Vegetables

Foliar Fertilizers and Vegetable Crops  - Ed Kee, Extension Vegetable Crops Specialist; 
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Foliar fertilizers are often considered for use in vegetable crops. While they have a utility, if a certain nutrient becomes unavailable or deficient during the growing season, building a total fertilizer program around foliar fertilizers is expensive and inefficient. To quote from our five-state Commercial Vegetable Recommendation Book: “Properly managed soils are usually able to supply the essential nutrients the crop will need during its development. If one or more soil-supplied nutrients become deficient or unavailable during the development of the crop, foliar nutrient applications may be beneficial.”

Trickle Irrigation Guidelines  - Ed Kee, Extension Vegetable Crops Specialist; 
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Trickle irrigation systems have gone from essentially none used to the dominant method of irrigation on several vegetable crops on Delmarva. These include watermelons, cantaloupes, peppers, and tomatoes.

Vegetables

Strawberries, squash and other crops are also irrigated by trickle systems. Excellent, tried and proven recommendations for fertigation of these crops are discussed in the five-state publication, Commercial Vegetable Production Recommendations. Of course, the publication offers a wide range of recommendations on every aspect of production of 42 vegetable crops and strawberries. This is available from your County Extension Office

Vegetable Crop Insects  - Joanne Whalen, Extension IPM Specialist; 
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Asparagus.
We continue to find asparagus beetle egg laying activity on spears. A treatment is recommended if 2% of the spears are infested with eggs. Since adults will also feed on the spears, a treatment is recommended if 5% of the plants are infested with adults. Sevin, Lannate, Ambush, or Pounce will provide control.

Cabbage.
With the warmer weather, be sure to watch for an increase in diamondback activity. Imported cabbageworm and diamondback larvae can both be found feeding on cabbage. Treatments should be applied when 5% of the plants are infested with larvae and before larvae move to the heart of the plants. Avaunt, Bt insecticides, Proclaim, or Spintor will provide effective control of both
species. Be sure to rotate between these classes of insecticides to avoid the development of resistance.

**Melons.**
The predominant insect pest continues to be aphids. However, in most cases, these aphids have moved off of rye strips and should be controlled by beneficials. We are finding predominantly English grain aphids and green peach aphids - very few melon aphids. Be sure to watch carefully for cucumber beetles. The first beetles have been found and the warmer weather often results in spikes in populations. We have also found extremely low levels of spider mites. As soon as plants are set in the field, you should begin scouting for all three insect pests. The treatment threshold for aphids is 20% infested plants with at least 5 aphids per leaf. Actara, Fulfill, Lannate and Thionex are labeled on melons and will provide melon aphid control. **Dimethoate will not control melon aphids.** These materials should be applied before aphids explode. The treatment threshold for cucumber beetles in watermelons is 2 per plant. Since cantaloupes are very susceptible to bacterial wilt, sprays should be applied as soon as beetles are observed and you find feeding on the cotyledons and first true leaves. If a foliar treatment is used, dimethoate provided good control of high populations in 2003. The spider mite threshold is 20 - 30% of the crowns infested with 1-2 mites per leaf. If populations of mites explode and adult mites are the predominant life stage, Capture or Danitol should be used. If the population is a mixture of eggs, immature mites and lower levels of adult mites, Agri-Mek should be used at 8 oz/acre. A second miticide application may be needed in 3-7 days depending on the population level at treatment time. Acramite (new label for 2004) can also be used for spider mite control. It provided good control in our research trials in 2002. However, the label states apply in a minimum of 50 gallons of water per acre and you are limited to one application per season. We are working with the manufacturer (Crompton) to get a 24C to allow aerial application. We will keep you posted on the progress.

**Potatoes.**
Colorado potato beetle adults, egg masses and the first small larvae can be found in earliest emerged fields. A treatment should not be needed for adults until you find 25 beetles per 50 plants and defoliation has reached the 10% level. Once larvae are detected, the threshold is 4 small larvae per plant. Avaunt + PBO, Actara, cryolite, Spintor or Provado will provide control. Although corn borer catches have increased, we have not seen a peak in populations. A corn borer spray may be needed 3-5 days after an increase in trap catches or when we reach 700-degree days (base 50). With the warmer weather, we should reach this level some time next week. Be sure to check our website (http://www.udel.edu/IPM/traps/latestblt.html) for the most recent moth catches in your area. Avaunt, Ambush, Baythroid, Furadan, Penncap, Pounce, Monitor or Spintor will 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.

**Sandea on Watermelons** - Mark VanGessel, Extension Weed Specialist; mjv@udel.edu

Gowan has an expanded label for Sandea use on watermelons for preemergence application. Sandea has been labeled for row middles of watermelons, this allows for an application under the plastic. Application needs to be made after the beds are shaped, but prior to laying plastic. Use rate is 0.5 to 0.75 oz/A. A copy of this label as well as Reflex on snap beans, and Sinbar on watermelons are available by contacting Lisa Dorey at 302/856-2585 ext 380.
**Vegetable Diseases** - Kate Everts, Extension Plant Pathologist University of Maryland and Delaware, everts@udel.edu

Dr. Dan Egel, Purdue University, wrote the following article for Indiana vegetable growers. It is a great summary to review before starting foliar fungicide applications. I have briefly edited the information for Delaware and Maryland.

**10 USEFUL RULES FOR FUNGICIDE APPLICATION** - (Dan Egel) Below I have listed 10 rules that will help vegetable growers apply fungicides effectively and safely. Rules 1 through 7 are listed in no particular order; however, I saved the most important three for last.

1. **Apply fungicides prior to the development of disease.** Most fungicides do not have a “kick back” action. That is, they do not effectively eradicate diseases after they have started. And by the time a single disease lesion is observed in the field, many more lesions too small to observe are already working at your crop.

2. **Use shorter spray intervals during weather conducive to plant disease.** Each plant disease has its own “personality” and thus prefers different weather. However, most plant diseases require leaf wetness. Therefore, during periods of rain and heavy dews, more frequent fungicide applications are a good idea. The normal range of spray applications is every 7 to 14 days. Muskmelon and watermelon growers have the guesswork taken out of this process with a Purdue University program known as MELCAST. MELCAST information in Delaware and Maryland can be found on the web (http://www.agnr.umd.edu/users/vegdisease/vegdisease.htm) or by calling 410-742-8789.

3. **Apply fungicides before a rain if possible.** Water is necessary for most fungal spores to infect a leaf or stem and for the splash dispersal of many spores. Therefore apply fungicides before a rain if it appears that the fungicide will have a chance to dry before the rain. It is not necessary to apply fungicides again after every rain. Most modern fungicides have a good sticker and will persist through rains pretty well.

4. **Avoid applying fungicides in the heat of the day.** It is possible for any foliar applied chemical to cause some plant damage if applied under conditions of heat and direct sunshine. Also remember that if fungicides and insecticides are applied together, make the applications so that bees are unharmed.

5. **Timing of fungicide applications is more important than nozzle type and spray pressure.** Studies here in southern Indiana as well as by researchers in other areas of the country have found that nozzle type and spray pressure doesn’t make as much difference as we once thought. See the Vegetable Crops Hotline issue #430 (http://www.entm.purdue.edu/entomology/vegisite/commercial/hotline2004.html) for details.

6. **Some diseases cannot be managed by foliar sprays.** Problems caused by soil borne fungi or nematodes cannot be controlled with foliar fungicides. Examples of these types of problems would be Fusarium wilt of watermelon or root-knot nematodes of tomatoes. Also, be certain that the problem you observe is really a disease. No amount of fungicide will improve a problem caused by soil fertility.

7. **Do not apply foliar fungicides to the soil.** Although fungicides may kill or inhibit the growth of fungi which cause plant diseases, the application of those same fungicides to the soil will be wasteful and off label. Foliar fungicides are designed to protect the surfaces of plants.

8. **Make certain the fungicide matches the crop and disease.** That is, READ
THE LABEL. The label is the law. Plus, considerable time and money was spent to test each fungicide with a particular crop and disease. Off label applications also waste your time and money.

9. Double - check the label for the current rate per acre. Rates may vary widely based on label changes and different formulations. While you are checking the rate, also check to make sure your application method is labeled. (Can this fungicide be applied in the greenhouse?) Did you get the rate from the Mid-Atlantic Commercial Vegetable Production Recommendations (http://www.rce.rutgers.edu/pubs/pdfs/e001t.pdf)? Check the label anyway.

10. Play it safe. Always adhere to the Post-Harvest Intervals, Re-Entry Intervals and Worker Protection Standards listed in the label. No one wants an accident or lawsuit. Besides, the label is the law.

Field Crops

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

Alfalfa Weevil.
In many cases, fields have been cut or will be cut within 5-7 days. Before cutting, we could find late instar larvae as well as pupae in many fields. If economic levels of weevils were present before cutting and you did not treat, be sure to check the regrowth for larvae as well as adults within one week of cutting. If bailing is delayed, adults and larvae feeding in the crowns can delay normal green-up. A treatment should be considered if you find 2 or more adults and/or larvae per crown.

Field Corn.
We continue to find cutworm leaf feeding and cut plants mainly in no-till fields, so continue to sample for cutworms through V-5 stage corn. We have also received a number of questions about flea beetles feeding on corn. In some cases, it has been a combination of frost damage and springtails (most are scavengers that feed on decaying plants, fungi, molds, or algae). In other cases, folks have observed flea beetles and small holes in plants. In these cases, cutworms have been the culprit - remember that small cutworms can produce small holes in leaves. If flea beetles are present, they physically damage seedling corn by chewing long lesions in the leaves. These feeding lesions run parallel to the leaf veins and they first appear as thin, silvery or white streaks. Heavily injured leaves can turn brown and wilt; however, this generally occurs during periods of cool, wet weather. Flea beetles can also transmit Stewart's wilt; however, most all commercial field corn hybrids are resistant to this disease. In general, only susceptible inbreds or sweet corn will need a flea beetle treatment to manage Stewart’s wilt. A treatment should only be considered before growth stage V-5 if growth is being held back, 50% of the plants show extreme injury and you find 5 or more beetles per plant.

Small Grains.
With the warmer weather, we have seen an increase in cereal leaf beetle larval numbers and feeding damage. We are also just starting to find extremely low levels of grass sawfly and true armyworm larvae. A treatment for armyworm should be considered if you find one per foot of row in barley, or 2 per foot of row in wheat. The treatment threshold for grass sawfly is 2 per 5 foot of row innerspace or 0.4 per foot of row. If both are present, the threshold for each insect should be reduced by one-half.
Grain Marketing Highlights - Carl German, 
Extension Crops Marketing Specialist; 
clgerman@udel.edu

Supply and Demand Highlights
Corn.
USDA issued the May crop report on Wednesday giving an initial assessment of U.S. and world crop supply and demand prospects. This month’s report marks the first official estimates for the 2004/05 marketing year. Overall, the report was viewed as fundamentally bullish. Ending stocks for the ‘03/’04 U.S. corn crop were reduced by 50 million bushels and are now estimated at 806 million bushels, due to a 50 million bushel increase in the export estimate for the current marketing year. ‘04/’05 corn production was estimated at 10.42 billion bushels, assuming a trend line yield of 145 bushels per acre, with a projected carry out of 741 million bushels. It is important to note the decline in the projected carry over for U.S. corn in the ‘04/’05 marketing year as compared to the current year. This is likely to serve as a price supporting factor as we enter the summer months.

Global ending stock estimates for world corn supplies increased by about 20 million metric tons over the April estimate due mainly to an adjustment made in China’s corn stocks. This factor was being shrugged off by traders in the corn pit yesterday afternoon because some were expecting a larger number.

Soybeans.
The May 12th crop report was viewed as somewhat friendly, from a fundamental perspective, with USDA leaving old crop ending stocks unchanged at 115 million bushels. New crop production was estimated at record levels, while the South American old crop estimate was lowered. U.S. ‘04 soybean production was forecast at 2.965 billion bushels with a carry over of 190 million bushels.

USDA’s Brazilian production estimate was reduced to 53.5 million metric tons, with Argentina’s production estimate lowered to 34 million metric tons. The reduction in the Southern Hemisphere old crop production estimate was widely anticipated, with some market analysts expecting even larger reductions.

Even though this report was not viewed as negative, commodity price bidding in the soybean pits yesterday experienced a ‘technical meltdown’, with soybean futures declining in double digit market limit fashion for the nearby contracts and double digits for the new crop. Apparently, news broke about possible tenders for South American soy oil and soy meal by large American firm(s), coupled with settlements occurring in the May futures contracts. These factors and the fact that we are already in a volatile situation resulted in a sell-off in the soybean pits yesterday of an estimated 11,000 to 12,000 contracts.

Wheat.
Domestic and global ending stocks were reduced. U.S. carry out for the ‘04/’05 marketing year is now estimated at 499 million bushels, a 27 million bushel reduction from the 526 million bushel carry over projected for the ‘03/’04 marketing year. Adverse weather conditions in the hard red winter wheat areas resulted in a lowering of the production estimate. New crop wheat production in the U.S. is forecast at 2.08 billion bushels, as compared to 2.337 billion bushels a year ago.

Market Strategy.
With the sell off occurring in yesterday’s market this is likely to be viewed by commodity speculators as a good time to buy the market, particularly for new crop corn and wheat. Assuming that statement is true, then advancing forward pricing sales should be placed on hold until the markets have had a chance to work higher. Crop planting progress will soon be taking the back seat to weather conditions and crop development. It will take ideal weather conditions to produce 145 bushel per acre corn and 40 bushel per acre soybeans, on 79 million and 75.4 million acres planted, respectively. These markets remain extremely volatile.
Soil-Applied Herbicides Need To Be Moved Into the Soil - *Mark VanGessel, Extension Weed Specialist;* mjv@udel.edu

Herbicides applied to the soil surface require rainfall or irrigation or mechanical incorporation to move them into the soil where the plants will absorb them. The amount of water needed to “activate” these herbicides depends on the water solubility of the herbicide and moisture content of the soil. Even with good soil moisture like we have, it still will require some rain or irrigation to move the herbicide into the soil. Most soil-applied herbicides require 0.5 to 0.75 inches to be moved in the soil if the soil is “dry” (less water if the soil is moist). Princep requires 0.75 to 1.0 inches of water to become “activated”. If you have irrigation and your corn herbicides have been applied, but you have not received at least 0.5 inches of water, you should consider applying that amount with your system. Mechanical incorporation with a field cultivator, set no more than 3 to 4 inches deep, will physically move the herbicide into the root zone. Field cultivators set any deeper will cause the herbicides to become too diluted. A field cultivator will mix the soil to half the depth it is set (set to 4 inches - soil mixes to 2 inches). This is one situation where spending a little money now could save money later. For instance, if your residual grass herbicide is not moved into the soil and grass control is poor, you are looking at a postemergence application of Option, Steadfast, or Accent-containing pre-mix, and control of crabgrass with postemergence herbicides is only fair. Spending the money to irrigate and activate the herbicides could save a high herbicide bill later.

Be Sure To Scout Early Planted Corn - *Mark VanGessel, Extension Weed Specialist;* mjv@udel.edu

It is important to start to get over the early planted corn ground to check if there are weed breaks. Crabgrass is also one that worries me since it is very difficult to control with a postemergence spray. Most of the postemergence grass herbicides (Basis Gold, Steadfast, or Option) will not control crabgrass over 1 to 2 inches tall. Herbicide-resistant corn (Liberty Link or Roundup Ready) gives you a wider window for crabgrass control. Be sure to check your fields early.

**UPCOMING MEETINGS:**

**2004 Wye Research Center’s Spring Strawberry Twilight Meeting**

The 2004 Wye Research Center’s Spring Strawberry Twilight Meeting will be held at the University of Maryland Wye Research and Education Center in Queenstown, MD on Thursday, May 20, 2004, at 6:00 PM. University and USDA Small Fruit Specialist will be available for questions.
What will I see?

1) 2003/04 Annual plasticulture system: evaluation of Fall deployment date of floating row covers, planting date and varieties.
2) High tunnel production for Fall and Spring harvest
3) Greenhouse production system for early Spring harvest, utilizing, dormant, multi-crowned plants.

Pre-registration not required.

For more information and directions:
Contact: Debby Dant at 410-827-8056, ddant@umd.edu or Michael Newell at 410-827-7388, mnewell@umd.edu

University of Maryland Wye Research & Education Center
Spring Crops Tour

The Wye Research and Education Center's Spring Crops Twilight tour is May 19th at 6:30p.m. Topics of interest will be small grain varieties, current weed, disease or insect issues and any topic of immediate agronomic concern. Refreshments will be supplied. Event will be held rain or shine. Call Mark Sultenfuss at 410-827-7388 with any questions or topic suggestions.

Weather Summary

http://www.rec.udel.edu/TopLevel/Weather.htm
Week of May 7 to May 13, 2004

Rainfall:
0.18 inches: May 7
0.02 inches: May 8

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

Air Temperature:
Highs Ranged from 87°F on May 10 to 65°F on May 8.
Lows Ranged from 68°F on May 11 to 48°F on May 8 & 9.

Soil Temperature:
72°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

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