The Weekly Schedule Begins on April 1

Issue 1 of the Weekly Crop Update is a sample of the information you will receive each week with a subscription or access via the internet. The newsletter is designed to provide subscribers with the latest information on disease and insect problems as they develop, timely weed control information, crop progress reports, and other topics related to agronomic and vegetable crop production in Delaware. University of Delaware Extension Specialists and Agents provide information for the newsletter.

The weekly issues will begin on April 1, 2005 and continue through September 30th. The Weekly Crop Update is posted on the web, and sent to mail and fax subscribers each Friday. As in past years, the cost of mail or fax subscription is $30. You can subscribe by returning the form at the back of this issue.

Crop Update is also available for free online at the following address: http://www.rec.udel.edu/TopLevel/Publicat.htm For those of you who access the newsletter via the internet we offer to send a weekly email reminder which will let you know when the WCU has been posted online and give you a taste of the headlines. If you would like to receive the email reminder or if you experience problems during the season with the online WCU please contact me at Emmalea@udel.edu or (302)-856-7303.

Soybean Rust Update

Approximately 330 people attended Extension-conducted meetings on Asian soybean rust this winter. Growers and fieldpersons have also taken advantage of industry-sponsored meetings and educational materials on the web. We will attempt to keep you updated this season with timely information in the Weekly Crop Update.

Alerts:

Asian soybean rust was found for the first time in 2005 on kudzu near Dade City, FL in Pasco County north of Tampa. Apparently it has overwintered there, but presently is not known to occur elsewhere. The discovery was made Feb. 23 and confirmed a week later. There had been some question as to whether SBR would overwinter in the U.S. this year, because all the areas that had been infected in November and December received killing frost. However, it looks like we have an answer to this question as the disease did infect and overwinter on kudzu in south Florida where frost does not occur, or occurs sporadically. This means that we will probably have to deal with SBR this season.

Delaware just received section 18 approval for the triazole fungicide Domark (tetraconazole) for control of soybean rust. This fungicide from Valent is labeled at the rate of 4-6 fl. oz/A. When the DDA receives the new label we will post links for all the section 18 fungicides on our Extension Plant Diagnostic Lab Site- http://ag.udel.edu/extension/Information/pdc/PDCindex.htm
General Information

**Insect Control Update - Joanne Whalen, Extension IPM Specialist; jwhalen@udel.edu**

As we start the 2005 season, remember that pesticide labels are always changing so it is important to read all labels before applying any pesticide. In some cases, the labels you find on line or even in label books may not be the most recent label or may have changed after printing. Therefore, you always need to use the label that is on the pesticide container. Since the label is the law, it is important to always read the label and follow those directions and restrictions before making any applications. If you are applying a pesticide under a special label (including Section 18’s, Special Local Need 24C’s or 2ee) then you must also have those labels with you at the time of application.

As a result, there will always be changes and corrections that did not make it to our recommendation books. The following are comments on revisions/changes/deletions that need to be made to the 2005 Recommendation Books under Insect Management. This is not intended to be the entire list of changes; therefore, you still need to read all labels before applying any pesticide.

Diazinon - After conversations with EPA last fall and again in recent weeks, here is what I have been told regarding diazinon use in 2005.

Seed Treatments for Vegetable and Field Crops: Seed treatments containing diazinon can be used at least through the end of 2005 under the old labels. The new labels, which need to be submitted this month, will no longer have diazinon on the label as a seed treatment. If you have it in your possession, you should be able to use your existing stocks under the old labels. However, I continue to receive new information so we will keep you posted. These changes will apply to all the hopper box formulations including Diazinon 50W.

Under Seed Treatments in the Vegetable and Field Crop Books: Agrox DL and Germate Plus should be deleted under sweet corn and field corn.

A long list of additional diazinon label changes will also occur this month so it will be important to check the new labels.

**Vegetables**

**Vegetable Crop Insect Control - Joanne Whalen, Extension IPM Specialist; jwhalen@udel.edu**

Cucurbits - The following are a few changes you will find in the 2005 Vegetable Recommendation Book as well as some notes on label specifics:

**Guthion** is no longer labeled.

**Actara** is no longer labeled.

**Vydate L** - The label to apply Vydate through the drip is a 2ee label from DuPont and it expires Dec. 31, 2005. It is only labeled for leafminer control and root knot nematode suppression. [link](http://www.cdms.net/ldat/ld264022.pdf)

**Acramite 24C Label for Aerial Application** - At this point, this label only applies to Delaware and Virginia; however, Maryland also plans to submit for this label and should have it in time for the 2005 season. Some changes to the 24C label (already on the Full Section 3 label) include drift language and a 30 day rotational restriction to non-labeled crops. Please read the label for all the specific information. [link](http://www.cdms.net/ldat/ld4TA006.pdf)

**Platinum**— Syngenta just issued a 2ee label which added early season cucumber beetle control for cucurbit vegetables [link](http://www.cdms.net/ldat/ld55K015.pdf)
Peppers - The following corrections and clarifications should be noted in the 2005 recommendations:

Orthene 97 on Non-Bell Peppers - The label states that the maximum rate on non-bell peppers is $\frac{1}{2}$ pound (8 oz) per acre per application and a maximum of 1.0 lb per acre/season. This is the aphid rate so European corn borer control is not listed for Non-Bell Peppers. **Therefore, under European corn borer control the rates listed are for Bell Peppers only.** In addition, under green peach aphid the same maximum rate applies for non-bell peppers.

Avaunt 30WDG for European Corn Borer Control - This label is a 2ee label from Dupont for *Bell Peppers* only and it expires on Dec 31, 2005. It should be noted that the label also states that “for best results begin applications of Avaunt following two applications of an organophosphate insecticide labeled for European corn borer in bell peppers such as acephate (e.g. Orthene).” Avaunt is labeled for beet armyworm and loopers on bell and non-bell peppers. [http://www.cdms.net/ldat/ld4BD016.pdf](http://www.cdms.net/ldat/ld4BD016.pdf)

Pea Planting and Weed Control Programs - *Ed Kee, Extension Vegetable Specialist; kee@udel.edu*

Peas were planted as early as February 18, but as we roll into March and catch some dry weather, planting will hit full stride. We planted our early variety trial at the Research & Education Center on Monday, March 7. A late trial will be planted in April.

Early varieties, which tend to have a more determinant growth habit, and also have to cope with colder soil conditions, should be planted at 24 seeds per yard. The seeding rates of later maturing varieties, many of which branch more, can be reduced to 18 to 20 seeds per yard.

The standard herbicide treatment for much of Delmarva’s acreage is the pre-emergence treatment of Dual Magnum 7.64E at 0.5 pints/acre + Pursuit 70DG at 0.75 ounces/acre. Command is sometimes added at 8 ounces per acre to provide additional grass control and to control velvetleaf and other broadleaf weeds. Command will not control pigweed, but Pursuit and Dual do control it, along with many other grasses and broadleaf weeds.

Growers who will double-crop pickles, any cucurbit crops, spinach or other vegetables need to be aware of residual carry-over from Pursuit that could adversely affect a double-cropped vegetable. If those crops will be planted after peas, then the Pursuit should not be used, and a combination of Command and Dual sprayed as a pre-emergence should be used.

If escaped weeds occur, then post-emergence treatments of Basagran for broadleaf weeds can be used. For escaped grasses, Poast or Assure II can be used. These grass materials should not be tank-mixed with Basagran.

**Fungicide Updates for Vegetables** - *Bob Mulrooney, Extension Plant Pathologist, bobmul@udel.edu*

There have been some welcome fungicide additions for 2005. More information can be found in the 2005 Commercial Vegetable Production Recommendations E.B. 137. Be sure to check the labels on these products for specific use information. This publication can be obtained from any of the county Extension offices in Newark, Dover, or Georgetown at the Research and Education Center on Rt. 9.

Amistar is now labeled on asparagus to control purple spot caused by Stemphylium and to control Ascochyta blight on peas.

Switch is now labeled to control Alternaria leafspot on crucifers.

Previcur Flex and Pristine are now labeled for control of downy mildew on cucurbits and late blight on tomato.

It was an oversight on our part but Curzate was inadvertently omitted for control of downy
mildew on cucurbits and should have been listed.

Acrobat has added control of downy mildew on mustard greens to its label as well as peppers to control Phytophthora blight.

Actigard has received a national label for control of white rust on spinach.

The Endura label now includes control of white mold on potatoes as well.

**Stewart’s Wilt of Sweet Corn**  
*Bob Mulrooney, Extension Plant Pathologist, bobmul@udel.edu*

For control of Stewart’s wilt, which is vectored by the corn flea beetle, it is important to control the corn flea beetle. Plant resistant varieties and control the beetles early. The following index predicts conditions favorable for overwintering flea beetle populations not the abundance of the bacteria. The prediction has its limitations including the influence of snow cover on survival, but indicates that flea beetles should have had no trouble overwintering this year based on temperature, especially downstate. The question always becomes how much bacteria is available for them to spread. It is hard to know how the temperature fluctuations that we experienced this year also affect overwintering.

**Winter Temperature Index For Predicting Stewart’s Wilt in Delaware Sweet Corn, 1995-2005**

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Severity Index: < 90, usually absent; 90-100, intermediate; >100, usually severe.

The index is used to predict overwintering flea beetle populations that vector the Stewart’s wilt bacterium, *Pantoea stewartii*.

**Prediction for 2005**

Newark: 100.7 = Borderline severe- Avg. monthly temp (Dec, Jan, Feb) 33.6 °F  
Georgetown: 110.5 = Severe - Avg. monthly temp - 36.8 °F

Thanks for the data go to Dean Dey at Georgetown and Scott Hopkins, Farm Manger, UD Ag Experiment Station, Newark.
Reminder for Greenhouse Cleanup - Tracy Wootten, Sussex County Extension Agent - Horticulture; wootten@udel.edu

Transplant production time is upon us. Below is a quick check list to run through before you begin your transplants in the greenhouse. Remember, good sanitation is very important in reducing insect and disease problems.

- Remove all debris from the greenhouse, weeds, old boxes, old trays, old soil bags and other items.
- Check plastic covering for any holes and repair.
- Repair benches
- Check your thermostats, fans and heaters
- Pest control for rodents
- Order gas or oil for heating
- Sanitize the greenhouse before crop production. A 10% Clorox solution should be sprayed on all surfaces, benches, floors (stones, weedmats, soil) sidewalls, etc.
- Sanitize any trays you plan to re-use.

Weeds inside the greenhouse harbor insects and diseases. Keeping the inside weed free is very important. Remember the area outside the greenhouse is a source for windblown weed seed to enter the greenhouse. Maintaining a 10-20 foot area around the greenhouse is helpful in reducing the number of weed seeds that will enter your greenhouse. If herbicides are used near the greenhouse, make sure the fans are not running. The fans will pull the herbicide into the greenhouse and cause injury to your crop.

If you plan to use Roundup for weed control in the greenhouse, the house must be empty. Use Roundup before crop production or between crops.

Field Crops

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

Field Corn Soil Insect Management - The new seed applied technology (Cruiser and Poncho) was used on a majority of the acreage in 2004 and provided effective insect management in most cases. The following is a brief review of conditions favoring soil insects, information on the labels and observations from the 2004 season:

I. Corn Rootworm (Larval Control): In addition to soil insecticides and Bt rootworm technology, the following commercial seed applied treatments are labeled for rootworm larvae protection/control:

(a) Cruiser 5FS (thiamethoxam): The label states to provide corn rootworm protection in light to moderate infestations apply Cruiser 5F at a rate of 1.25 mg per kernel.
(b) Poncho 1250 (clothianidin): Commercially applied to corn seed at 1.25 mg ai/seed. Although research results from Virginia in 2003 and 2004 demonstrated control equal to standard soil insecticides (which is also stated in Poncho 1250 literature - http://www.gustafson.com/Poncho/Poncho_1250.asp), reports and research from PA and the Midwest indicate that this material, as well as seed applied technology in general, has not provided adequate rootworm control under heavy pressure.

Since we have not done corn rootworm work in Delaware, the following 2 sites will provide information on Mid-western researchers experience and thoughts concerning commercial applied seed treatments for corn rootworm control.
http://www.ag.uiuc.edu/cespubs/pest/articles/200324d.html

II. Wireworms: High soil organic matter, sod covers, and heavy grass weed pressure the...
previous season all favor wireworm populations. Fields having a combination of high organic matter and heavy grass weed pressure are the most susceptible to damage. Commercially applied seed treatments including Cruiser (thiamethoxam) and Poncho (clothianidin) have provided good wireworm control. **NOTE - Labels state seed and seedling protection.**

**III. Grubs:*** In general, grubs are favored by a number of factors including planting into soybean stubble, old sod, hay, pasture, or set-aside acreage. The most accurate way to measure the potential for a grub problem is to sample fields for grubs before planting, but it should be done before a field is tilled. The most accurate results will be obtained when the soil temperatures at 6-inches deep are at least 45°F. At each site, sample one square foot of soil dug six inches deep. One to two samples should be taken for every 10 acres with no less than 10 samples per field. A treatment is recommended if you find 1-2 grubs per foot in heavy soils or 0.5 - 1 grubs per foot in sandy soils. Cruiser (thiamethoxam) and Poncho 250 (clothianidin) are labeled against white grubs. Although these 2 chemicals did appear to work against grubs in many situations in 2004, we did see a few failures in commercial fields under high population pressure. We did not see many fields treated with Poncho 1250 (also labeled for grubs) in 2004; therefore, we do not know if it would have worked better under high population pressure. Therefore, if populations are high, you may still need to consider a soil insecticide. **NOTE - Labels for Cruiser and Poncho state seed and seedling protection.**

**IV. Black Cutworm:** This insect is favored by late planting, broadleaf weed growth (especially chickweed) present before planting, poorly drained field conditions and reduced tillage. Rescue treatments can be applied for this soil insect if you are able to scout fields twice a week once leaf feeding is detected. If you are unable to scout and you have conditions favoring cutworms, a pyrethroid or Lorsban tank mixed with a herbicide and applied close to planting has provided effective control. The granular insecticides Force, Lorsban and Fortress are labeled for cutworm control, but must be applied as a T-band to be effective. Pheromone traps placed in the field by mid-March can be used to determine when to look for cut plants. Look for pheromone trap counts in future reports.

The seed applied treatments, Cruiser and Poncho, also list cutworm on the labels. Since these products are systemic, larvae must feed to be affected. The Cruiser label only states cutworm suppression, not control. The Poncho 250 literature says it will provide early season protection of seedlings against injury. In the Delaware/Maryland area, we are mainly dealing with populations that lay eggs early on weeds or, in some cases, an overwintering population so we generally find larger larvae (1/2 inch and greater) present in fields at planting time. After our field experiences in 2004, we still feel that Poncho 250 may not provide economic cutworm control under our conditions, especially if economic levels of larger larvae are present at planting. Poncho 1250 may provide better control (indicated by trials in Iowa in 2004); however, we have had little experience with Poncho 1250 so, if used, fields will still need to be scouted carefully.

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**Small Grain Weed Control - Mark VanGessel, Extension Weed Specialist, mjv@udel.edu**

It is time to consider your weed control for the small grain crop. Fields that were no-tilled or where chickweed emerged shortly after planting in the fall are fields to check first for spring treatment. If you have wild garlic or Canada thistle the time of application should be delayed since you need to spray these weeds when they have fully emerged. Coverage is important for these species. If weed pressure from winter annuals is great, it may not be possible to get control of the winter annuals and perennials with one application. In that case two applications may be required. You can mix your Harmony Extra with nitrogen. If spraying Harmony Extra with nitrogen, be sure to pre-mix it in water first. If using nitrogen as your carrier, there is no need for a surfactant unless wild garlic is over 8 inches tall. If applying Harmony Extra in nitrogen diluted with water, use a non-ionic surfactant at ½ to 1 pint/100
gallons of solution. If applying it in water use non-ionic surfactant at 1 qt/100 gallons.

Grass control in small grains is still challenging, even with a few new products. Hoelon is the only product labeled for grass control in barley, and it will only control annual ryegrass before it is more than 2 tillers. For winter wheat, Osprey is also available from Bayer. Fall will be a better time for Osprey applications, but it will control annual ryegrass in the early spring. Osprey can not be applied with nitrogen carrier and the Osprey application and nitrogen application must be made 21 days apart. Spray solution can not be any more than 15% nitrogen. Osprey has activity on small annual bluegrass. Large annual bluegrass control will be better with Maverick than with Osprey. However, Maverick requires that STS soybeans be used for double-cropping and does not allow for rotation to vegetables.

Have you considered resistance management with your small grains? Most of the small grains get treated only with Harmony GT or Harmony Extra, which contains two ALS-inhibiting herbicides (same type of herbicides as Pursuit, Accent, Classic, etc.). Many weeds have developed resistance to herbicides that have this mode of action. Consider how often a field is planted to small grains and how often it gets treated with Harmony Extra. If this rotation is short, 3 years or less, consider tankmixing another herbicide with Harmony Extra to minimize the risk of developing herbicide resistant weeds.

Finally, the following are the timing limitations for small grain herbicides. The timing restrictions are based on crop safety.

2,4-D - up to jointing stage (pre-jointing)
Banvel/Clarity - up to jointing stage (pre-jointing)
Buctril - up to boot stage
Harmony Extra or Harmony GT - up to flag stage (pre-flag leaf)

Precautions for Herbicide Use with Nitrogen Applications to Small Grains - Mark VanGessel, Extension Weed Specialist, mjv@udel.edu

It is common to add herbicides when nitrogen is applied to small grains and small grain-legume mixtures. These precautions are from manufacturer’s label:

Harmony Extra or Harmony GT- slurry in water first and may result in temporary crop yellowing. If liquid nitrogen is less than 50% of the spray mix, then include a surfactant. For 2,4-D it varies with the formulation. The ester formulation can be mixed directly with nitrogen, but labels recommend good agitation. Amine formulation of 2,4-D should be mixed with 3 to 5 parts of water before adding it to the nitrogen solution. Buctril label cautions about potential leaf burn when mixed with liquid fertilizer, but leaves emerging after application are not affected. For MCPA, it varies some with the manufacturer. The ester formulation should not be applied with liquid nitrogen. The amine formulation varies, ranging from no mention of liquid nitrogen to application is allowed. Osprey label restricts applications to no less than 3 weeks before or after a nitrogen application. Maverick cautions about possible leaf burn and reduced growth and states that weed control is more consistent when applied with water as the carrier.

Control the Horseweed (Marestail) in No-Till Soybeans When It’s Small - Mark VanGessel, Extension Weed Specialist, mjv@udel.edu

The presence of glyphosate-resistant horseweed has made no-till soybean burndown programs more challenging. (Glyphosate is the active ingredient in Roundup and Touchdown). This species is not a problem in tilled fields (because it emerges before the tillage is completed, so tillage kills it) or in corn (because atrazine is pretty effective on it). Rather the problem has only been showing up in no-till soybean fields where glyphosate alone has been used for burndown control prior to planting. The
presence of glyphosate-resistant horseweed is so wide-spread and it moves so easily with the wind, that you have to assume that the horseweed plants in your field are resistant and not rely on glyphosate to control them.

What to use? -- a program based on a plant-growth regulator herbicide (2,4-D or dicamba). Glyphosate will not kill the resistant biotypes. Paraquat often will not effectively control all the plants and it often requires two applications for good control (and two applications is not a sound resistance-management strategy). There is concern about excessive use of ALS-inhibiting herbicides such as Amplify, FirstRate, Canopy EX, or Synchrony XP that could lead to additional resistance. That leaves 2,4-D or dicamba. Dicamba is the active ingredient in Banvel and Clarity. The pint rate of 2,4-D ester is only marginal on horseweed (particularly when the plants are 4 inches or taller). A quart rate of 2,4-D ester is needed to consistently control this species. For most formulations, a quart rate (assuming 4 lb ai/gallon formulation) requires a period of 30 days from time of application until soybeans can be planted. There are a few formulations available that require only 15 days between the quart application rate and planting soybeans. So this treatment should be made as early as possible to control small weeds and allow for the time interval prior to planting.

For dicamba, there are some differences between Banvel and Clarity labels. Banvel is labeled for 8 to 16 oz/A, and requires a 30-day interval between application and planting soybeans. Clarity use rates are 4 to 16 oz/A. The interval between Clarity application and soybean planting is defined by a total accumulation of 1 inch of rain followed by 14 days. Averaged over the past 20-year weather records, this is a 26 day period, but it can be longer.

There are a number of weed species not controlled by 2,4-D or dicamba. These products should be tankmixed with a non-selective herbicide such as paraquat or glyphosate. (Paraquat is the active ingredient in Gramoxone Max and other formulations are available). Since most of the no-till soybeans will be planted with Roundup Ready soybeans, paraquat would be a better choice from a resistance management standpoint.

Additional flush of weeds is possible with this early application, so a tankmixture with a residual herbicide (such as Boundary, Sencor, Valor) may eliminate the need for an additional application of paraquat at planting.

Alfalfa Stands and Autotoxicity - Richard W. Taylor, Extension Agronomist, rtaylor@udel.edu

Research over the past few years has indicated that alfalfa growers can successfully establish alfalfa following alfalfa with only a minimal interval between destroying an old stand and establishing a new stand. Demonstration trials in Delaware have shown this to be true as long as insect pests are properly controlled. However, newly announced research indicates that autotoxins affects more than just stand establishment. The new information shows that alfalfa appears to show a “memory” response to the autotoxins that is called autoconditioning. Even with a 3 to 6 month alfalfa-free interval before reestablishment, autoconditioning can lower stand productivity over a very long period of time due to the initial damage. It was estimated that long-term yields may average 8 to 29 percent lower where stands are impacted by autotoxicity. The initial damage is thought to be a destruction of the primary root within the germinating seed. This results in a smaller and more branched root system that is less tolerant to drought especially with respect to yield potential. Alfalfa does not outgrow the initial effects of autotoxicity.

The researchers at the University of Missouri who conducted the new study also found that the severity of the toxic effects varied based on soil type. Lighter, sandier soils show a higher toxicity in the short-term but are able to have the toxins leached more quickly. The autotoxins appeared to bind to soil particles, probably to clays, and therefore leach more slowly on heavier clay soils than on sandy soils. Alfalfa cultivars did not vary in their autotoxin effects but there was some difference in their tolerance to the autotoxins. The researchers felt that a 6
to 9 month interval might be suitable for lighter sandy soils but a one year interval was needed for heavier soils.

Please refer to an accompanying article entitled “Making a Decision on Alfalfa Stand Density” for suggested guidelines when making the decision to destroy or renovate an alfalfa field.

Making a Decision on Alfalfa Stand Density
- Richard W. Taylor, Extension Agronomist, rtaylor@udel.edu

Farmer experience has shown that if soil fertility levels are adequate or high and weed problems are minimal, alfalfa stands of 4 to 5 plants per square foot can yield as much as a stand with 10 to 15 plants per square foot (Photo 1 and 2). This is a result of an individual alfalfa plant’s response to decreasing stand density. Decreasing stand density causes an increase in the number of stems produced per plant. This effect helps the crop compensate for fewer plants and maintains yield potential.

Research from Wisconsin conducted by Dr. Dennis Cosgrove showed that stem number rather than plant number is a more accurate determination of when to plow down or interseed an alfalfa stand. Cosgrove suggests using a value of 55 or more stems per square foot for production of maximum yields. A reduction in stem number per square foot to 40 stems or less will result in a 25 percent yield reduction. Cosgrove further suggests that this level is the critical point when alfalfa fields begin to lose profitability and should be rotated out of alfalfa. Again, interseeding a very high-quality productive grass should add one or more additional production years but can speed up the loss of alfalfa plants from the stand.

The number of stem or stand counts you make depends on the size of the field and the uniformity of stand reduction. In general, the larger or less uniform a field, the greater the number of counts. For uniform fields 20 to 30 acres in size, count about 20 randomly chosen square foot areas and average the results.

As was noted in the Weekly Crop Update last year, alfalfa stands were very often severely injured by a number of factors such as annual grass invasion, ponding water, ice sheeting in both last winter and this winter, and other problems such as potato leaf hopper injury and compaction issues. If your fields are mostly light sandy soils and you want to replant alfalfa in late summer/early fall, you should decide on whether to destroy the current stand early this spring. For this type of decision, base your determination on either the 4 to 5 plants per square foot threshold level or the 40 stems per square foot threshold (Photo 3). If you plan to reseed a year or more from now and a decision can be made during the growing season, use below 40 stems per square foot as the threshold value.
Abiotic Impacts of Winter on Barley and Wheat - Richard W. Taylor, Extension Agronomist, rtaylor@udel.edu

After a winter of periods of alternating mild and cold temperatures; snow, ice, and rain; and now frequent day/night thaw freeze cycles, areas in fields or whole fields may be showing symptoms ranging from dead or dying plants to yellow to purple stunted plants. Late winters characterized by a number of freeze-thaw cycles can lead to heaving that can force the grass crown out of the soil where desiccating winds can kill small susceptible seedlings and even larger established plants (Photo 1). The crown region of grass is a growing point region that produces new leaf buds; tiller buds; and, in the spring, new adventitious roots that form the spring root system. Until the new root system develops enough for the new roots to become active, little nutrition and possibly too little water is taken up by the plant. Injured plants may not show stress until the temperatures warm and they begin to grow. By about mid March, growers will begin to see these plants turn color and report that the small grain crop is ‘going backwards’. It is during the time when the plants begin to re-grow and new roots become functional that wheat and barley will look their worst.

Another symptom often visible this time of year also appears in Photo 1 where small grain leaves take on a purplish discoloration indicative of phosphorus (P) deficiency or sugar accumulation. More severe symptoms resulting in leaf injury and death can be seen in Photo 2. Since P is necessary for the transformation of sugars to other compounds in the plant following photosynthesis, the cause and effect often become confused. Regardless, cold wet soil conditions, poor root growth early in the spring, and many other stress factors can lead to off color small grain crops early in the spring. To help overcome some of the stresses, be sure that your crop has adequate nitrogen (N) nutrition at or shortly after green up time.
Research at the University of Delaware and other locations has shown some yield responses to split N applications—usually averaging about 5 bu/A for winter wheat. You can take advantage of this yield response if your operation is set up to allow multiple or split N applications, and if the fields in question dry out quickly enough to allow the needed equipment on the fields both now and around the time the crop begins to joint (Feeke’s growth stage 5). A single N application is effective but best if it is applied shortly before or at crop green up. The initial N will be used by the crop to finish tillering and to produce a vigorous root system this spring. Late-season N applications at Feeke’s growth stage 5 will promote higher yield per kernel and increase the crude protein content of the grain but the N will have less effect on tiller number or ultimate plant height.

To distinguish between growth stage 3, when tillering is nearly complete and sheath elongation begins turning the plants upright, and growth stage 5, when jointing begins, you should carefully dig or pull several plants from the soil in a number of locations across the field. Carefully clean away excess soil from around the roots and plant base and remove any loose leaves and leaf sheaths from the base. A sharp knife can then be used to split the central stem down the center to look for the growing point. The growing point will be a conically shaped object about 1/8 inch or less in length that will be located near where the roots emerge from the stem base. If the crop is still at Feeke’s growth stage 3, the growing point will still be below the ground right against the stem base where the roots emerge. At Feeke’s growth stage 5, the stem internodes (the stem portion between stem nodes which are felt or seen as slight swellings in the stem) will have begun to elongate, moving the growing point upwards about a half inch to an inch above the stem base. As the first joint elongates enough to move the growing point above the soil surface and additional internodes begin to elongate, the crop will be at the beginning of growth stage 6.

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

**US & World Supply and Demand Highlights**
USDA’s March crop report included an increase in the forecast for the 04/05 marketing year for U.S. corn ending stocks; a decrease for U.S. soybean ending stocks; and a decrease for wheat ending stocks. The report placed ending stocks for U.S. corn at 2.055 billion bushels; ending stocks for soybeans at 410 million bushels; and ending stocks for wheat at 553 million bushels.

World ending stocks for corn, soybeans and wheat were all increased. World ending stocks for corn are now estimated at 122.04 million metric tons (mmt); soybeans at 56 mmt; with world wheat ending stocks placed at 146.8 mmt. World ending stocks are now forecast to increase significantly from their 03/04 marketing year levels of 97.38 mmt for corn; 38.36 mmt for soybeans; and 130.91 mmt for wheat.

**Corn Analysis**
Projected 04/05 ending stocks of U.S. corn are up 45 million bushels from last month. Exports are down 50 million bushels due to increased competition, and the estimate for imports dropped 5 million bushels. Global 04/05 coarse grain supply, use, and stocks projections are up from last month.

**Soybean Analysis**
U.S. soybean exports were increased 35 million bushels to 1.045 billion bushels and crushings were reduced 5 million bushels resulting in a 30 million bushel decrease in ending stocks from last month. The estimate for ’05 Southern Hemisphere production was reduced for Brazil to 59 mmt (as compared to 63 mmt last month.) The production estimate for Argentina was left unchanged from the February estimate and remains at 39 mmt.

**Wheat Analysis**
Projected U.S. 04/05 ending stocks of wheat are down 5 million bushels from last month. Global wheat production was increased to a record 1.6 million tons.
**Market Strategy**

Since the report was issued on March 10th commodity prices have continued to rally. Fundamentally, current price levels are not expected to hold, due to the magnitude of the increases in world supplies that are projected. Current price levels should be viewed as opportunities to aggressively forward contract new crop corn, soybeans, and wheat. Dec 05 CBOT corn futures are currently at $2.45 per bushel, Nov 05 soybeans are at $6.34, with Jul 05 wheat at $3.66 per bushel.

**New Weed Control Guides are Available – And They are FREE! - Mark VanGessel, Extension Weed Specialist, mjv@udel.edu**

Available from your county extension office are two weed management guides for assistance in weed control in corn and soybeans. There is a separate guide for soybeans and corn. The first half of each guide deals with soil-applied herbicides and the second half is for postemergence herbicides. These guides have pre-mixes and what is in the pre-mix, expanded weed control tables, information on application timing, comments for each of the herbicides, and much more. Contact your county extension office for these free guides. Or find them at the UD-REC website: [http://www.rec.udel.edu/weed_sci/WeedPublicat.htm](http://www.rec.udel.edu/weed_sci/WeedPublicat.htm)

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**Commercial Nutrient Handlers** – 9 credits before certification expires (every three years)

**Nutrient Consultants** – 8 credits every year

Nutrient Management Continuing Education Credits are offered at the following upcoming meetings:

**What's New in Nutrient Management (3 credits)**

- **March 21, 2005** 6:00 – 9:00 p.m.
  - Sussex Co. Extension Office
  - Contact Jeanie Johnson 856-2585 ext 305

**Kent County Crop Master: Understanding and Managing Crop Stress (3 credits)**

- **March 21, 2005** 6:00 – 9:00 p.m.
  - Kent Co. Extension Office
  - Contact Gordon Johnson 730-4000

**Update on Ammonia Issues and Regulations for Poultry Operations (2 credits)**

- **March 24, 2005** 5:00 – 7:00 p.m.
  - Sussex Co. Extension Office
  - Contact Jeanie Johnson 856-2585 ext 305

- **March 24, 2005** 7:00 – 9:00 p.m.
  - Sussex Co. Extension Office
  - Contact Jeanie Johnson 856-2585 ext 305

More information on Nutrient Management Certification is available online at: [http://www.rec.udel.edu/nutrient/index.html](http://www.rec.udel.edu/nutrient/index.html)

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**Equine Hoof Care Workshop**

- **April 23, 2005** 9:00 a.m. – 12:00 noon
  - Harrington Raceway

This will be the first in a series of workshops focusing on the horse’s hoof. Laura Florence, Resident Farrier from University of Pennsylvania Veterinary School’s New Bolton Center will lead the workshop.

Space is limited and registration is $5.
- Contact Susan Truehart Garey 730-4000 truehart@udel.edu
Making Your Money Count
March 21, 2005     7:00 - 8:30 pm
Kent County Extension Office

Trying to find money in your budget to pay off debt and increase your savings? This workshop will review strategies for developing a workable family budget, decreasing debt, and accomplishing your savings goals on your own or with financial advisors.

Pre-registration required. Contact the Kent Co. Extension Office 730-4000

Pesticide Safety Training and Testing for Pesticide Applicators Certification
June 28 & 29, 2005
Kent County Extension Office

June 28 is training – 8:30 am - 4:30 pm. Training continues the morning of June 29, from 8:30 a.m. - noon. The exam starts at 1:00 pm on June 29.

Be sure to bring your Workbook! You don’t have to register for training, but you must register for the exam. Call DDA (302-698-4500) one week in advance to register for the exam. All exams are closed book!! Bring your calculator for the calibration questions.

Weather Summary

http://www.rec.udel.edu/TopLevel/Weather.htm
Week of March 7 to March 13, 2005

Rainfall:
1.17 inches: March 8
0.03 inches: March 11
0.02 inches: March 12

Readings taken for the previous 24 hours at 8 a.m.

Air Temperature:
Highs Ranged from 70°F on March 7 to 35°F on March 9.
Lows Ranged from 38°F on March 7 to 18°F on March 10.

Soil Temperature:
40°F average.
(Soil temperature taken at a 2 inch depth, under sod)

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

Compiled and Edited By:

Emmalea Ernest
Extension Associate - Vegetable Crops
University of Delaware

2005 Wye Strawberry Twilight Meeting
May 25, 2005     6:00 - 8:00 p.m.

-2004-05 research plots

-Effect of Strawberry tip plugging date on Spring yields with and without Fall applied row covers in the field and in a high tunnel.

- Variety trial with Bish, Treasure, Festival and Gem. USDA cooperative research on "conditioned" strawberry plugs for Fall and Spring harvest.

- Greenhouse-gutter production system.

- USDA Fruit Pathologist Bill Turechek will discuss strawberry diseases and current control measures. USDA and University small fruit specialist will also be on hand.
2005 Weekly Crop Update Mail and Fax Subscription Form

Return form and $30 to:
Emmalea Ernest
University of Delaware Research and Education Center
16684 County Seat Highway
Georgetown, DE  19947

Make checks payable to “University of Delaware.”

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To receive the weekly email reminder contact Emmalea Ernest at Emmalea@udel.edu.