**What's New**

Updated Handy Bt Trait Table ........................................ 19

**Crops**

Assessing Alfalfa Stands.............................................. 19

Vegetable Crop Update 4/3/15 ......................................... 19

Notes from the ARS Cover Crop Plots................................. 19

**Plant Disease**

Plant Disease Diagnostic Clinic (PDDC) Update................. 21

---

**Updated Handy Bt Trait Table**

Bryan Jensen, UW Extension and IPM Program

Dr. Chris DiFonzo, Field Crop Entomologist from Michigan State University, has updated her Handy Bt Trait Table. I’m sure most of you will find keeping track of Bt traits and their spectrum of control to be confusing at best. Chris has updated two tables that will help considerably. The first table identifies the event name, specific protein(s) expressed and general control spectrum for each trade name. She also breaks down each trait family and identifies specific Bt proteins express, insects controlled or suppressed as well as refuge requirements.

---

**Assessing Alfalfa Stands**

Dan Undersander, Forage Agronomist

Hopefully, most alfalfa will come through the winter in good shape. However, there are some areas where alfalfa will show signs of injury or winterkill due to the lack of snow cover over winter. We expect that winterkill will be spotty and likely occur to a greater extent in fields with low soil pH, low potassium and sulfur and in older stands. So it is important to check individual fields for winter injury and kill to make planting decisions early. Identifying injury without kill will also indicate reduced yield for 2015 and allow consideration of any management changes in the future.

To read the full article click on the link below or scroll down to the end of this newsletter:


---

**Vegetable Crop Update 4/3/15**

The 2nd issue of the Vegetable Crop Update is now available. This issue contains information on fungicide registration and potato and hop updates. Click here to view this update.

---

**Notes from the ARS Cover Crop Plots**

Liz Bosak, Outreach Specialist, University of Wisconsin-Madison

This past week at Arlington Agricultural Research Station, the pre-season activities increased with fields starting to dry out, deliveries of seed and supplies, and a rush to finish any winter equipment maintenance. A cereal rye cover crop, seeded the first week of September 2014, had shifted from the purple leaf color indicative of winter to the green leaf color of spring (Fig. 1). The next set of photos shows what an oat cover crop, seeded at the same time, looks like after winterkill in early spring (Fig. 2). For more information about cover crops that winterkill and termination methods for those that will survive the winter, see the “Cover Crop Termination” fact sheet at http://wcws.cals.wisc.edu/documents. If you are planning on using cereal rye for forage, please consult the “Cereal Rye Silage after Corn Silage” fact sheet at http://wcws.cals.wisc.edu/documents, to determine whether the rotational restrictions for your herbicide program have been satisfied. There is also a fact sheet discussing herbicide rotational restrictions for spring-seeded forages after corn silage. For a complete listing of University of Wisconsin-Extension resources, please visit the Wisconsin Cover Crops website at http://fyi.uwex.edu/covercrop.
Figure 1. Cereal (winter) rye, *Secale cereale*, cover crop on April 3, 2015 at Arlington Agricultural Research station.

Figure 2. Oat, *Avena sativa*, cover crop on April 3, 2015 at Arlington Agricultural Research station.
Plant Disease Diagnostic Clinic (PDDC) Update
Brian Hudelson, Sean Toporek and Joyce Wu

The PDDC receives samples of many plant and soil samples from around the state. The following diseases/disorders have been identified at the PDDC from March 28, 2015 through April 3, 2015.

<table>
<thead>
<tr>
<th>PLANT/SAMPLE TYPE</th>
<th>DISEASE/DISORDER</th>
<th>PATHOGEN</th>
<th>COUNTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRUIT CROPS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pear</td>
<td>Sphaeropsis Canker</td>
<td>Sphaeropsis sp.</td>
<td>Waupaca</td>
</tr>
<tr>
<td>VEGETABLES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potatoes</td>
<td>Common Scab</td>
<td>Streptomyces scabies</td>
<td>Oneida</td>
</tr>
<tr>
<td>Spinach</td>
<td>Fusarium Wilt</td>
<td>Fusarium oxysporum</td>
<td>Dane</td>
</tr>
<tr>
<td></td>
<td>Root Rot</td>
<td>Pythium sp.</td>
<td>Dane</td>
</tr>
</tbody>
</table>

For additional information on plant diseases and their control, visit the PDDC website at pddc.wisc.edu.
Assessing Alfalfa Stands

Dan Undersander

Hopefully, most alfalfa will come through the winter in good shape. However, there are some areas where alfalfa will show signs of injury or winterkill due to the lack of snow cover over winter. We expect that winterkill will be spotty and likely occur to a greater extent in fields with low soil pH, low potassium and sulfur and in older stands. So it is important to check individual fields for winter injury and kill to make planting decisions early. Identifying injury without kill will also indicate reduced yield for 2015 and allow consideration of any management changes in the future.

How do we identify injured and killed alfalfa early?

- **Slow or no “green up” in all or portions of the field.** Look for portions of the field that are green while other areas remain brown. In the fall, energy reserves are stored in the roots and crown buds are formed. The reserves provide energy for the plant during winter and for spring growth of shoots from crown buds. Injury can destroy the roots and crowns but often some crown buds survive and slowly regrow; however, this may be limited to only a few per plant and these may be stunted or chlorotic (yellow).
- **Uneven regrowth.** Damage to several of the crown buds during the winter will create uneven regrowth as the surviving buds begin to grow and the plant begins to regenerate new crown buds. Shoots from the regenerated buds will be 3 to 4 inches shorter than shoots from surviving buds. If the plant root has been damaged, some shoots may die.
- **Root damage.** Healthy roots are firm and white. Injured roots are spongy, (yellowish) grey, and dehydrated (ropy). Over time, injured roots will become diseased, rot and turn dark brown. A damaged root cannot sustain crown bud growth.

We recommend the following:

1) First make sure that “dead” spots are actually dead and not just delayed: (Stands can be slow to recover when injured). So don’t be in too much of a hurry to till up a stand until you’ve looked at some roots to determine health
   a) Dig up a few plants and check the top four inches of the tap root for color and turgor. Split the root and crown. A healthy tap root should be an off white (like the inside of a potato) and turgid (not ropy) (see pictures).
   b) Check plants that are putting out small shoots. Sometimes the dying plants will produce shoots one to two inches tall and then die. Again, dig a few plants and look for off-white and turgid taproots.

2) Determine the percentage of field affected and manage to meet your goals: there are several alternatives approaches:
   a) If a small or moderate percentage of the field is affected and you want to harvest forage from the existing stand, go over the affected areas with a drill seeding (10 lb/a) with a 50/50 mix of Italian (annual) ryegrass and perennial ryegrass to a depth of ½ inch.
   b) If a moderate percentage of the field is affected you can immediately interseed Italian ryegrass (10 lb/a), take the first cutting for forage, then spray and seed corn or soybeans into the killed forage. An alternative to this approach is to take two forage harvests and seed oats for fall forage.
   c) If a moderate or large amount of the field is affected seed oats (2 bu/a) and peas (20 lb/a) for haylage harvest. In some regions, corn or sorghum-sudangrass can be planted following the oat-pea harvest.
   d) If a large percentage of the field is affected, seed corn or BMR sorghum-sudangrass before July 1 (20 lb/a). These crops can use the nitrogen credits from alfalfa. Corn will likely produce the most tonnage of any forage. Sorghum-sudangrass is a good choice if you expect dry conditions and/or above average temperatures. Alfalfa can be seeded into a different field at 12 lb/a either alone or in mixture with grass (e.g. 6 lb/a tall fescue and 2 lb/a Italian (annual) ryegrass).

A stand of alfalfa releases auto-toxic compounds into the soil that inhibits alfalfa regrowth. How long these compounds remain is a function of soil type, temperature, amount of rainfall, and time from tillage to reseeding. These compound residues affect only alfalfa and will reduce future yield up to 60% if reseeded within one year of killing the stand and 15 to 20% if reseeded in 1 to 2 years on medium to heavy soils.

Where producers are making decisions for the long term they should use stem counts to estimate future yield potential. Stand yield potential based on stem densities per square foot can be assessed in the following manner:

- **Greater than 55** stems indicates density will not be a limiting factor,
- **Between 40 and 55** stems indicates some yield reduction but fields may be adequate in years of low inventories and high value,
- **Fewer than 40** stems indicate a poor stand and consideration for termination.

A stand can be slow to recover when injured. So don’t be in too much of a hurry to tear it up until you’ve looked at some roots to determine health. If surviving plants are injured, but have adequate stem density (40 to 50 stems/ft²), it’s probably best to plan to push the stand to get the most out of it this year then to plan to terminate after this growing season. If most surviving plants look reasonably healthy (i.e. losses were spotty across the field) you might consider inter-seeding a mixture of annual forages (i.e. Italian ryegrass or oats) and perennial (grass) forages to stretch the stand beyond this year.
Injured and dying plant on left (yellow taproot below crown) and healthy plant on right

Dead plants with dehydrated, yellow-brown area below crown