Aster Leafhopper Threat to Canola

Aster leafhoppers (*Macrostelus quadripulatus*) that we are observing in wheat and barley could move into canola and vector aster yellows. The amount of aster yellows in fields would depend on the number of leafhoppers from local fields and immigrants from southern states, the percent of leafhoppers carrying the aster yellows phytoplasma and the time of arrival of the leafhoppers. Canola and other *Brassica* species (mustard) are not a preferred host for food and reproduction of aster leafhopper. It prefers to feed on wheat, barley and vegetable plants (lettuce and carrot), grapevines, and herbs. Aster leafhoppers may feed on young canola plants at the beginning of the season and then move to grasses and more preferred crops as the canola matures. Hot and dry conditions are not conducive to the spread of aster yellows. In contrast, abundant rainfall makes succulent plants which are more attractive to leafhoppers.

Symptoms of aster yellows in canola take about 21-35 days to appear and sometimes plants are infected but show no symptoms. Flowers are distorted and sterile. Flowering portions of the plant may show excess branching and stunting (shortened internodes), resulting in a “witches broom” appearance. Aster yellow infected canola plants are often taller than the rest of the plants. Pods are replaced by inflated round or oval blue-green bladder-like structures. Infected plants produce little seed, but percent of infected plants is usually quite low (<5%) most years. However in 2007, aster yellows were observed in many canola fields in Minnesota and North Dakota, and economic losses occurred in a few fields. Symptoms on canola can be confused with sulfur deficiency, anthocyanin production (purpling due to crop stress) and growth regulator herbicide damage.

To manage aster yellows in canola:

1. Plant early to reduce the incidence of aster yellows by making plant less attractive (more mature) to migrating aster leafhoppers.
2. Control perennial weeds in fields since weeds can be a good source of the aster yellows phytoplasma.
3. Due to the mobility of aster leafhoppers, any insecticide spray program would be a ‘Hit & Miss’ situation. Leafhoppers move around...
from field to field, crops to crops and it would be difficult to prevent aster yellows from being vectored. As in wheat and barley, there is no established economic threshold in canola. We also do not know how often we would need to spray. The residual of most pyrethroid insecticides is 7-10 days. However, the economics of multiple and frequent foliar insecticide applications is not feasible in canola as in high-value vegetable crops. In addition, flowering canola is a major source of honey for honey bees in North Dakota, and any insecticides sprayed during flowering would be deadly for honey bees. We recommend not spraying insecticides on flowering canola to protect pollinators, and only spraying insecticides when bertha armyworms or other insect pests are at economic threshold levels in fields. If foliar applied insecticides are necessary during flowering, spray in the early morning or late evening when bees are back in the hive. Research conducted in snap beans and okra suggests that the neonicotinoid seed treatments should be effective in reducing leafhopper infestations in canola for up to 30 days. There are no fungicides that will control aster yellows.

DEGREE DAY UPDATE FOR ALFALFA WEEVIL

The alfalfa weevil DD accumulation as of May 21, 2012 is displayed in the map below (source: NDSU NDAWN – Applications – Insect Degree Days).

At 300 DD, field scouting is initiated for alfalfa weevil adult. The 300 DD base has expanded to the southern half of North Dakota and up into Grand Forks area from last week. See last issue 4 of Crop & Pest Report for more information.

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SUGARBEET ROOT MAGGOT FLIES EMERGING EARLY: PLAN POST-EMERGENCE CONTROL STRATEGIES NOW

The first sugarbeet root maggot (SBRM) flies detected by NDSU personnel in the 2012 growing season were found in a field south of St. Thomas, ND on May 11. However, activity levels have remained fairly low for several days thereafter. Sticky-stake counts conducted on Friday, May 18 and Monday, May 21 indicated that the following areas appear to be likely hotspots for fly activity this year: Auburn, Forest River, and St. Thomas, ND. It should be noted though, that although several other areas have the potential for producing relatively high infestations. Daily and cumulative counts for all monitoring sites can be viewed at: http://www.ndsu.edu/entomology/. Just click on the “INSECT RESOURCES” link on the main page, and download the dated Adobe Acrobat (pdf) file.
SBRM fly activity is significantly impacted by weather. This has allowed us to develop a degree-day (DD) based model to predict the timing of peak activity of SBRM flies in current-year beet fields. Peak fly activity can occur at any time after the accumulation of 600 DD; however, NDSU research indicates that peak takes place, on average, at about **650 DD**. It is important to note that warm weather (around 80°F), and calm to low-wind conditions are most conducive to fly activity. Flies will remain relatively inactive in cool, rainy, or windy conditions. To determine degree-day totals for fields in your area, consult the Root Maggot application on NDawn at: [http://ndawn.ndsu.nodak.edu/sugarbeet-root-maggot.html](http://ndawn.ndsu.nodak.edu/sugarbeet-root-maggot.html). The site also includes a “help sheet” with information on how to use the model, recommendations for whether insecticide applications are needed, and pointers on when to apply them. A preliminary, extended forecast for anticipated DD accumulations and associated peak fly activity dates in the southern, central, and northern RRV is presented in Table 1.

<table>
<thead>
<tr>
<th>RRV Area</th>
<th>May 22 DD accumulation</th>
<th>Peak fly activity forecast*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern</td>
<td>540</td>
<td>June 2-6 (+80° calm/low-wind)</td>
</tr>
<tr>
<td>Central</td>
<td>491</td>
<td>June 5-9 (+80°calm/low-wind)</td>
</tr>
<tr>
<td>Northern</td>
<td>430</td>
<td>June 7-11 (+80°calm/low-wind)</td>
</tr>
</tbody>
</table>

*Peak fly activity in current-year beets is most likely on the first calm to light-wind day to reach 80°F after 600 air DD are accumulated.

Growers in hotspots or high-risk areas for SBRM infestation should consider applying a postemergence insecticide, especially if an insecticidal seed treatment or a low to moderate rate of an at-plant soil insecticide was applied. Postemergence granules are usually effective if applied between 2 weeks and 5 days before peak fly, but will also likely be beneficial if applied within a 1-2 days (before or after) peak. Light to moderate rainfall after granular applications typically improves performance. Postemergence liquid insecticide applications should be targeted for peak fly, but will provide good results if applied within 2-3 days before or after peak. As Table 2 indicates, there is still plenty of time to apply either a granular or liquid material for SBRM control this season.

<table>
<thead>
<tr>
<th>RRV Area</th>
<th>Target DD for Insecticide Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Liquid</td>
</tr>
<tr>
<td>Southern</td>
<td>580-610</td>
</tr>
<tr>
<td>Central</td>
<td>585-615</td>
</tr>
<tr>
<td>Northern</td>
<td>590-620</td>
</tr>
</tbody>
</table>

For more guidance on postemergence control strategies, consult the “Insect Control” section of the 2012 Sugarbeet Production Guide or the “Sugarbeet Insects” section of 2012 Field Crop Insect Management Recommendations. Online versions of these publications are located at:

[http://www.sbreb.org/Production/production.htm](http://www.sbreb.org/Production/production.htm)

and

[http://www.ext.nodak.edu/extpubs/plantsci/pests/e1143w1.htm](http://www.ext.nodak.edu/extpubs/plantsci/pests/e1143w1.htm)

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CORN PLANT POPULATIONS AND REPLANTING

This has been an exceptionally good spring for planting crops. Much of the corn in the state has now emerged. Since conditions were quite favorable for emergence, most plant stands appear to be adequate. In a few cases, however, cold stress and/or dry soils during germination have reportedly caused disappointing stands. Fortunately, it is still early enough in the season to expect good yields if replanting is needed and it is carried out in the next few days. Before you replant, however, you should carefully assess your current stand and its yield potential, the cost of replanting, possible alternative crops and the availability of seed.

The first step towards making an informed decision on the need for replanting is to determine your current plant population. Count plants in several areas of the field that appear to be representative of the field as a whole. Counting emerged plants in a row length of 17’ 5” if using a 30” row spacing will give you the plants in 1/1000 of an acre (for 22” and 20” row spacings use a row length of 23’ 10” and 26’ 1”, respectively). Plant counts from this area can be converted to plants per acre by multiplying by 1,000. Refer to Table 1 to determine the potential yield (as a percent of optimum) of your crop at its current population and the potential yield of a crop replanted at various dates. These data apply to fields in the eastern part of North Dakota where moisture stress is typically not limiting. These data suggest that the deleterious effect of late planting (at least when planting is delayed to June) is generally greater than the deleterious effect of a reduced plant population within the range of plant populations listed. For example, a plant population of 30% of the optimal stand would be as productive as a full population when planted on June 1.

These data may also provide a rough guideline for the value of replanting fields in drier regions of the state where optimum plant populations may be as low as 20,000 plants/acre by substituting the optimum population for an environment for 36,000 in table and adjusting populations downward in a proportional.

Table 1. Expected corn grain yield (percent of optimum) for various planting dates and harvest populations (adapted from data from Wisconsin for relative maturity zones of 70 to 95 days)\(^1\).

<table>
<thead>
<tr>
<th>Harvest Population</th>
<th>May 1</th>
<th>May 20</th>
<th>June 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>36,000</td>
<td>100</td>
<td>86</td>
<td>63</td>
</tr>
<tr>
<td>32,000</td>
<td>98</td>
<td>85</td>
<td>62</td>
</tr>
<tr>
<td>28,000</td>
<td>85</td>
<td>82</td>
<td>60</td>
</tr>
<tr>
<td>24,000</td>
<td>91</td>
<td>79</td>
<td>58</td>
</tr>
<tr>
<td>20,000</td>
<td>86</td>
<td>74</td>
<td>54</td>
</tr>
<tr>
<td>16,000</td>
<td>80</td>
<td>69</td>
<td>50</td>
</tr>
<tr>
<td>12,000</td>
<td>72</td>
<td>62</td>
<td>46</td>
</tr>
</tbody>
</table>

\(^1\)Adapted from J. Lauer (1997), Corn replant/late-plant decisions in Wisconsin, University of Wisconsin Extension (see http://corn.agronomy.wisc.edu/Management/L004.aspx).

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SUNFLOWER MANAGEMENT

The annual National Sunflower Association (NSA) Field Survey was conducted in September and early October 2011. In North Dakota 77 fields were inspected. One field was surveyed for approximately every 10,000 sunflower acres planted in each county. Agronomists, pathologists, entomologists, extension agents, and crop consultants conducted the survey. The teams were asked to assess the most limiting production factor for each field. Other observations were also taken during the survey. The North Dakota State average yield estimate for the surveyed fields was 1,651 lb/a.
Yield-limiting Factors

In North Dakota plant spacing within the row and disease were the most prominent limiting factors to higher yields in both 2010 and 2011 (Table 1). Producers should pay attention during planting to make sure the spacing between the plants and the plant population are accurate. The planter needs to be adjusted properly for the specific sunflower hybrid seed. Decreasing the planting speed will usually increase the accuracy of seeding. The sunflower seed needs to be planted at a depth of 1.5-2.5 inches with good seed to soil contact. With two seeds too close together there will usually be one dominant plant and one plant with a very small head, therefore, an even distribution of the seeds is very important. In photo 1, solid seeding resulted in too many seeds too close together with some plants having very thin stalks. These plants did not contribute to yield. On the other hand there were gaps between plants in other areas of the filed. Some diseases, like rust, can be managed and producers should scout their fields during the growing season.

<table>
<thead>
<tr>
<th>Yield limiting factor</th>
<th>2010 most limiting yield factor</th>
<th>2011 most limiting yield factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant spacing within row</td>
<td>17.8</td>
<td>18.2</td>
</tr>
<tr>
<td>Disease</td>
<td>15.6</td>
<td>18.2</td>
</tr>
<tr>
<td>Lodging</td>
<td>12.5</td>
<td>13.0</td>
</tr>
<tr>
<td>Birds</td>
<td>10.4</td>
<td>14.3</td>
</tr>
<tr>
<td>Weeds</td>
<td>6.3</td>
<td>3.9</td>
</tr>
<tr>
<td>Insects</td>
<td>5.2</td>
<td>1.3</td>
</tr>
<tr>
<td>Drown out</td>
<td>4.2</td>
<td>-</td>
</tr>
<tr>
<td>Hail</td>
<td>2.0</td>
<td>3.9</td>
</tr>
<tr>
<td>Other (many mentioned population)</td>
<td>12.5</td>
<td>15.5</td>
</tr>
<tr>
<td>No Problem</td>
<td>13.5</td>
<td>11.7</td>
</tr>
</tbody>
</table>

Weed problems in North Dakota and NW Minnesota

The survey indicated that weeds were a limiting yield factor in 6.3% and 3.9% of the fields in 2010 and 2011, respectively. Over 29 common weeds were evaluated in the survey with the various infestation levels recorded. The data in Figure 1 provides the percent of fields found with the major weed species being present in surveys from 2007-2011. It is important to plant sunflower in clean fields and manage weeds throughout the growing season.

Reference

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MALFORMED SEED POTATOES MAY HAVE GLYPHOSATE CARRYOVER

Recently, I have observed emerging and newly emerged potatoes that exhibited growth malformations. These symptoms included multiple sprouts at eyes sometimes forming a ‘cauliflower’ formation, a ‘candelabra’ growth or multiple new shoots from a single potato eye with excessive root growth, swollen shoots that have reduced growth, chlorosis on leaf margins, and auxin-like herbicide injury (such as 2,4-D or dicamba) in the leaves. Seed pieces with this damage are randomly found in the fields, which indicates that is likely something carried over in the seed piece. These injury symptoms point towards glyphosate carryover, but this has not been confirmed. I have sent some samples to a lab to test for glyphosate.

If this is glyphosate carryover, it could be a result of glyphosate drifting onto a seed potato field or the spray tank not being properly cleaned before applying pesticides over-the-top of a seed potato field. Potatoes are sensitive to glyphosate throughout their life cycle, thus glyphosate drift at any time during the potato growing season is of concern. Precaution need to be made to not drift glyphosate when applications to nearby fields occur by using proper spraying techniques and making sure the wind direction is blowing away from sensitive areas.

It is important to scout the fields and be on the lookout for skips and plants with reduced growth and malformed leaves. In the skips, dig up potato seed pieces to see if symptomologies exist. Fields may have a small percent of plants affected, but it is unknown how this will affect yield. Please contact me if you suspect glyphosate carry-over in the seed. I would like to document how wide spread this problem may be to get a better understanding of how this is affecting potato production.
SMALL GRAIN DISEASES

Scattered rains across the state over the weekend and through last night (May 22) will increase the risk of tan spot infection in those areas seeing the most rain. Dew points averaged over 50 degrees in many areas on 5/22, indicating more favorable environment for fungal infection. The small grain disease forecasting site (www.ag.ndsu.nodak.edu/cropdisease) indicates some risk of infection for tan spot in the last few days, as indicated in the table example for Carrington, ND, given below. Please check the site for disease risk at the nearest NDAWN location to you, as the week and crops progress.

Carrington data for flagging growth stage option – accessed on morning of May 23

Infection periods of tan spot, Stagonspora (Septoria) blotch and leaf rust
Interpretation: Yes = infection likely, No = infection unlikely. First, select the date when 50% of the flag-2 (or flag-1) leaves had disease symptoms. Then, consider a fungicide when 6-8 infection periods ("Yes" days) have accumulated.

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</tr>
</thead>
<tbody>
<tr>
<td>Tan Spot</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Blotch</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Leaf Rust</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Weather

Interpretation: Factors that most influence plant diseases are given here to help you mentally adjust for environmental differences between your field and the weather station. More complete environmental information from NDAWN, the latest doppler radar image, and one of many weather forecasting services are linked below.

<table>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Rain (in)</td>
<td>0.62</td>
<td>0</td>
<td>0.01</td>
<td>0.26</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.02</td>
<td>0.07</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RH (%)</td>
<td>69</td>
<td>59</td>
<td>85</td>
<td>73</td>
<td>47</td>
<td>36</td>
<td>45</td>
<td>34</td>
<td>37</td>
<td>35</td>
<td>41</td>
<td>63</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>Temperature (F)</td>
<td>64.4</td>
<td>58.7</td>
<td>51.1</td>
<td>60.6</td>
<td>71.2</td>
<td>66.8</td>
<td>57.0</td>
<td>65.8</td>
<td>65.7</td>
<td>61.3</td>
<td>51.5</td>
<td>57.8</td>
<td>58.9</td>
<td></td>
</tr>
<tr>
<td>Wet period (hour)</td>
<td>10</td>
<td>5</td>
<td>14</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>11</td>
<td>8</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

A trace level of stripe rust was observed in “Mayville” spring wheat by a private company agronomist near Grand Forks this week. This stripe rust infection is confirmed but surprising, considering the heat and relatively dry conditions in most areas up to now. This disease has been common in KS and NE, but has not been reported in ND up until now. (see information below on rust development in KS and NE).

SOUTHERN PLAINS WHEAT DISEASE REPORTS

Wheat has progressed rapidly in Kansas, being in the milk to soft dough stage at Hutchinson, KS (central part of state), as reported by Bob Bowden, USDA-ARS pathologist. The warm, dry weather there has slowed stripe rust development, but leaf rust continues to be severe in winter wheat cultivars such as Jagalene, Jagger, and Overley. Leaves were dying from leaf rust and maturity at this location. In NE, Stephen Wegulo, Extension Plant Pathologist, reports that stripe rust is the most widespread disease on winter wheat flag leaves, but dry and hot weather has slowed its development. He is now reporting wheat leaf rust in central Nebraska, as well.
FUSARIUM HEAD BLIGHT (FHB = SCAB) FORECASTING

Winter wheat is rapidly developing in North Dakota and some may be entering heading stage. Many winter wheat cultivars have considerable susceptibility to leaf diseases, leaf rust, and also Fusarium head blight. As growers consider application of fungicides to flowering winter wheat for management of these diseases, they can estimate the risk of leaf infections at the NDSU Small Grain Disease Forecasting site, as indicated above. This site also has information on risk of Fusarium head blight (FHB) infections associated with weather at the NDAWN weather stations: the flowering growth stage must be chosen.

A broader use of additional weather information is used in the national Fusarium head blight forecasting system, found at www.wheatscab.psu.edu. At this site, the user first clicks on spring wheat, then on cultivar susceptibility level, and then on the state of ND on the map. **As of Wednesday, May 23, the FHB risk for ND is very low across the whole state!**

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ROOT ROTS

I have received questions about the potential for root rot development under dry and warm conditions. Although recent rains have occurred and more rain is in the forecast for some of the state, so there is great variability in soil conditions locally and statewide. In general, root rots are much less problematic in dry conditions than in wet conditions. Some root rot pathogens are not impacted much by dry conditions, while others all but disappear.

Pathogens in the near-fungal group ‘oomycetes’ are inhibited by dry conditions. They have swimming spores that need water to move, to cause infection and for disease to develop or for an epidemic to spread. This group includes pathogens that cause downy mildew on sunflower, phytophthora on soybeans, pythium on many crops, late blight on potatoes, aphanomyces on sugar beets, and other less common diseases.

Root rot pathogens that are true-fungi, such as *Fusarium* and *Rhizoctonia*, are less dependent on moisture to cause problems. For the most part they need some moisture to get going, but soils do not need to be saturated for long periods of time to have problems. Also, warm temperatures are not necessarily inhibitive for disease development. For example, *Rhizoctonia* in sugar beet is minimally active until the soil temperatures reach the mid-60’s °F or greater.

When assessing root rots in dry years another thing to consider is the damage potential. If roots rot pathogens cause infections early in the plants growth stage and the weather becomes very dry, the compromised roots are going to have a much harder time collecting moisture than if the soil was wet. As a result, yield loss can occur from root rots in dry years; but this all depends on the development of the infections earlier in the season.

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NDSU POTATO BLIGHTLINE TO OPERATE IN 2012

The Plant Pathology Department at North Dakota State University will again be providing the potato Blightline service at no charge to the potato industry of North Dakota and western Minnesota in 2012. Based on the amount of late blight found in 2011, there is a good chance that late blight will be present in 2012 if conditions are favorable. The NDSU Blightline is the first place to go to get the most recent blight updates and management information.

This will be the eighteenth year that this service has been provided by NDSU and sponsored by Syngenta Crop Protection. The hotline uses local weather data collected from weather stations throughout our area to forecast the occurrence and spread of late blight in fifteen non-irrigated and twelve irrigated production areas in ND and western MN. The data is processed by the North Dakota Agricultural Weather Network (NDAWN) and analyzed by a computer program (WISDOM) to forecast when conditions are favorable for late blight to occur.
The forecast information is used by plant pathologists Gary Secor and Neil Gudmestad to make late blight management and fungicide recommendations. The recommendations are made Monday, Wednesday and Friday of each week during the growing season. The first late blight hotline will be Friday June 1st, and it is anticipated that the Blightline will continue through mid-September depending on disease pressure. The Blightline will also be used to confirm reported late blight sightings and serve as clearing house for national late blight information. In addition to late blight forecasting, the hotline also provides cumulative P-values for early blight disease forecasting and management recommendations. Finally, it serves to alert growers of other disease and insect news, as well as posting messages of general interest such as potato field day dates.

The hotline recommendations can be accessed by phone or website. The toll free phone number is 888.482.7286

The NDAWN website for potato disease forecasting contains colored maps of ND to pictorially illustrate the late blight severity values (both two day and seasonal), favorable day values and P-day values for early blight throughout ND. That site is: www.ndawn.ndsu.nodak.edu Go to applications and then click the potatoes drop down box.

Current and archival information on late blight and other potato diseases, and research trial data, can also be found at http://www.ndsu.edu/potato_pathology

You can also connect to the latest blight hotline news and message update reminders by text messaging type BLIGHTND to 97063, or on Twitter follow @SyngentaSpuds.

Growers and scouts are encouraged to send suspect late blight samples to us for positive identification. Late blight is a community disease and proper identification and prompt notification is important. Leaf samples should be placed in a slightly inflated zip-lock plastic bag without a wet towel and sent to:

NOTE new mailing address: Gary Secor, NDSU Dept 7660, PO Box 6050, Fargo, ND 58108. Our phone number is 701.231.8362 and email address is gary.secor@ndsu.edu. We wish you a successful potato year.

ANOTHER WEED OF THE YEAR

Below an observant and studious disciple of the ND weed guide makes some suggestions to improve its utility. Answer to this weed in question is listed below.

“Just a thought for the next weed of the year….. foxtail barley. We have been getting inquiries from many folks so far this year (dealers and consultants).”

Response: We have included foxtail barley control options on page 13 in the weed guide. Intuitively folks would go to the back the of the weed guide to the weed rating sections and might not know of the information on page 13. We have received several questions at extension meetings this winter about foxtail barley control. It is certainly increasing.

“Some folks would like to see the previous Weed of the Year included in the weed guide, as they continue to deal with those problems still. So in the 2013, you might include the 2012, 2011, 2010, etc. That would make this publication even more popular than it is right now! Just a thought.”

Response: Several others have suggested the same thing. We are trying to keep the weed guide from increasing in size. As a temporary option for this suggestion we have posted all the previous Weed of the Year information on the NDSU Weed Science web page (listed on the front cover of the weed guide).
WILD CUCUMBER CONTROL

I have received some questions about wild cucumber control. It is a vining type perennial that grows stems each spring from a huge underground woody root (about the size of a volleyball or bigger). Stems vine around anything with the aid of tendrils. Leaves are lobed with the characteristic five lobes per leaf. Fruit of this plant have spiny pods about the size or smaller than a golf ball. The plant is found in shelterbelts, fence rows, and roadsides.

Wild cucumber is extremely tolerant to 2,4-D. Wild cucumber can be controlled with the following herbicides, however, realize that with any perennial weed it cannot be killed with just one application of anything. Herbicides for control: Glyphosate at 1.5 lb ae/A or a 0.5 to 1% solution, Tordon at 0.5 lb ae/A or a 0.5% solution, Dicamba at 1 to 2 lbs ae/A or a 1% solution, Triclopyr ester at 1 lb ae/A or a 0.5% solution, or Crossbow at 2 qt/A or a 1% solution. In my notes I have that a 3-way of Harmony Extra + 2,4-D + dicamba also controls wild cucumber but this is probably anecdotal observation.

EXCELLENT WEED ID RESOURCE

The Michigan State University IPM Program has collaborated with weed scientists Wesley Everman, Christy Sprague, Steven Gower and Robert Richardson to post “An IPM Pocket Guide for Weed Identification in Field Crops” online in pdf format. Weeds can be located in listings by common or scientific name as well as identifying characteristics.


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WEED CONTROL REMINDERS FOR SUGARBEET GROWERS

Thank you to those growers and dealers that have already applied herbicides to sugarbeet that are only at the 2 to 4-leaf stage. This is an excellent start however the season is not over! Scout all fields 5 to 10 days after the initial herbicide application and all later applications to determine the effectiveness of the treatment. I have seen and have received calls about weeds surviving the initial glyphosate application in sugarbeet, especially waterhemp. If glyphosate alone was applied and waterhemp plants are the only weeds surviving, then they are likely resistant and must be controlled quickly if only using herbicides. If surviving waterhemp plants are found at 5-7 days after a glyphosate application apply the following herbicide mixture: Betamix (24 fl oz/A or as high of rate you comfortably will accept crop injury) plus Nortron (4 fl oz/A) plus Outlook (21 fl oz/A) [best option, especially if dry] or Dual Magnum or Cinch (1.5 pt/A) [can be similar to Outlook if enough rain is received] plus MSO (1.5 to 2.0 pt/A) [this is not required if using higher rates of Betamix, using Outlook (because of a higher oil content than Dual Magnum), and/or applying early in the morning on warm to hot days]. If surviving waterhemp plants are discovered > 10 days after application, then apply the mixture above and include the remaining amount of glyphosate prior to the 8-leaf sugarbeet stage. If waiting later and including the glyphosate and a MSO is included in the mixture, then use one of the following MSO (really a MSO based HSOC) products: Cide Winder, Destiny HC, Savvy, Loveland’s MSO Concentrate with Lecitech Technology or some similar product. A total of 1.96 pounds acid equivalent/A (lbs ae/A) of glyphosate can and should be applied at or before the 8-leaf sugarbeet stage. Therefore if a grower applied Roundup PowerMAX at 32 fl oz/A or a 3.0 lb ae/gal glyphosate formulation at 48 fl oz/A in the initial application, then Roundup PowerMAX and a 3.0 lb ae/gal glyphosate formulation can be applied at 24 and 35.6 fl oz/A, respectively before the 8-leaf sugarbeet stage.

If glyphosate was applied alone to Roundup Ready sugarbeet in the initial application and common or giant ragweed survived, then mix Stinger at 4.0 fl oz/A with the greatest legal rate of glyphosate prior to the 8-leaf sugarbeet stage. Scout fields 10 days after application to determine the need for additional glyphosate applications containing Stinger at 4.0 fl oz/A.
HERBICIDE RESISTANCE IN WATERHEMP IN MINNESOTA AND NORTH DAKOTA AND MANAGEMENT IN SUGARBEET, CORN, AND SOYBEAN

Glyphosate-resistant waterhemp continues to increase and spread in Minnesota and North Dakota based upon recent greenhouse testing. Prior to the 2011 growing season, glyphosate-resistant waterhemp was confirmed present in the following counties: Renville, Swift, Traverse, and Yellow Medicine in MN and Richland in ND. After the 2011 growing season, glyphosate-resistant waterhemp was recently confirmed present in the following additional counties: Clay and Wilken in MN and Cass, Ransom, and Triall in ND. Glyphosate-resistant waterhemp is highly suspected to be present in the Red River Valley south of Nielsville, MN, throughout central and southern MN, and in Ransom County North Dakota.

Based upon additional greenhouse research, multiple resistant waterhemp was confirmed present at least near Holloway, MN (Swift County). In at least one field, waterhemp was confirmed resistant to glyphosate (Group 9), PPO-inhibiting herbicides (Group 14), and ALS-inhibiting herbicides (Group 2). Consult Table X1 (pages 104 and 105) in the 2012 North Dakota Weed Control Guide to know which herbicides are grouped within these herbicide mechanisms/modes of action. Multiple resistant waterhemp is believed to be present in other fields in MN and ND, but have not been confirmed resistant at this time. To reduce the selection of multiple resistant waterhemp, apply the most effective postemergence herbicides in a mixture to small (< 2”, < 1” in sugarbeet) waterhemp plants in all crops and try to apply during the best weather conditions.

Consult page 133 in the 2012 North Dakota Weed Control Guide for the best herbicide options to control waterhemp in sugarbeet, corn, and soybean. In addition, consult the Relative Herbicide Effectiveness Tables (pages 116 to 121) in the ND Weed Control Guide for control of waterhemp.

If ANY waterhemp plants remain after all herbicide applications during the growing season in all crops, please remove them by hand and/or with row cultivation. No weed seed production should be permitted in any field where herbicides were applied, otherwise herbicide resistant weeds will only increase in frequency and level of resistance!

DIRT/DUST ON WEED LEAVES LIKELY WILL REDUCE ACTIVITY OF SOME HERBICIDES

With the hot, dry, and windy field conditions in the last few weeks, dirt and dust has been deposited upon leaves of weeds. In addition the hot and dry weather has caused weeds to be stressed and plant growth has been reduced. In both situations all postemergence herbicides may not control weeds as effectively as compared to the last few years during cooler and wetter conditions. Consult last week’s article by Rich Zollinger concerning the impact of hot and dry conditions on herbicide effectiveness. A reduction of herbicide activity due to dust and hot and dry conditions is not observed equally across all herbicides. Herbicide activity is most negatively affected by dust/dirt on leaves of weeds with the following herbicides: glyphosate (Roundup), Liberty, and Gramoxone. The best way to reduce this problem is to allow a rain shower to wash the dirt off the leaves, however, that may take too much time. If dry conditions persist, go ahead and apply the herbicides to the smallest possible weeds and scout to determine the effectiveness of the herbicide application to determine the next strategy if weed control is reduced. Reducing the travel speed of the sprayer during dry conditions will reduce additional deposition of dirt/dust onto weed leaves during the herbicide application.
around the state

South-Central ND

According to NDAWN (North Dakota Ag Weather Network) data, the region received 0.03 inches (Oakes) to 1.2 inches (Jamestown) during the past week (May 6 to 23). The recent rain was welcome and currently soil moisture is generally adequate throughout the region.

Winter wheat is in the flag leaf stage or beyond – heading will soon occur! Spring wheat and barley seeded during the first half of April is in the tillering stage (3- to 5-leaf). Corn planted during the last week of April is in the 2-collar stage. Soybean acres are planted and fields planted during the first week of May have plants in the unifoliate stage. Dry bean and sunflower planting continues and should easily be completed by the end of May with cooperative weather. Post-emergence application of herbicides (plus tank mixtures of fungicides and insecticides) in small grain is in progress. Weed populations generally are abundant this season, so first application of post-emergence herbicides in early planted corn is recommended to maintain yield potential.

In-furrow liquid fertilizer for dry bean

NDSU does not recommend placing fertilizer in-furrow during dry bean seed planting. The concern is two-fold: seed injury and lack of yield response with starter fertilizer. Research at the NDSU Carrington Research Extension Center during 2009-11 indicates an average pinto bean plant loss of 14% with 4-6 gallons/acre of in-furrow applied 10-34-0 compared to the untreated check. However, averaged across the 3 years of the study, seed yield with the in-furrow 10-34-0 was 24.4 cwt/acre (statistically higher one of three years) compared to 22.3 cwt/acre with the untreated check. Phosphorus levels during the three years of the study ranged from 7-10 ppm (low to medium). Average yield with a 2x0-inch band of starter 10-34-0 in the study was similar (24.0 cwt/acre) to yield with the in-furrow fertilizer placement. The study continues in 2012.

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Southwest ND

Rainfall in southwest North Dakota continues to be highly variable for the week with NDAWN reporting amounts from 0.19 inches (34% of normal) for Beach to 0.52 inches (93% of normal) at Mandan. Producers have reported from nearly an inch at New England to no rain in parts of Bowman and Golden Valley Counties. Hay fields and pasture lands reflect these below normal precipitation patterns with forage growing and low levels. Andrea Bowman, Extension Agent, Bowman County and Lane Hall, Extension Agent, Slope County report alfalfa too short to cut but beginning to bud and flower. Alfalfa growth was greater in areas with more precipitation during the winter and early spring. For example, Jorey Dahners, Extension Agent in Grant County, reported that alfalfa has grown to about 16 to 18 inches.

Nearly all of the corn and 75% of the sunflower has been planted in the area. Rainfall will be needed to get seed in some of the fields to germinate and emerge though where adequate amounts of previous crop residue is present in many no-till systems ample moisture is present for germination. Corn seeded during the May 1 – 8 period of time has emerged. Winter wheat in some fields is beginning to head. Early seeded spring wheat has advanced to five to six leaves. Field pea and lentils are about 5 nodes.
In some of the later planted fields now is a good time to scout to determine reasons for bare areas in the field. Producers are finding wireworms and root rots prevalent though some army cutworms were feeding earlier in some of these patches. Feeding from army cutworm has ceased and treatment time for this pest has past. Some winter wheat and spring wheat fields north of South Heart and south of Richardton have some serious issues with WSMV. It appears in the winter wheat that many of these fields were seeded early; well in advance of the recommended planting window.

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