planted canola may be more susceptible to heavy aphid infestations. Females reproduce asexually and give birth to live young within 7 days. As aphid populations build up and become crowded, winged adults are produced and disperse to begin new colonies. There are multiple, overlapping generations of aphids within a season. Aphids suck out the plant's sap and inhibit terminal growth, stunting plant size and reducing seed yield. Aphid infestations are often localized within a field, and usually cause little damage if the infestations occur after pod development.

There are no established thresholds for aphids on canola. In most cases, spraying is not economical, because aphids are located on the top 2-3 inch of the plant where pods are the smallest and contribute little to the overall yield. However, **treatment may be justified when at least 20% of the stems are infested with a cluster of aphids in late flowering or early pod stages.** Note the presence of natural enemies as well as aphids. A treatment may be necessary when the following conditions are met: 1) canola was planted late; 2) plants are still in pod development; and 3) low populations of natural enemies are present, such as lady beetles, syrphid flies, or lacewings.

### SUNFLOWER INSECTS – ECONOMIC THRESHOLDS FOR 2011

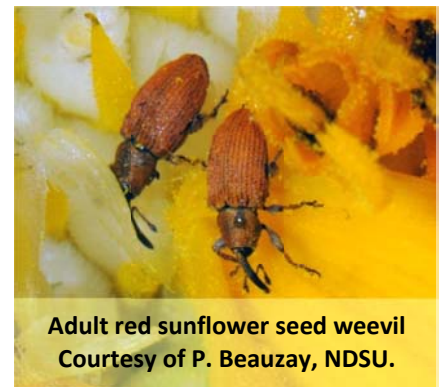
**RED SUNFLOWER SEED WEEVIL** adults will begin to emerge in late July and continues until mid-August. Adult weevils are reddish brown and ⅛ inch long. Start counting adult seed weevils when the yellow ray petals are just beginning to show. Counts should continue until the economic threshold level has been reached or most plants have reached 70% pollen shed. A plant that has reached 70% pollen shed has few seeds still suitable for red seed weevil egg laying. Fields where most plants are at the 70% pollen shed stage should no longer be susceptible to further significant damage.

When sampling, use the X pattern and begin counting at least 70 to 100 feet into the field to avoid field margin effects. Count the number of weevils on five plants at each site for a total of 25 plants. The ideal plant stage for treatment is when most individual plants are at 40% pollen shed. However, we recommend that treatment be considered when three out of 10 plants are just beginning to shed pollen or R5.1. **A video on scouting for red sunflower seed weevil is available at:**

<http://www.ag.ndsu.nodak.edu/aginfo/entomology/entupdates/index.htm#Videos>



Turnip aphid (*Lipaphis erysimi*) Courtesy of Alton N. Sparks, Jr., UGA, Bugwood.org



Adult red sunflower seed weevil  
Courtesy of P. Beauzay, NDSU.

**Economic Threshold for Oilseed Sunflowers:** To decide whether to use an insecticide treatment to control red sunflower seed weevils, it is necessary to determine the economic threshold for this year. The economic threshold (ET) is based on: 1) the cost of insecticide per acre, 2) the market price of sunflower in dollars per pound and 3) the plant population per acre. The ET can be calculated using the following formula:

$$\text{Oilseed ET (Weevils per head)} = \frac{\text{Cost of Insecticide Treatment}}{(\text{Market Price} \times 21.5) (0.000022 \times \text{Plant Population} + 0.18)}$$

Tables 1 and 2 show the number of weevils per head (ET) when the cost of the insecticide is at \$8 and \$10 per acre, respectively. **This year with the high market value of oilseed sunflowers (0.32 \$/lb), economic threshold for seed weevil is lower than normal and only at 3 weevils per head at 18,000-20,000 plants per acre and \$8-10 per acre insecticide costs.**

**Confection or Hulling Sunflower Market:** Red sunflower seed weevil control on confection sunflower is based on a need to keep seed damage below 0.5% due to industry standards. **Treatment is recommended when 1 to 2 weevils (ET) are found per plant.** The **banded moth, seed weevil** and the **Lygus bug** have all impacted quality of these sunflowers the past seasons. So, it is recommended at this time that **sunflowers grown for these markets be treated a minimum of two times**, once at early flowering and again 5 to 7 days later. With this type of program, a window of protection should be provided to minimize impact from all three of these seed damaging insect pests.

**Table 1. Economic Threshold for Oilseed Sunflowers - Number of adult red sunflower seed weevil per head when the cost of control equal \$8 per acre.**

Market Price	Sunflower Plants per Acre (x 1,000)											
\$ per lb	14	15	16	17	18	19	20	21	22	23	24	25
0.15	6.8	6.4	6.1	5.8	5.5	5.2	5.0	4.8	4.6	4.4	4.2	4.1
0.16	6.5	6.1	5.8	5.5	5.2	4.9	4.7	4.5	4.3	4.2	4.0	3.9
0.17	6.1	5.8	5.5	5.2	4.9	4.7	4.5	4.3	4.1	3.9	3.8	3.7
0.18	5.8	5.5	5.2	4.9	4.7	4.5	4.2	4.1	3.9	3.7	3.6	3.5
0.19	5.6	5.2	4.9	4.7	4.5	4.2	4.0	3.9	3.7	3.6	3.4	3.3
0.20	5.3	5.0	4.7	4.5	4.2	4.0	3.9	3.7	3.5	3.4	3.3	3.1
0.21	5.1	4.8	4.5	4.3	4.1	3.9	3.7	3.5	3.4	3.2	3.1	3.0
0.22	4.9	4.6	4.3	4.1	3.9	3.7	3.5	3.4	3.2	3.1	3.0	2.9
0.23	4.7	4.4	4.2	3.9	3.7	3.6	3.4	3.2	3.1	3.0	2.9	2.8
0.24	4.5	4.2	4.0	3.8	3.6	3.4	3.3	3.1	3.0	2.9	2.8	2.7
0.25	4.4	4.1	3.9	3.7	3.5	3.3	3.1	3.0	2.9	2.8	2.7	2.6
0.26	4.2	4.0	3.7	3.5	3.3	3.2	3.0	2.9	2.8	2.7	2.6	2.5
0.27	4.1	3.8	3.6	3.4	3.2	3.1	2.9	2.8	2.7	2.6	2.5	2.4
0.28	3.9	3.7	3.5	3.3	3.1	3.0	2.8	2.7	2.6	2.5	2.4	2.3
0.29	3.8	3.6	3.4	3.2	3.0	2.9	2.7	2.6	2.5	2.4	2.3	2.2
0.30	3.7	3.5	3.3	3.1	2.9	2.8	2.7	2.5	2.4	2.3	2.2	2.1
0.31	3.6	3.4	3.2	3.0	2.8	2.7	2.6	2.5	2.3	2.3	2.2	2.1
0.32	3.5	3.3	3.1	2.9	2.8	2.6	2.5	2.4	2.3	2.2	2.1	2.0

**Table 2. Economic Threshold for Oilseed Sunflowers - Number of adult red sunflower seed weevil per head when the cost of control equal \$10 per acre.**

Market Price	Sunflower Plants per Acre (x 1,000)											
\$ per lb	14	15	16	17	18	19	20	21	22	23	24	25
0.15	8.5	8.0	7.6	7.2	6.9	6.5	6.3	6.0	5.7	5.5	5.3	5.1
0.16	8.1	7.6	7.2	6.8	6.5	6.2	5.9	5.7	5.4	5.2	5.0	4.8
0.17	7.7	7.2	6.8	6.5	6.1	5.9	5.6	5.4	5.1	4.9	4.7	4.6
0.18	7.3	6.9	6.5	6.1	5.8	5.6	5.3	5.1	4.9	4.7	4.5	4.3
0.19	7.0	6.5	6.2	5.9	5.6	5.3	5.1	4.8	4.6	4.5	4.3	4.1
0.20	6.6	6.3	5.9	5.6	5.3	5.1	4.8	4.6	4.4	4.2	4.1	3.9
0.21	6.4	6.0	5.7	5.4	5.1	4.8	4.6	4.4	4.2	4.1	3.9	3.8
0.22	6.1	5.7	5.4	5.1	4.9	4.6	4.4	4.2	4.0	3.9	3.7	3.6
0.23	5.9	5.5	5.2	4.9	4.7	4.5	4.2	4.1	3.9	3.7	3.6	3.4
0.24	5.7	5.3	5.0	4.7	4.5	4.3	4.1	3.9	3.7	3.6	3.4	3.3
0.25	5.4	5.1	4.8	4.6	4.3	4.1	3.9	3.8	3.6	3.4	3.3	3.2
0.26	5.3	4.9	4.7	4.4	4.2	4.0	3.8	3.6	3.5	3.3	3.2	3.1
0.27	5.1	4.8	4.5	4.3	4.0	3.8	3.7	3.5	3.3	3.2	3.1	3.0
0.28	4.9	4.6	4.3	4.1	3.9	3.7	3.5	3.4	3.2	3.1	3.0	2.9
0.29	4.8	4.5	4.2	4.0	3.8	3.6	3.4	3.3	3.1	3.0	2.9	2.8
0.30	4.6	4.3	4.1	3.9	3.7	3.5	3.3	3.2	3.0	2.9	2.8	2.7
0.31	4.5	4.2	4.0	3.7	3.5	3.4	3.2	3.1	2.9	2.8	2.7	2.6
0.32	4.3	4.1	3.8	3.6	3.4	3.3	3.1	3.0	2.8	2.7	2.6	2.5

**BANDED SUNFLOWER MOTHS** are emerging and scouting should also start for eggs and/or adult moths. Eggs can be found on the outer bracts of sunflowers in R2-R3 crop stage in southeast North Dakota. **Scouting for eggs should start on crops in the preferred egg laying stage (R2-R3).** For the scouting protocols, consult the revised publication from NDSU Extension Service on *Banded Sunflower Moth*, E-823. <http://www.ag.ndsu.edu/pubs/plantsci/pests/e823.pdf>

With the high market value of sunflowers, economic thresholds are very low this year: **two eggs per 6 bracts or one adult moth per 100 plants.** A video on scouting for banded sunflower eggs is available at:

<http://www.ag.ndsu.nodak.edu/aginfo/entomology/entupdates/entvideos.htm#Banded>



Adult banded sunflower moth  
Courtesy of P. Beauzay, NDSU.

#### INSECTICIDE TIMING AND MODE OF ACTION FOR CONTROL OF SUNFLOWER INSECT PESTS

This insecticide trial was conducted near Mapleton, ND in 2010. Trial was arranged in a RCBD design with 4 replications. Three different mode of actions were tested: organophosphate - OP (Lorsban), pyrethroid – P (Asana) and OP + P (Cobalt). Insecticides were applied at R1 (miniature terminal bud), R3 (buds >1 inch from leaf), R5.1 (early flower, 10% of head area) and R1, R3 & R5.1. For banded sunflower moth (BSM) and red sunflower seed weevil (RSSW) damage, 200 seeds were sampled from each of 10 heads in each plot for a total of 8,000 seeds per treatment. Seed weight was measured for the entire head (damaged + undamaged seeds) and seed weight means were adjusted for head size.

All insecticide treatments applied at the R5.1 or R1, R3 & R5.1 timings significantly reduced the percentage of damaged seeds of BSM and RSSW compared to the untreated check (Table 1). The optimal timing for insecticide application was either R5.1 or all three timings (R1, R3, R5.1) for control of BSM or RSSW (Table 1 & 2). However, multiple insecticide applications at R1, R3 and R5.1 would not be practical or economic. For the mode of action, the optimal control was obtained by using the combined OP + P (Cobalt) compared to either mode of action alone (P - Asana, or OP - Lorsban) (Table 3).

Mention of any trade names does not imply endorsement of one product over another nor discrimination against any other product not listed by North Dakota State University Extension Service or the author. Please consult the current edition of the *North Dakota Field Crop Insect Management Guide* NDSU Extension Service E-1143 for more information and restrictions on insecticides labeled in sunflowers (<http://www.ag.ndsu.edu/pubs/plantsci/pests/e1143w1.htm>)

**Table 1. Treatment means for percent BSM damaged seeds, percent RSSW damaged seeds, and adjusted means for seed weight at Mapleton, 2010.**

Treatment	Timing	% BSM Damage	% RSSW Damage	Seed Weight (g)
Lorsban @ 16 fl oz/a	R3	6.3 a	5.4 a	82.9 c
Untreated Check	N/A	3.8 b	2.7 bc	87.2 abc
Lorsban @ 16 fl oz/a	R1	3.7 b	3.7 b	83.6 bc
Asana XL @ 5.8 fl oz/a	R1	3.6 b	1.9 cd	90.9 a
Cobalt @ 19 fl oz/a	R1	3.5 bc	1.0 efg	93.4 a
Lorsban @ 16 fl oz/a	R5.1	2.6 cd	1.5 ef	91.0 a
Asana XL @ 5.8 fl oz/a	R3	2.4 d	1.7 def	90.0 ab
Cobalt @ 19 fl oz/a	R3	2.4 d	1.5 efg	89.7 ab
Asana XL @ 5.8 fl oz/a	R5.1	2.1 d	1.3 fgh	87.7 abc
Lorsban @ 16 fl oz/a	R1, R3, R5.1	2.1 d	1.7 cde	91.7 a
Cobalt @ 19 fl oz/a	R5.1	2.0 d	0.8 ghi	92.2 a
Asana XL @ 5.8 fl oz/a	R1, R3, R5.1	1.1 e	0.5 hi	89.3 abc
Cobalt @ 19 fl oz/a	R1, R3, R5.1	0.7 e	0.5 i	93.8 a

Means within a column with the same letter are not significantly different (Fisher's LSD, P < 0.05).

**Table 2. Application timing means for percent BSM damaged seeds, percent RSSW damaged seeds, and adjusted means for seed weight at Mapleton, 2010.**

Timing	% BSM Damage	% RSSW	Seed Weight (g)
R1	3.6 a	2.2 a	89.1 ab
R3	3.7 a	2.9 a	87.3 b
R5.1	2.2 b	1.2 b	90.1 ab
R1, R3, R5.1	1.3 c	0.8 b	91.3 a

Means within a column with the same letter are not significantly different (Fisher's LSD,  $P < 0.05$ ).

**Table 3. Mode of action means for percent BSM damaged seeds, percent RSSW damaged seeds, and adjusted means for seed weight at Mapleton, 2010.**

Mode of Action	% BSM Damage	% RSSW	Seed Weight (g)
Organophosphate (OP)	3.7 a	3.0 a	87.1 b
Pyrethroid (P)	2.3 b	1.4 b	89.2 ab
P + OP	2.1 b	0.3 c	92.0 a

Means within a column with the same letter are not significantly different (Fisher's LSD,  $P < 0.05$ ).

### WHY ARE THERE SO MANY DRAGONFLIES?

Dragonflies belong to the Order Odonata and there are about 400 species in United States. There are many dragonflies flying around fields and yards this year. One of the reasons could be they are aquatic insects requiring water to complete their life cycle, and there lots of standing water this year from the frequent rains. Dragonflies lay eggs in water and their nymphs are aquatic. They live in ponds, lakes and slow-moving streams. Dragonflies spent most of their lives in the larval stage (up to 3 years depending on the species). Adults only live for a few weeks. Dragonflies are predatory. Nymphs feed on tiny fish to mosquito larvae to other aquatic insects. As an adult, they eat other flying insects. Mosquitoes are one of their primary food sources. Dragonflies are harmless and like to fly around people, but will not sting or bite.



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### ROOT LODGING IN CORN

Last week in the Crop and Pest Report, I included a short article about green-snap in corn and the yield losses associated with this phenomenon. I did not mention root lodging in that article, primarily because most of the damage that I observed was due to green-snap and there was little root lodging. Since then we have had additional violent storms move through the state causing more green-snap damage and in some cases root lodging. Fields that have been flattened due to root lodging can look just as miserable as fields that have been mangled by green-snap. The prospects for recovery from root lodging, however, are much better.

Root lodging occurs when roots are not able to anchor the plant against the force of the wind. Plant growth stage, rooting depth, root feeding by rootworms, wind velocity, soil moisture content at the time of heavy winds, and corn hybrid are factors that influence root lodging. Root lodging is most common during the mid-vegetative stage of

development before brace roots have formed. Brace roots provide a valuable function in anchoring and supporting the plant and do not fully develop until after silking. Moist soil at the time of high winds increases the likelihood of root lodging as roots on the windward side of the plant are more easily pulled from moist soil than those in dry or compacted soil. Rootworm feeding can dramatically reduce root mass and increase the potential for lodging, though we have limited problems with rootworm damage because our most common rotations currently preclude the buildup of this pest. Hybrids can vary significantly in their resistance to lodging, so use this year to help you select more resistant hybrids. When comparing hybrids, make sure that they were at similar growth stages at the time of the wind event that caused the lodging. Also remember that even telephone poles cannot withstand some of the winds that we have experienced this year. It is likely that if breeders developed a hybrid that could withstand 100 mph winds, it would likely also be resistant to yield!

#### Yield losses caused by lodging

Plants that lodge before grain-filling have the capacity to erect the upper part of the plant by goose-necking at one or more of the lower nodes. Research done in Wisconsin (Carter and Hudelson, [http://corn.agronomy.wisc.edu/Pubs/PC\\_JournalArticles/001-04-0295.pdf](http://corn.agronomy.wisc.edu/Pubs/PC_JournalArticles/001-04-0295.pdf)) where plants were pushed flat, found that plants were able to recover much of their yield potential. The amount of yield reduction to 100% root lodging at the V10-V12 stages averaged between 2-6%, at the V13-V15 stages 5-15% and at the V17-R1 (silking) stages 13-31%. Additional information on yield losses due to root lodging was nicely summarized by Joe Lauer at the University of Wisconsin (<http://corn.agronomy.wisc.edu/AA/A086.aspx>).



Root lodging and subsequent goose-necking in corn.

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#### **SUNFLOWER GROWTH AND DEVELOPMENT**

In a normal year more than 50% of the sunflower acres are planted by May 29<sup>th</sup>. Based on the 2011 North Dakota Agricultural Statistics Service, 64% of the sunflower crop in ND was planted by June 12<sup>th</sup>. The 2011 crop was planted about two weeks later than the last five year average (Table 1). Growth and development of sunflower is mainly driven by growing degree day (GGD) units. GDD for sunflower is calculated as follows:

$$\text{Daily Sunflower GDD} = ((\text{Daily Max Temp } ^\circ\text{F} + \text{Daily Min Temp } ^\circ\text{F})/2) - 44 \text{ } ^\circ\text{F}.$$

If the daily maximum or minimum temperature is less than 44 °F the number in the formula is set at 44 °F. Table 2 provides an indication of how many GGD's are needed to reach the different development stages in sunflower. The GGD's needed are an estimate and may differ between hybrids and growing conditions. In Table 1 GGD's are given for 2011 from the date of planting to July 25 including the estimated growth stage for Fargo ND. The GGD's and estimated growth stages can be calculated for any location in ND by using the NDAWN sunflower GGD and growth stages model at <http://ndawn.ndsu.nodak.edu/sunflowergdd-form.html>. Location and planting date can be selected to calculate local GGD's and estimate of growth stage of the crop.

Although the crop was planted later than average, crop development is accelerated due to the hot weather in July. The model is predicting that near Fargo the sunflower has entered its reproductive phase. It is important to scout sunflowers during the reproductive phase for potential insect damage.

In the 2010 sunflower survey conducted in ND, 8.4% of the fields had seed weevil damage and those fields with a problem had 3.5% of the seeds infected.

Banded sunflower moth was found in 27.4% of the samples with 2.7% of the seeds infected in those samples. Damage due to the sunflower moth was found in 17.9% of the samples with on average 2.4% seeds damaged.

Sunflower insect management resources are available at:

<http://www.ag.ndsu.nodak.edu/aginfo/entomology/entupdates/#Sun>

Date	% Sunflowers Planted 2011	% Sunflowers planted 2006-2010 Average	GGD up to July 25, 2011 Fargo ND.	Estimated growth stage on July 25, 2011, Fargo ND.
May 22	3	29	1550	R4
May 29	8	54	1477	R4
June 5	26	75	1328	R2
June 12	64	90	1185	R1
June 19	78	95	1021	V20
June 26	86	99	874	V19
July 3	91	100	672	V13

Source: USDA NASS ND Crop Report and NDAWN.

Growth Stage	Description of growth stage	Accumulated GGD
V10	Vegetative stage with 10 true leaves	557
V20	Vegetative stage with 10 true leaves	908
R1	Terminal bud miniature floral head	1048
R5.1	Beginning flowering 10% of head area	1609
R6	Flowering complete ray flowers wilting	1889
R 9	Bracts yellow and brown, physiological mature	2310

For stages of sunflower development see <http://www.ag.ndsu.edu/pubs/plantsci/rowcrops/a1145.pdf>.

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### SUGARBEET CROP PROGRESS

The sugarbeet crop is off to an unusually late start, one year after the earliest planting ever. Typically, all things equal, later plantings have lower yields than earlier plantings. As such, all the sugar cooperatives in our area increased their planted acreage by about 5% so that they will have enough beets to fully utilize the processing capacities of their factories.

The status of the current crop varies from field to field based on planting dates, field drainage, and rainfall received. Some fields look great, some fair, and some mediocre. The sugar cooperatives will have a difficult time to estimate the average yield; the consensus is that average yields will be lower than last year.

Most of the sugarbeet acreage in North Dakota and Minnesota were planted to Roundup Ready sugarbeet. Weed control in the Roundup Ready sugarbeet is good to excellent. Growers have done a good job at weed control in the conventional sugarbeet as well. A weed free crop makes for a much easier harvest.

Prolonged periods of wet and warm soils have provided favorable conditions for *Rhizoctonia* and *Aphanomyces* root rot. There are no chemicals that can be used to control any of these root diseases after symptoms become visible. Fields with a history of root diseases should be planted with tolerant varieties. Fungicides such as Quadris and Headline can be applied in-furrow, or Quadris and Proline can be applied in a 7 inch band before the soil temperature at the 4 inch soil depth averages 65 F to control *Rhizoctonia* root rot. The use of Tachigaren as a seed treatment also helps in reducing damping off and early infection by *Aphanomyces cochlioides*, the causal agent of *Aphanomyces* damping off and root rot.

Records should be kept of fields with root diseases so that appropriate varieties and necessary management decisions are used the next time these fields are planted to sugarbeet.

Currently, growers and researchers are planting Roundup Ready sugarbeet which is partially deregulated. This means that growers and researchers have to follow strict guidelines imposed by USDA/APHIS. Growers and researchers have done a great job of complying with USDA/APHIS and successfully completed the first round of inspections. These inspections will continue and I remind all of us to follow our compliance agreement. At this time in particular, we need to check our fields every 3 to 4 weeks and record, remove and report any bolters that are found.

We also need to continue or start scouting fields for *Cercospora* leaf spot and apply fungicides when necessary. Earlier planted fields should be scouted first. Please note that heavy winds and wet conditions over the past several weeks may result in bacterial leaf spots; do not confuse bacterial leaf spot with *Cercospora* leaf spot. Bacterial leaf spots may be irregular or circular in shape but with no distinguishing black stromata or white to silver spores in the center of the lesions. *Cercospora* leaf spot are circular in shape, about 1/8 to 3/16 of an inch in diameter, and do have distinguishing black stromata and/or white or silver spores in the center of the spots. The bacterial leaf spots will disappear in warm and dry conditions; fungicides will not control bacterial leaf spot at this time. Consult your agriculturists if you have problems in differentiating between *Cercospora* and bacterial leaf spot.

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### SMALL GRAIN DISEASES ON THE RISE

NDSU IPM field scouts looked at just 43 wheat fields during the week of July 18-22, but it was clear that disease pressure had increased with the continued rains and very warm temperatures. I observed crops while traveling to four field tours across the state, as well. The average growth stage in the field survey was just past flowering for that week, ranging from jointing to hard dough.

As in past years, as the crop heads and kernels develop, infections from fungi in the **Septoria species complex** are increasingly apparent. Last week, scouts reported 16% of fields showing symptoms, and average severity of almost 10% on the flag leaf. **Bacterial leaf streak and barley yellow dwarf symptoms** are also increasingly common, with over 50% of the fields showing symptoms of bacterial leaf streak and 21% with symptoms of barley yellow dwarf. Some fields with severe bacterial leaf streak also show symptoms of **black chaff**, the black shiny discoloration on the glumes when the bacteria also infect the heads (see figure).



Reports of **Fusarium head blight (scab)** increased also, with 30% of surveyed fields with some symptomatic heads, and an average of 5.7% field severity (incidence x head severity). The highest field severity reported was 14%, in a winter wheat field. In our survey, we don't know variety or if the field has been sprayed with a fungicide. The following figure was taken of a winter wheat variety at Joel Ransom's winter wheat plots at Prosper, left side sprayed at flowering with a fungicide (Prosaro or Caramba) and right side, not sprayed.



Fungicide sprayed (left) and not sprayed (right) plots of winter wheat, Prosper, 2011.

This week, as of July 27, Roger Ashley, Dickinson REC has observed some **leaf rust** infections in spring wheat variety plots at Dickinson, plus bacterial streak, tan spot, and Septoria infections, and even some low levels of scab. Other reports indicate that scab symptoms are becoming more evident where rains have been very excessive. Also, some observations of **white heads due to root rot** infections are being reported, and low levels of root rot have been observed in research plots at Fargo. With root rot, the grain head and the whole plant turns a greyish white. These plants easily pull from the soil if the head is given a tug. None of these occurrences are surprising, considering the moisture, high humidity's and heat stresses the crops have experienced in many areas in recent weeks.

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#### **CORRECTION ON DOWNY MILDEW FUNGICIDE RESISTANCE**

Last week I said that pathogen resistance to either Idol and Apronmaxx had not been identified. That is incorrect, I meant no resistance to Idol or *Dyansty*. Downy mildew has been resistant to Apron for approximately a decade.

#### **SCOUTING FOR DRY BEAN RUST**

Dry bean rust has **not** been reported in the region yet this year, but conditions are favorable for rust infection and development (humid, heavy dews, warm temperatures). I would encourage growers to scout for dry bean rust in the upcoming weeks.

Dry bean rust will usually occur first as 'hot spots' in a field. Hot spots are localized areas, perhaps 5 to 20 feet in diameter, where rust has heavily infected the lower to middle canopy. Once hot spots form, rust will appear to work its way to the upper part of the canopy, and then spread rapidly to the rest of the field. Once it spreads from the hot spots, rust will occur like cereal rusts; somewhat uniform in the field and throughout the plant. Rust can complete a cycle (from spore infection to new pustule creation and new spore release) in about 10-14 days. Hot spots can produce epidemics quickly.

If found early, dry bean rust can be managed very well with fungicides. Strobilurin (Headline, Quadris, etc.) and triazole fungicides (Folicur and generics, Proline, etc.) are very effective at managing rust. Other fungicides more commonly used for white mold (Topsin, etc.) will give some degree of protection against rust infections as well.

The best timing for rust management is early in an epidemic, when hot spots are spotted for example. Growers who have applied fungicides for white mold will have *some* protection against rust for a couple weeks after application, no matter what product applied. However, the products mentioned above will provide better protection from rust. If rust is not found until pintos stripe, or the equivalent growth stages in other beans, then no management is necessary. Rust will aid in plant dry-down and defoliation!

Below is a sequence of photos of a hot-spot. I took these as I was walking towards the hot spot, to illustrate how it may appear at different distances. Frankly, they are tough to see. Once you get close, the leaves will have cinnamon-brown pustules, often with a yellow halo. Pustules are more obvious on the under-side of the leaf. Spores will easily rub off the pustules and leave a trail of spores (unless the rain or wind removes the spores first). The pustule base is yellow-white and cannot be rubbed off. Be careful not to mistake splashed soil on the undersides of the leaves, or bacteria, for rust

If rust is found please contact you county agent, crop consultant, seed dealer, or me. It helps everyone if we can get the word out that the disease is in the region or county. Thank you.



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### SIDEDRESS/TOPDRESS OPTIONS FOR CORN

In some of my corn N plots this season on high clay soils in the Valley, I am certain that we lost over 100 lb/acre of N. If the corn is not yet tasseled, given the price of corn right now, application of reasonable rates of N will be profitable. I have covered some of these topics in past reports, but this will serve as a ranking of my favorite to least favorite options for sidedress and topdressing corn.

For small corn, my number one favorite option is anhydrous ammonia if the soil will seal during application. Almost none of the applicators in this region have covering attachments, so the soil surface has to be mellow. If not, N will be lost and some crop burning may result. Loam soils and coarser are particularly favorable for this application. These soil textures represent around 85% of the total crop surface soil texture acres in the state.

My number two favorite options are either coulters applied UAN, or cultivator applied UAN/urea. On high clay soils, coulters applied UAN provides soil coverage of the N without having to go deep into the muck. Setting the coulters an inch or two deep should offer enough soil coverage to protect the urea in UAN from volatility. Some growers may have soil that would support anhydrous application, but do not like to handle it from a safety risk perspective. Setting up a cultivator to apply the UAN/Urea and cover it with the cultivated soil would work fine. The cultivator application is not an option in no-till systems.

My number three favorite option for corn is dribbling/streaming UAN from a high clearance sprayer between the rows. Any rate of UAN will work if your pump and hoses will support the volume. Use of stiff hose or a bracket strengthened drop nozzle. The pressure from corn leaves as the sprayer travels through the corn will tend to lift the hoses onto the top of the corn if your drop nozzles are not substantial enough. It may be necessary to reduce speeds, especially in taller 22 inch row corn to make sure the UAN is hitting the ground. The UAN should land on the soil surface in a band. Half of the UAN is ammonium nitrate, with no volatility potential (practically) the other half is urea, but for some reason unknown to me the rate of urease activity is reduced when the UAN is applied in a surface band. The result is that where normally urease rate would be high nearly immediately, its activity is delayed and reduced. This application method has always worked for me both in my time in industry and as a researcher whether it was wet or dry.

The least favorite option for corn would be flying on urea by air. This is my least favorite because of the potential for leaf burn. However, given the wetness of many fields, this may be the only option for many growers. My Illinois colleague, Fabian Fernandez, reports that in his studies corn yield is not decreased with N rates of urea up to 60 lb N/acre (roughly 125 lb material per acre). Rates higher than 60 lb N/acre resulted in enough tissue burning at V8 that yields were reduced instead of increased.

In our region, rates around 40 lb N/acre should be reasonably safe if applied by air. There will be some leaf burn, so make sure the grower understands this, that it is superficial and if he sees burning consider it unimportant.

#### **REPORT ON RECENT SULFUR AND ZINC APPLICATIONS TO STRIPED CORN IN THE VALLEY**

Last week I reported on top yellowing and striping on some corn with restricted root systems in the wet high clay soils in the Valley. A little less than a week ago I applied the equivalent of 10 lb S/acre as gypsum granules and about 10 lb Zn/acre as zinc sulfate granules to an entire N rate study between Mapleton and Casselton on high clay, very wet soils. Today (Tuesday, July 26, 2011) I revisited the plots. They received at least one substantial rain between application and today. Although some of the striping has diminished, the plants are still struggling. With this experience, I would recommend NOT applying any sulfur or zinc to corn in wet black, high clay soils. The main problem is they are trying to grow into water and it's not working. Any deficiency symptoms shown other than nitrogen are not as important as the drainage. This plot is about a week away from tasseling. If it makes 100 bu/acre it will be a miracle.

In contrast, a field in the Walcott area prompted the pest report on 'rainbow corn' a few weeks ago. Last week I revisited the field, fully intending to supplement the plot with sulfur and zinc. When I arrived, the corn was green (at least the higher N treatments) and over 4 feet tall. No striping, no odd colors, just normal corn. This plot missed most of the high rainfall in the region lately and the corn had the opportunity to expand its root volume and overcome its nutrient deficit on its own. As suggested in the previous crop and pest report, if the soil will dry, the condition of the corn will improve.

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#### **DRY BEAN HERBICIDE AND DESSICANT UPDATE**

Sharpen is a new desiccant from BASF that is expected to be registered for use on dry beans by fall in time for desiccation of this year's dry bean crop. In NDSU trials, Sharpen has been as effective, and sometimes more effective, than Valor, which has become a standard in dry bean desiccation. Significant leaf desiccation can occur even one day after application with Sharpen. Correct adjuvant use with Sharpen is critical for optimal performance. A methylated seed oil (MSO) type adjuvant must be used. If MSO is substituted for a crop oil concentrate (COC) much less control will result. Adjuvant rate is also critical. Many labels recommend oil adjuvants applied on a volume basis (% v/v). If spray volumes of 15 to 20 gpa are used, then a minimum adjuvant concentration would result, but at the common ground

spray volumes of 5 to 10 gpa, and especially aerial application water volumes at 2 to 5 gpa, the adjuvant concentration is much less and less desiccation will occur. NDSU recommends oil adjuvants be used on an area basis (pt/A) and to apply them at 1.25 pt/A and greater.

The following example shows how herbicide activation would be penalized by insufficient oil adjuvant at low water volume. The example below shows the amount of oil adjuvant that would be applied per acre (area basis) as calculated on a % volume basis (% v/v):

MSO adjuvant applied at 1% v/v in 20 gpa = 1.6 pt/A

MSO adjuvant applied at 1% v/v in 10 gpa = 0.8 pt/A

MSO adjuvant applied at 1% v/v in 5 gpa = 0.4 pt/A

MSO adjuvant applied at 1% v/v in 2 gpa (aerial) = 0.16 pt/A

In contrast, remember the X rate for crop oil concentrate 20 years ago?..... 1 qt/A

In contrast, remember the MSO rate used with Accent in corn 15 years ago?..... 1.5 pt/A

For some reason, herbicide labels have shifted recommending oil adjuvants to % v/v and when most growers and applicators have reduced their spray volume because of high glyphosate use and enhanced activity from glyphosate in low water volumes, the result is low and insufficient oil adjuvant concentration in the spray droplets and penalizing herbicide activity.

Desiccants become less effective during cool, cloudy conditions. Sharpen and Valor are not immune from this either. We are trying to make desiccant more effective in cool, cloudy with best adjuvant use, tank-mixtures, and optimum spray volume but Sharpen and Valor should perform better than registered standards.

#### **UPDATE ON THE SDSU OLSON BIOCHEM LAB**

With the impending relocation of the SDSU Olson Biochem Lab off the SDSU campus the lab is backlogged with samples and cannot accept more because turnaround time may too long. One of the technicians has left the lab and works at SGS Brookings Midwest. That lab is set up to analyze for glyphosate and phenoxy herbicides. For those interested in having plant tissue analyzed for chemical residue at the SGS lab the contact information is below:

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#### **THE NEW WEED MANAGEMENT GOAL – ZERO WEED SEED PRODUCTION**

Most growers are controlling weeds in most crops with herbicides only. The advent of Roundup Ready crops has allowed growers to achieve nearly perfect weed control in the beginning. The near perfect weed control nearly every season has caused growers and others to become complacent that glyphosate will always control weeds whenever applied and has reduced the need for scouting after herbicide applications. However, weeds are becoming more prevalent after a second postemergence herbicide application in many fields. The reason for this in many cases is because glyphosate is becoming less effective along with other herbicides (especially ACCase-inhibiting herbicides) due to an increase in herbicide-resistant biotypes. Currently, glyphosate-resistant common ragweed is being reported in the Red River Valley, glyphosate-resistant giant ragweed is being reported in southern Minnesota, and glyphosate-resistant waterhemp is being reported in southeast North Dakota and the southern half of Minnesota. In addition, ACCase-resistant wild oat and green foxtail are being reported in northwestern Minnesota.

The only way to reduce the frequency of herbicide-resistant weeds is to eliminate weed seed production in fields! This is especially true for volunteer Roundup Ready canola. Necessary strategies to accomplish zero weed seed production (complete weed control) of all weeds in a field includes applying the correct postemergence herbicides to small weeds, applying residual herbicides at the time of planting and/or with postemergence herbicides, row-crop cultivation, and/or removal of weeds by hand. When weeds, including volunteer Roundup Ready canola, still exist in a field after all attempts with herbicides, row-crop cultivation and/or hand removal of weeds must be practiced to eliminate weeds from producing seeds. Hand removal of weeds from a field is most easily accomplished when just a few plants exist in a field, but still must be practiced when numerous plants exist after all other weed control strategies have been exhausted. Allowing weeds to produce seeds for any reason makes weed control more difficult in the future.

**LATE-SEASON WEED CONTROL COMMENTS FOR SUGARBEET**

It is that time of the season when herbicide applications for sugarbeet should be ending. However, due to late planting, frequent wet periods, and herbicide-resistant weeds, herbicides are still being applied to sugarbeet. We are approaching that time of the season in which herbicides can no longer be applied to sugarbeet due to preharvest restrictions. Determine when sugarbeet harvest will occur for a field before applying herbicides to be confident the preharvest intervals are followed. The preharvest interval for sugarbeet herbicides is as follows: 90 days for Nortron (ethofumesate); 75 days for Betanex (desmedipham), Betamix (desmedipham and phenmedipham), and Progress (desmedipham and phenmedipham and ethofumesate); 60/95 days for Outlook (dimethenamid); 60 days for Dual Magnum (S-metolachlor), Poast, and UpBeet; 45 days for Stinger (clopyralid); 40 days for Select / Select Max (clethodim); and 30 days for Roundup (glyphosate).

Glyphosate-resistant weeds are being reported in Roundup Ready sugarbeet fields in Minnesota and North Dakota. If glyphosate-resistant common ragweed are only being discovered and they are large (> 4 inches), apply Stinger at 2.5 to 6 fl oz/A plus glyphosate (to control any late-emerging weeds and to improve control) at 0.75 pound acid equivalent per acre (lb ae/A). The higher the Stinger rate the more likely a single application will control the ragweed or at least keep them from going to seed, however, the larger the sugarbeet and the higher the air temperature near the time of the application the greater the sugarbeet injury. If injury is a concern use the lower rate and make a second application as long as the preharvest interval is met or row-cultivate and hand-remove surviving plants instead of the second herbicide application. For large (> 4 inches) giant ragweed apply Stinger at 4 to 8 fl oz/A plus glyphosate at 0.75 lb ae/A. Again, the higher the rate the more likely a single application will control the giant ragweed. If large (> 4 inches) waterhemp are being found after multiple glyphosate applications consider applying Betanex or Betamix at 6 to 7.5 pt/A plus glyphosate (to control any late emerging weeds and improve waterhemp control) at 0.75 lb ae/A, or Progress at 4 to 5 pt/A plus glyphosate at 0.75 lb ae/A. Include a methylated seed oil adjuvant at 2 pt/A. Two major concerns with the waterhemp recommendations are the effectiveness of the treatment and meeting the preharvest interval of 75 days. The best option to control the glyphosate-resistant waterhemp may be to remove all plants by hand or row-cultivate and remove all remaining plants by hand.

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**UPDATE: FLOODING IMPACTS ON TREES**

The historic floods of 2011 caused millions of dollars in damage and have imposed great hardship on those affected. These floods will negatively impact the trees and forests within these areas as well. Growing season flooding is detrimental to trees as the lack of soil oxygen causes roots to die. Many species cannot withstand more than 4 – 6 weeks of flooding. North Dakota Forests Service foresters recently toured the flood damaged areas of Minot. The purpose of the tour was to assess the impacts of this year's historic flood on the survival of trees and forests within the area. Officials visited Oak Park, Roosevelt Park Zoo, Jack Hoeven Park and several neighborhoods within the vicinity. Despite speculation of catastrophic tree and forest losses, foresters felt optimistic following the tour. Many of the mature, tall trees have withstood the weeks of inundation and appear to be recovering in areas where the water has receded. Trees most impacted by the flooding include recently planted and small trees that were completely inundated by water for several weeks. Many of these small trees and shrubs are dead. Foresters believe that some deciduous species of trees and shrubs may sprout back. Conifers (evergreens) exhibited significant lower crown injury where water covered the branches. These branches are unlikely to grow back.

Survival is speculative for trees growing along the channel where the water remains high as many tree species cannot withstand more than 6 weeks of flooding. Similar affects have been observed along the Missouri River from Garrison dam to Lake Oahe and along the Red River. Many ash and box elder trees along the Red River are beginning to fade as high channel flows have kept these trees inundated since spring.

The North Dakota Forest Service has begun assessing flooded trees and forests along the Souris and Missouri Rivers utilizing geospatial tools and is prepared to provide technical assistance to managers and decision makers. This preliminary assessment can be viewed at: <http://www.ndsu.edu/pubweb/media/geoscience>

For more information on the effects of flooding on trees, please go the North Dakota Forest Service at: <http://www.ndsu.edu/ndfs/>

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### LARGE ASPEN TORTRIX: A NEW DEFOLIATOR OF ASPEN IN THE TURTLE MOUNTAINS

An aerial forest health survey of the Turtle Mountains by the North Dakota Forest Service, in cooperation with the US Forest Service, in June revealed an outbreak of large aspen tortrix (*Choristoneura conflictana*). Large-scale defoliation by this pest has not been previously recorded in the Turtle Mountains. Large aspen tortrix is second only to the forest tent caterpillar in its ability to reach high levels of infestation and defoliate aspen forests. This native defoliator has also been observed in North Dakota counties north of Interstate 94.

Large aspen tortrix commonly defoliates tens of thousands of acres of aspen forests in Alberta, Ontario and the northern United States and is found throughout the natural range of aspen. Similar to the more well-known forest tent caterpillar, populations of the large aspen tortrix have been observed to build up to very high levels, which persist for two or three years before the population crashes. It is not uncommon for large aspen tortrix and forest tent caterpillar to be found defoliating trees in the same area.

The large aspen tortrix overwinters as an immature larva in a web-like protective structure called a hibernaculum. Larvae emerge from their hibernaculum as aspen buds begin to swell, they burrow into the buds and begin feeding on leaf tissue. This leads to shot-holing and deformation of emerging leaves. When aspen leaves expand the black-headed, dark green larvae roll and web together multiple aspen leaves, which they feed on and use for shelter until they are ready to pupate in early- to mid-June. When mature, the larvae form a black shiny cocoon and emerge as adults in late-June or early-July, they mate and females lay flat clusters of pale-green eggs in a shingle-like pattern on the upper side of aspen leaves. Newly hatched larvae typically form unsightly webs as they move, feed and rappel down from the canopy representing a nuisance in recreation areas. In infestation areas larvae have been known to feed on any and all leaf tissue, including understory plants. In autumn, larvae congregate at the base of trees and form overwintering hibernacula in bark crevices.



Management of large aspen tortrix is only warranted on high-value and landscape trees. The commercially available biological pesticide Bt (*Bacillus thuringiensis*) is effective in controlling this pest. The North Dakota Forest Service will continue efforts to monitor the extent of aspen defoliation in the Turtle Mountains. Inquiries about the large aspen tortrix can be directed to Aaron Bergdahl, ND Forest Service, Forest Health Specialist, at [Aaron.D.Bergdahl@ndsu.edu](mailto:Aaron.D.Bergdahl@ndsu.edu) or (701) 231-5138.

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## \$ ag economics

### FACTORS TO CONSIDER FOR COVER CROPS ON PREVENTED PLANTED ACRES

Millions of acres in North Dakota could not be planted this year because of wet conditions. This has many producers considering cover crops on prevented planted acres. North Dakota State University Extension Service agents and specialists have recommendations for producers that are considering cover crops on prevented planted acres.

- Some crops have rotation restrictions for insurability primarily due to disease issues. Don't plant a cover crop, either alone or as a part of a cocktail mix, this summer that will preclude you from insuring your intended crop in 2012. A cover crop is considered the same as a crop planted for harvest as it pertains to rotation restrictions."
- Producers should contact their county Extension Service agent or Farm Service Agency (FSA) office for cover crop recommendations.
- Don't wait too long to plant a cover crop. Most crops should be planted no later than Aug. 5 through Aug. 10 in order to provide adequate time for the crop to develop to protect the soil.
- Winter wheat for harvest in 2012 is a good choice for planting on prevented planted acres. However, delay the winter wheat planting until the optimum planting window, which is early to mid-September and be sure the fields are free of grassy weeds for two weeks prior to planting. Winter wheat might be considered on fields with previous years of prevented planting because winter wheat may reduce the risk of having another year of prevented planting if next spring is again wet.
- Know the source of the cover crop seed and adhere to plant variety protection (PVP) laws. Generally, it is a violation of the PVP agreement to plant the saved seeds of any crops with proprietary traits, even if it is just going to be a cover crop. For example, bin-run Roundup Ready seed of any crop cannot be planted as a cover crop.
- Haying or grazing of a cover crop is permitted after Nov. 1. Haying or grazing earlier than that date will result in loss of 65 percent of the prevented planted payment and the crop will become part of the actual production history (APH). This means the 2011 yield will be 60 percent of the producer's APH. The combination of these factors is a large economic disincentive to early haying or grazing.
- Keep in contact with your insurance agent. Let the agent know what your plans are for a cover crop on prevented planted acres and get assurances from the company that your insurance indemnity won't be compromised by what you intend to plant and how you plan to use it. It also is recommended that producers check with the FSA to make sure cover crop plans comply with their policy on use of prevented planting acres. For example, FSA regulations only recognize corn as a cover crop if solid seeded.
- Keep written records of all correspondence with your insurance agent. It also can be beneficial to take photos of the cover crops as documentation because some fields will be checked for compliance with FSA cover crop rules.

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## North Central ND

### Wheat Midge Adult Emergence has Finished for 2011

Wheat midge degree days are between 1,802 and 1,940 in the area. Wheat midge traps at our highest site at the North Central Research Extension Center (237 wheat midge in one trap from 7-6 to 7-12) had only 1 wheat midge from the end of flight over this past weekend. Insecticides applications for wheat midge, aphids, and thrips will not give an economic return at this point in the season.

### Small Grain Diseases:

*Fusarium* head blight (scab) has been observed in some fields in the area. With the recent rains, late planted wheat that is at heading to early flowering should be protected with a fungicide application. *Septoria* leaf disease is on the increase in the area. Loose smut has also been observed in the region. Some barley yellow dwarf and wheat streak mosaic virus symptoms have been observed in wheat fields. For site specific information on scab and other wheat diseases visit: <http://www.ag.ndsu.nodak.edu/cropdisease/wheat-models.html>.

### Sunflower Downy Mildew:

We have seen some downy mildew in sunflower fields in the area. Severe infections in fields planted with downy mildew resistant varieties may be an indication that a new resistant race is present.

### Sunflower Insects:

Sunflower insect traps were set on July 11 near Minot. Trap catches are currently below the economic threshold but are on the increase. Sunflower insect traps were also placed in a site in McHenry County on July 27 and information from those traps will be available in the future.

### Sunflower Insect Traps at the North Central Research Extension Center:

Date	Insect	Number of Moths
7/19	Banded Sunflower Moth	21
7/25	Banded Sunflower Moth	37
7/19	Sunflower Moth	1
7/25	Sunflower Moth	2
7/19	Arthur's Sunflower Moth	5
7/25	Arthur's Sunflower Moth	17

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**SOUTH-CENTRAL ND**

According to NDAWN (North Dakota Ag Weather Network) data, the region received 1 inch (Wishek) to 5.6 inches (Carrington) of rain during the past two weeks (July 13 to 26). The stated rainfall amounts are conservative in areas receiving heavy rain in short durations. Struggles continue in most every county in the region with frequent and heavy rain, high winds, and hail. As a recent example, the Carrington area including the Research Extension Center, received substantial crop injury from hail on July 24 (see image).

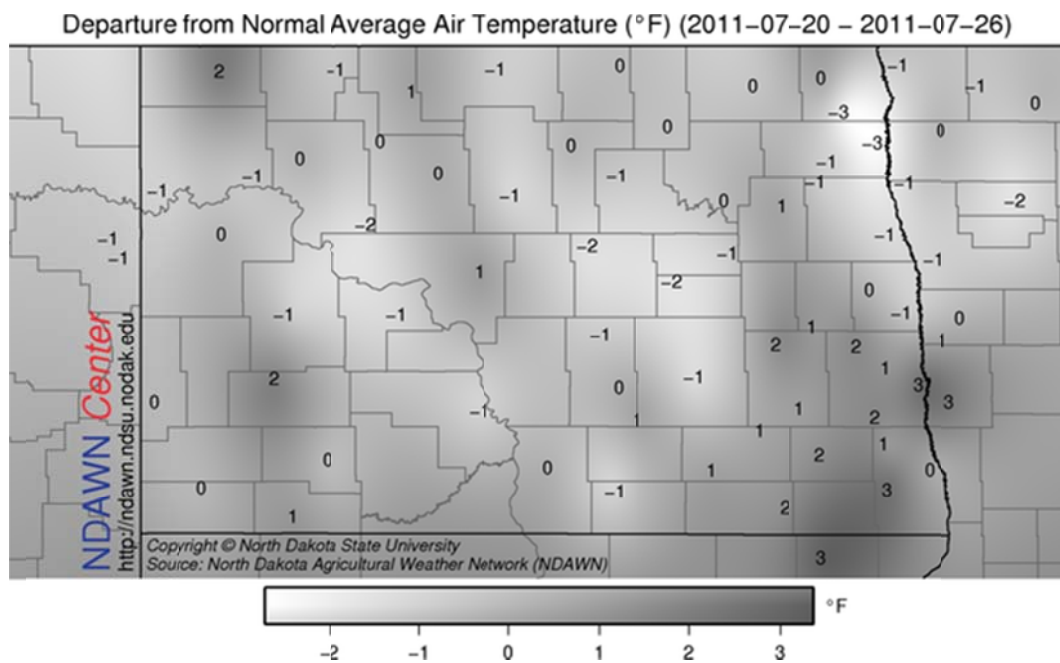
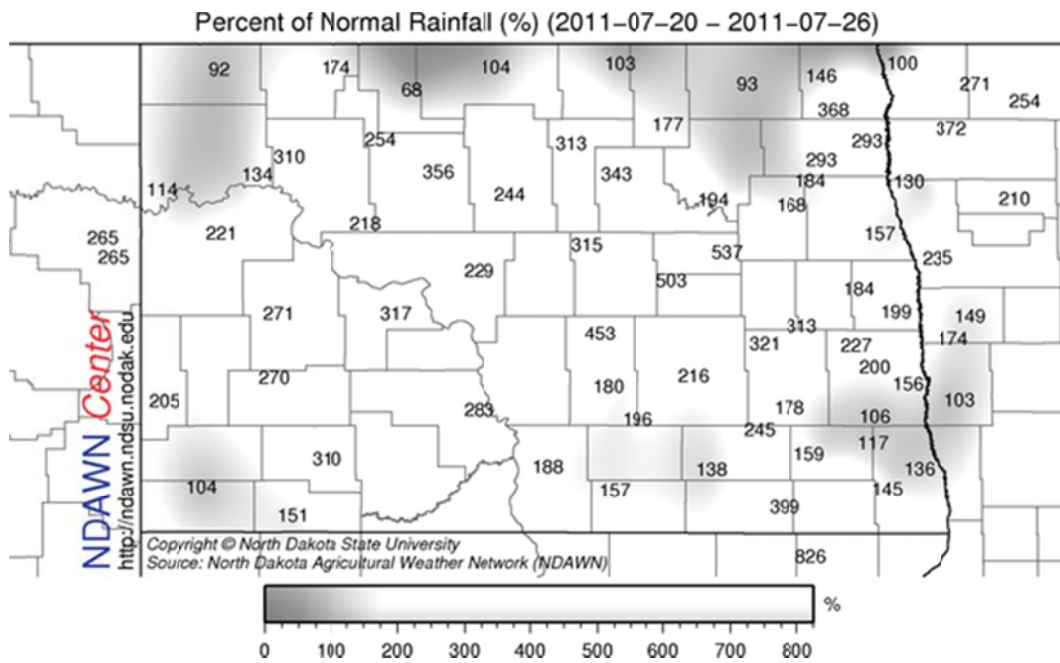
Harvest of winter wheat and early-seeded barley is pending. Spring wheat seeded during early May is in the watery-ripe to early-dough seed stages. Early May planted corn is tasselling. Growing degree day (GDD) units are on par to slightly behind the 5-year average for the region's May 1 or May 15 planted corn (range of +1 to -70 GDD units). First half of May planted soybean is at full flower to initial pod development stages (R2 to R3). Dry bean stages range from flowering and initiating seeds (R1 to R5). Hay harvest continues to be challenging - quantity and especially quality are concerns.

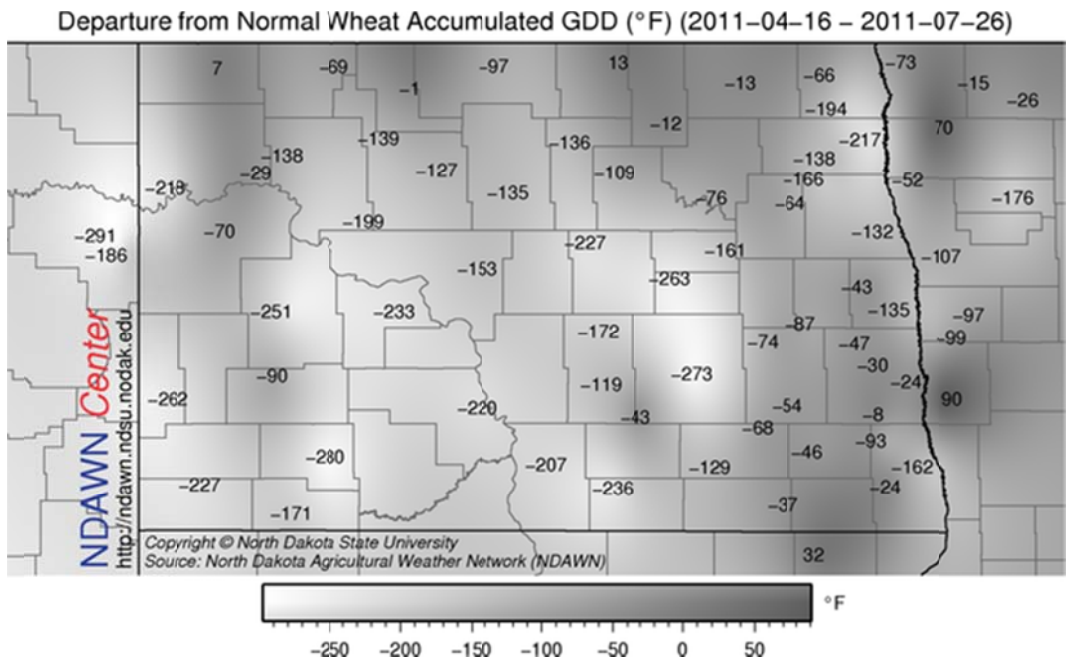
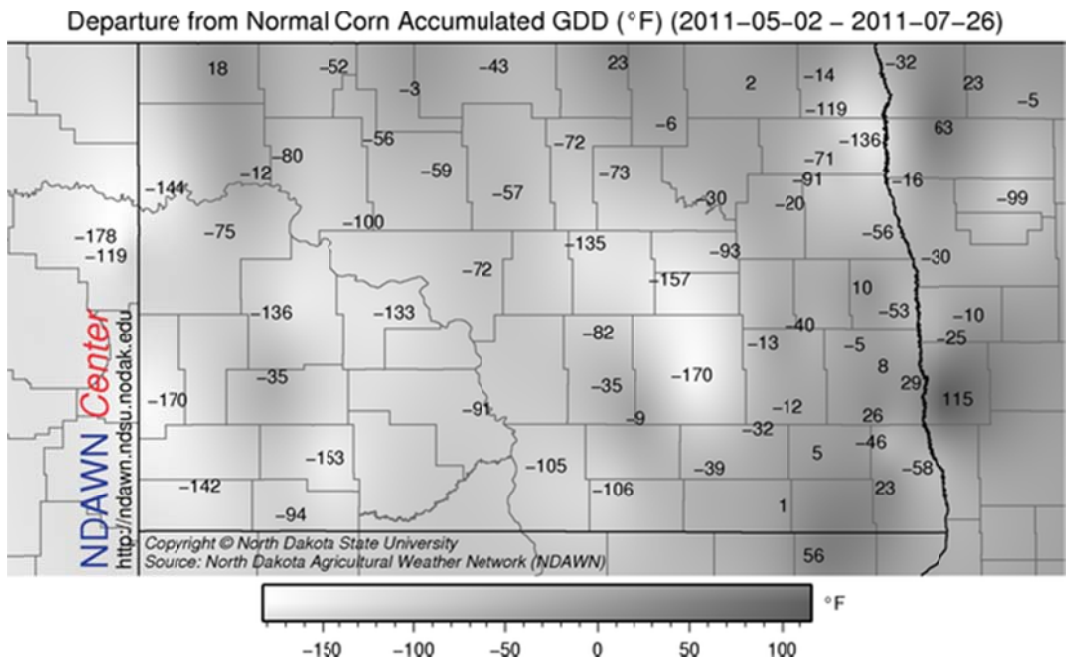
Scab, leaf rust and leaf spot disease are easily found in winter wheat, and the same is becoming true for spring wheat. Early flower fungicide application in wheat appears to have been an excellent strategy. Continue to monitor for aphids in soybean through the initial seed development stage (R5). Considering the favorable environment for white mold, fungicide application should be seriously explored ASAP in dry bean at early flower and before expression of the disease. We next need to be scouting dry bean for rust (see Sam Markell's article in this Crop and Pest Report).



Hail damaged CREC barley drills strips

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