**Vegetable Insects** - Joanne Whalen, Extension IPM Specialist; jwhalen@udel.edu

Cabbage.
Along with diamondback and imported cabbageworms, be sure to sample carefully for thrips activity on susceptible varieties. A treatment is recommended if 20% of the plants are infested. On highly susceptible varieties, a treatment should be applied as soon as populations start to increase, and before they have moved deep into the wrapper leaves. Capture, Spintor or Warrior has provided control.

Cucumbers.
Both pickles and slicers should be watched for increases in aphid and cucumber beetle populations. Fresh market cucumbers are very susceptible to bacterial wilt vectored by cucumber beetles. Although pickling cucumbers grown in high-density rows can compensate for about a 10 percent stand loss, beetle feeding can reduce plant growth. If moderate feeding can be found on the cotyledons and/or the first true leaves and there is a history of bacterial wilt on your farm, a cucumber beetle spray should be applied. Actara, Thiodan, a pyrethroid or Lannate will provide control. A treatment should be applied if 10 to 20 percent of the plants are infested with aphids. Actara, Thiodan or Lannate will provide aphid control.

Melons.
Economic levels of cucumber beetles, aphids and spider mites continue to be found. As vines begin to run, be sure to sample carefully for spider mites. The threshold is 20-30% infested crowns with 1-2 mites per leaf. The treatment threshold for aphids is 20% infested plants with at least 5 aphids per leaf. Agri-Mek, Kelthane, Danitol or Capture will provide spider mite control. Actara, Fulfill, Lannate and Thiodan are the labeled on melons and will provide melon aphid control. Actara, Lannate and Thiodan will also provide cucumber beetle control. Capture will provide cucumber beetle and spider mite control. We have had reports of high levels of thrips reducing plant growth. Although no thresholds are available for thrips damage on melons, a treatment may be needed if plant growth is significantly reduced. Capture, Dimethoate, or Lannate should help to reduce populations.

Potatoes.
Corn borer egg masses continue to be found and the first stem tunneling has been detected. Be sure to check our website (http://www.udel.edu/IPM/traps/latestblt.html) for the most recent moth catches in your area. If trap catches are being used to time sprays, the first application will be needed during the next 7-day period. Ambush, Baythroid, Penncap, Pounce or Spintor will provide control. In general, 2-3 sprays of these materials are needed to provide corn borer control. If you are scouting for infested terminals, the first treatment should be applied when 20-25% of the terminals are infested.
Furadan or Monitor will provide the best control if you are waiting until you see infested terminals. A second spray will be needed if you continue to see an increase in the number of infested terminals. Continue to sample for potato leafhopper adults and nymphs. As a general guideline, controls should be applied if you find ½ to one adult per sweep and/or one nymph per every 10 leaves. A pyrethroid, dimethoate, Actara or Provado will provide control.

### Snap Beans.
We continue to see an increase in leafhopper and thrips activity, especially in seedling stage beans. The thrips threshold is 5-6 per leaflet and the leafhopper threshold is 5 per sweep. If both insects are present, the threshold for each should be reduced by 1/3. Lannate, Asana, Capture, or dimethoate will provide control of both insect pests.

### Sweet Corn.
Continue to watch the earliest planted fields for corn borer larvae. Economic levels have been detected in the earliest planted fields. A treatment should be applied if 15% of the plants are infested. The best timing for a treatment is just as the tassels are emerging from the whorls. In recent years, the best corn borer control has been achieved with Ambush, Pounce, Penncap or Warrior. As soon as ear shanks are present, the first silk sprays will be needed. In Kent County, sprays are needed on a 6-day schedule and in Sussex County sprays are needed on a 5-day schedule.

### Pea Irrigation and Pea Harvest Progress - Ed Kee, Extension Vegetable Crops Specialist; kee@udel.edu
Pea Harvest is probably 15-20% complete and in most fields, yields have been good, some exceeding 4,000 pounds per acre. Maintaining yields as the weather warms will be dependent on adequate rainfall or good irrigation practices. Remember, when peas are in the flowering or pod fill stages, and temperatures are 90 degrees or above, their evapotranspiration rate is 0.25 inches of water per day. Maintaining adequate soil moisture is key to setting and filling out pods.

### Accent for Grass Weed Control in Sweet Corn - Mark VanGessel, Extension Weed Specialist, mjv@udel.edu
Accent was labeled for sweet corn a few years ago. Accent is labeled only for use on processing sweet corn (Bonus, Excalibur, GG-43, GG-55, More, Reward, Viking and Zenith only varieties labeled). Accent can not be used on sweet corn that was treated with Counter due to crop injury. We tested Accent on Bonus and observed some yellowing and stunting, but yield was not reduced. My caution when using Accent on sweet corn, even labeled varieties, is to expect some injury, and should only be used when grasses are a severe problem. The label recommends the addition of nitrogen, but this is liable to further increase injury.

### Vegetable Diseases - Bob Mulrooney, Extension Plant Pathologist; bobmul@udel.edu

### Potatoes.
#### Late Blight Advisory

**Disease Severity Value (DSV) Accumulations as of May 29, 2002, are as follows:**
Location: Joe Jackewicz Farm, Magnolia, DE. Greenrow: April 10, 2002

Remember that 18 DSV’s is the threshold to begin a spray program for late blight.

<table>
<thead>
<tr>
<th>Date</th>
<th>Total DSV</th>
<th>Spray Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/1</td>
<td>12</td>
<td>None</td>
</tr>
<tr>
<td>5/11</td>
<td>19</td>
<td>5 days, low rate</td>
</tr>
<tr>
<td>5/19</td>
<td>23</td>
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<tr>
<td>5/22</td>
<td>23</td>
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</tr>
<tr>
<td>5/27</td>
<td>27</td>
<td>10 days, low rate</td>
</tr>
<tr>
<td>5/29</td>
<td>30</td>
<td>7 days, low rate</td>
</tr>
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</table>

Potatoes that have reached greenrow (50% emergence) by April 28 have all reached more than 18 DSV’s. Fields that reached greenrow after May 2 have not accumulated 18 DSV's yet and would not need to be sprayed. Spray recommendations are generated by the Wisdom potato software program.

For this greenrow date and location, we have accumulated 334 P-days as well. P-days are a measure of potato plant growth somewhat similar to growing-degree-days. When 300 P-days have been exceeded, conditions for **early blight infection** are favorable and sprays for early blight susceptible varieties should begin if early blight is expected to be a problem.

Growers should apply at least 1-2 sprays of Dithane or Bravo before plants canopy. Late blight has not been a problem here in Delaware for many years and unless you have seed from an unknown source the risk of late blight is very low.

If **pink rot** or **leak** has been a problem in the past and you did not apply a fungicide in the furrow for control, the first foliar application of Ridomil Gold MZ, Ridomil Gold/Bravo or Fluoronil should be made between when tubers are nickel-sized and flowering then repeated 14 days later. Apply the fungicide in as much water as possible. Try to get some coverage of the soil for root uptake as well. Pink rot generally occurs in poorly drained areas or where water stands due to compaction from spray rows.

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**Vegetable Diseases** - Kate Everts, Extension Vegetable Pathologist, University of Delaware and University of Maryland; everts@udel.edu

**Watermelons.**

From the University of Maryland and University of Delaware

Latest EFI values from local weather stations

Any questions please call (410) 742-8788
MELCAST for Watermelons

EFI Values (Environmental Favorability Index)
Do not use MELCAST if there is a disease outbreak in your field, it is a preventative program.

<table>
<thead>
<tr>
<th>Location</th>
<th>05/31/02</th>
<th>05/30/02</th>
<th>05/29/02</th>
<th>05/28/02</th>
<th>05/27/02</th>
<th>05/26/02</th>
<th>05/25/02</th>
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<td>0</td>
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<td>Charles Co.</td>
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<td>3</td>
<td>6</td>
<td>3</td>
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<tr>
<td>Collins Farms</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
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<td>2</td>
<td>3</td>
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<tr>
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<td>2</td>
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<td>1</td>
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<td>8</td>
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<td>0</td>
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<tr>
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</tr>
<tr>
<td>Hog Creek Rd.</td>
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<td>3</td>
<td>4</td>
<td>3</td>
<td>1</td>
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</tr>
<tr>
<td>Salisbury, MD</td>
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<td>2</td>
<td>2</td>
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</tr>
<tr>
<td>Vincent Farms</td>
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<tr>
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<tr>
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<td>4</td>
<td>8</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

The first fungicide spray should be applied when the watermelon vines meet within the row. Additional sprays should be applied using MELCAST. Accumulate EFI (environmental favorability index) values beginning the day after your first fungicide spray. Apply a fungicide spray when 30 EFI values have accumulated by the weather station nearest your fields. Add 2 points for every overhead irrigation. After a fungicide spray, reset your counter to 0 and start over. If a spray has not been applied in 14 days, apply a fungicide and reset the counter to 0 and start over. The first and last day listed above can be partial days so use the larger EFI value of this report and other reports for any specific day.

If, for some reason, a serious disease outbreak occurs in your field, return to a weekly spray schedule.

More detailed information concerning MELCAST and sample data sheets are available on the web at http://www.agnr.umd.edu/users/vegdisease/vegdisease.htm.

Field Crops

Field Crop Insects - Joanne Whalen, Extension IPM Specialist; jwhalen@udel.edu

Grasshoppers in Field Crops.
As barley is harvested and soybeans are planted, be sure to sample fields at emergence for grasshopper activity. We are starting to see an increase in activity in full season no-till soybeans. As a general guideline, non-crop areas should be treated if you find 20 or more grasshoppers per square yard. In corn and sorghum, a treatment is justified if you find 5-8 grasshoppers per square yard. In soybeans, the threshold is one per sweep and 30 percent defoliation. In all 3 crops, dimethoate, Lorsban, Asana and Warrior will provide control, but multiple applications may be needed. Furadan is also labeled on corn and
soybeans and has also provided good grasshopper control.

Field Corn.
We have received a number of reports of flea beetles feeding on seedling stage field corn. In general, this insect does not cause economic losses in field corn. Although it can vector Stewart's bacterial wilt, most field corn hybrids are resistant to Stewart's wilt. However, if plants are stressed and numbers are high, they can stunt plant growth. A treatment may be needed if 50% of the plants are infested with 5-6 beetles per plant. A pyrethroid will provide effective control. We have also seen an increase in thrips feeding on seedling corn. No controls should be needed for this insect pest unless plants are being severely stunted.

Small Grains.
Continue to sample barley and wheat for armyworm populations. We continue to find fields with economic levels. In general, sawfly activity has peaked and head clipping is done in most fields. The treatment threshold for armyworms on wheat is 2 per foot of row and on barley the threshold is one per foot. On wheat, Warrior, Mustang, Lannate or Parathion can be used. On barley, Lannate or Parathion can be used. Warrior has a 30-day wait until harvest, Mustang a 14-day wait, Parathion a 14-day wait and Lannate a 7-day wait.

Field Crop Diseases
Bob Mulrooney, Extension Plant Pathologist; bmul@udel.edu

Field Corn.
Pythium root rot has been diagnosed on field corn seedlings. This fungus disease causes yellowing and stunting in irregular areas in the field, especially poorly drained areas. Cool conditions slow germination and emergence allowing more time for the fungus to kill the seedlings. Cool, wet soils favor the fungus. Pythium is worse in poorly drained, or high water table areas, where corn is planted continuously and in no-till. Pythium causes a cortical rot of the roots and destroys the feeder roots, which causes the stunting and yellowing. Hopefully the return of warm weather will turn some plants around, but stand reductions occur. The ultimate control is to improve soil drainage, and treat seeds with fungicides for Pythium. In problem areas of the Mid-West growers apply Ridomil Gold in a band over the row at planting to control Pythium.

Grain Marketing Highlights - Carl German, Extension Crops Marketing Specialist; clgerman@udel.edu

First Corn Ratings Get Market's Attention
With 85% of the nation's corn crop planted, USDA reported on May 28th that 4% of the corn was called very poor, 13% poor, 40% fair, 38% good, and 5% excellent. The Eastern Corn Belt states of Illinois, Indiana, Kentucky, Michigan, Ohio, and Pennsylvania had a combined value of 306, the lowest rating for the region in 17 years. Emergence continues to be a problem with this year's emergence in the ECB at 35% versus last year's 92%. It is important to note that the correlation between weekly crop condition ratings and final yield this early in the season is very slight. However, when one takes into account the low levels of world corn stocks and weather developments in the corn belt continuing to be a mixed bag, Dec (new crop) corn futures have room to go higher.

International Grains Council Increases World Coarse Grain and Wheat Production Estimates
World coarse grain output is forecast at 911 million metric tons, up 23 mmt from 2001/02. That is just 3 mmt shy of the world record set in 1996. Simultaneously, the IGC is forecasting a continued rise in demand, up 14 mmt. Reasons given for the increased demand were the accelerating global economic growth for grain for
animal feed and the use of corn for ethanol production in the U.S.

**Still No Word on Loan Rates for Delaware**

As FSA program specialists are receiving training this week on implementation of the new farm bill, there are a few highlights that will pertain to grain marketing that we need to place in our tool chest. First, all production is eligible for the loan program and, therefore, loan deficiency payments (LDP) or marketing loan gains (MLG) can be collected on all bushels, up to $75,000 limit. However, the direct payments and the counter-cyclical payments are paid on just 85% of base acreage for each crop times the base yield. If actual acreage and/or yield is greater than the base, more than 15% of the crop will be eligible for these two important program benefits. To further complicate things, updated program yields will not be used to calculate direct payments, just counter-cyclical payments. The bottom line on this new information is that 'target prices are not a guaranteed price', as they were in year's past due to de-coupling of some payments from production and the method used in determining program bases, the target price is nothing more than a number used to calculate other possible payments. This makes it perfectly clear that one needs to pay strict attention to the loan rate in making grain marketing decisions.

**Marketing Strategy**

Due to the price risk involved in selling commodities too cheap and the possibility that if prices rise, then payments evaporate, we continue to sit tight on advancing new crop sales for 2002 corn, wheat, and soybean production.

**Triazine-Resistant Pigweeds and Lambquarters in Field Corn** - Mark VanGessel, Extension Weed Specialist, mjv@udel.edu

Fields with triazine-resistant pigweed and lambquarters are starting to show up in a number of fields. A few options to consider are Banvel/Clarity/Distinct, 2,4-D, NorthStar, but all of these can be volatile and should not be used in the vicinity of sensitive crops. Callisto and Harmony GT are two products that are quite effective on both of these species, but should not be used if Counter insecticide was used at planting.

**Cultivation and Postemergence Herbicide Treatment** - Mark VanGessel, Extension Weed Specialist, mjv@udel.edu

Questions have come in about whether to cultivate first or spray first for weed control. Keep a few things in mind. Weeds are easier to control when they are small but consider which option is going to be more effective when weeds get larger. Cultivation will control the weeds between the rows but not in the row. Those weeds in the row are the ones you need base your decision on whether to spray first. More often than not, it is better to spray first then cultivate. Also, weeds not completely killed with cultivation are more difficult to control with herbicides. **Note this assumes that the herbicide is the right herbicide for the weed(s) in your field.** The weeds that emerge after cultivation are going to be much smaller and have a less impact on yield (if any impact at all). Setting your cultivator so it runs only 1 to 2 inches deep will slice through the weeds and not disrupt the herbicide layer from your preemergence herbicides. This in turn will limit the number of weeds that will emerge due to cultivation. It is generally recommended to wait a minimum of 5 to 7 days between herbicide treatment and cultivation.
Hot Weather and Volatility with Dicamba and 2,4-D - Mark VanGessel, Extension Weed Specialist, mjv@udel.edu

With the warm weather we have been having, spraying postemergence herbicides in early planted corn may require additional consideration because of the temperature. It is not recommended to spray dicamba or 2,4-D when the temperature is expected to be 85 degrees or hotter; or spray late in the day when temperatures drop below 85. A number of pre-mixes have dicamba (active ingredient in Banvel and Clarity) including, Distinct, Celebrity Plus, Marksman, and NorthStar so the temperature consideration applies to them as well. Shotgun is a pre-package mixture of 2,4-D and atrazine.

Spray Drift Retardants Not As Effective as They Appear - Mark VanGessel, Extension Weed Specialist, mjv@udel.edu

We conducted a two-year study funded by the Delaware Soybean Board to evaluate the effectiveness of drift retardants (or drift control agents). We planted soybeans and grain sorghum in adjacent plots and sprayed the soybeans with Roundup Ultra. We used an air-blast sprayer to generate a 12 to 15 mph wind blowing towards the sorghum and evaluated the sorghum for injury. From our conclusions, the use of drift retardants cannot be justified for reducing spray drift under windy conditions. Particle drift, as measured by water sensitive papers and the resulting injury to grain sorghum planted adjacent to the sprayed area, was not lower with the addition of three different spray retardants when applied in 15 mph wind. Spray retardants did not reduce weed control with Roundup Ultra. However, the additional costs to prevent spray drift under these conditions with the three drift retardants could not be justified.

Yellowed Newly Emerged Corn - Richard W. Taylor – Richard W. Taylor, Extension Agronomist, rtaylor@udel.edu, Carl P. Davis, Extension Ag Agent, New Castle County, cpdavis@udel.edu

It’s an unusual year when you find yourself talking about frost damage at the end of May. Last week’s cold front produced as much as three mornings with the potential for frost damage to corn and possibly even to soybeans.

In most cases, we were lucky that temperatures stayed above the lethal cold temperature level of 28° F. Where we observed damage, it was simple frost damage that injures a leaf or leaves or even all the above ground vegetative material but does not generally injure the growing point. In corn, the growing point remains below ground until about the 5-leaf collar stage. In this manner, the growing point is reasonable protected from the effects of frosts although a hard freeze (temperatures below 28° F.) can still kill the growing point.

First in soybeans even though young soybean plants are thought to be as sensitive as corn, we’ve seen time and again where nearby corn has been killed back to ground level and even sometimes killed outright, but soybeans in the same area remained untouched. In this last frost, we again did not note damage to soybeans although areas downstate were hit harder and should be closely observed for frost damage to soybeans. Keep in mind that if soybeans are damaged, the growing points are all above ground at the terminal and in the axil of each leaf. If these points or buds are killed (or removed by grazing deer or insects feeding) to below the cotyledons, the plant will die. Unlike corn, killing the above ground portion of soybeans will result in an immediate loss of stand and if significant enough to warrant replanting, that decision can be made immediately.

A number of corn fields were damaged by last week’s frost. The damage ranges from plants with portions of a leaf or two killed to the entire above ground biomass turning necrotic to black. The
first two photos show no-till corn with this range of injury. The last photo compares two plants to show how the growing point of a severely injured plant is still alive and growing.

Photo 1. The second, third, and half of the fourth leaf of a corn plant in no-till is frosted. Behind several plants show most of the top growth killed. Photo by R. Taylor.

Photo 2. All but the center of the whorl (regrowth since the frost) was killed by late May frost. Photo by R. Taylor.

Photo 3. On left, the below ground growing point in frosted corn is still green and healthy and on the right frost injury to the first three leaves and then just the leaf tips of the next three leaves including the just emerging leaf seen in the center of the whorl. Photo by R. Taylor.

In most areas, temperatures remained above the lethal temperature, so the corn will recover with no real yield loss. With the week or more that’s passed since the frosts, you should be able to see evidence of renewed leaf growth.

Yield loss will generally be related primarily to the degree of stand loss and not to the amount or severity of leaf damage. Also in many cases only the natural frost pockets were affected so the potential field-wide yield loss even with significant stand loss will be small. Each grower with affected corn will need to make a determination as to the amount of potential stand and yield loss.

Where did the frost damage occur? We often see it in no-till fields since the colder soil temperatures seem to allow a greater chance for cold air to collect above the field. Another factor involved in frost location is whether the field has recently been cultivated. Very often we can tell right to the row where one stopped cultivation when frost occurs. Of course, the natural frost pockets or lower areas where cold air flows into
and collects and fields that are protected from wind also have a higher frequency of frosts. Dark or black soils will radiate more heat and are prone to frosts. Another area affected is the corn located near grass waterways which seem to act as barriers to hold the cold air over the corn planted right up against the waterway.

Lastly, is it worth taking the mower out and mowing off the killed tops? Mowing frost-damaged corn to encourage recovery is rarely justified as the crop will recover on its own in almost all cases. If regrowth is not evident after 5 days, you should check to see if the growing point is still alive. If enough plants are dead to significantly reduce the stand in a large area, you may be justified in replanting. Because of the reduced yield potential with replanting corn this late and the expense involved, it often is not justified unless stand reductions of over 50 percent are present.

Ag Fact

What is an acre?

43,560 square feet, or approximately an area 208 feet by 208 feet. How did anyone arrive at this? An acre represents how much ground could be plowed in a day with a team of two oxen. It dates back to the middle ages in England.

Weather Summary

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<tr>
<th>Weather Summary</th>
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<td><strong>Week of May 23 to May 30, 2002</strong></td>
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<tr>
<td><strong>Rainfall:</strong> None.</td>
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<tr>
<td>Readings taken for the previous 24 hours at 8 a.m.</td>
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<td><strong>Air Temperature:</strong></td>
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<tr>
<td>Highs Ranged from 88°F on May 26 to 70°F on May 25.</td>
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<tr>
<td>Lows Ranged from 62°F on May 27 to 41°F on May 23.</td>
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<tr>
<td><strong>Soil Temperature:</strong></td>
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<tr>
<td>76°F average for the week.</td>
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<tr>
<td>(Soil temperature taken at a 2 inch depth, under sod)</td>
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</tbody>
</table>

Web Address for the U of D Research & Education Center: http://www.rec.udel.edu

Compiled and Edited By:

Tracy Wootten
Extension Associate - Vegetable Crops

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