



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

Volume 15, Issue 2

April 6, 2007

Vegetables

Seedless Watermelon Transplant Production - Ed Kee, Extension Vegetable Specialist; kee@udel.edu

Watermelon producers on Delmarva have done a great job over the past ten years in improving their production of seedless watermelon transplants. With the almost total adoption of seedless varieties, many producers have built their own greenhouses. Warm temperatures during germination are critical; at least 85°F helps the seedling get going quickly. Overwatering can be problematic, and growers have learned to keep the emerging seedling moist, but not drenched.

Once the seedling is out, temperatures can be turned back. Eighty degrees is adequate. If temperatures are left too high, the plants grow too quickly and become etiolated, or leggy. Leggy transplants have a difficult time during field transplanting. They are more subject to damage by wind, cold temperatures, and other stresses during this critical time. As the seedless transplants grow and establish their true leaves, a more normal watering schedule can be implemented.

Hardening off the transplants a few days before transplanting helps to acclimate the plants to field conditions. Once transplanting occurs, the plant is reliant on the soil moisture content around its root zone for survival. A sturdy

transplant, with a good fibrous root system, when well watered, has a great chance to not only survive, but to "take off" and grow.

Mites and Aphids in Strawberry - Jerry Brust, IPM Vegetable Specialist, University of Maryland; jbrust@umd.edu

Over the last few weeks I have visited several strawberry patches, many in high tunnels, and have noticed infestations of aphids and especially mites. The mites were found in every strawberry field I looked at, while aphids were in about a third of the fields. There were two species of mites found: the twospotted spider mite, *Tetranychus urticae*, and the strawberry spider mite, (sometimes called the strawberry red spider mite) *T. atlanticus*. Strawberry spider mite adults are generally red, but overwintering twospotted spider mites are also a red-orange and therefore most of the mites that can be seen with a naked eye will be reddish in color. Spider mites overwinter as adults in the soil or leaf litter, although they may remain somewhat active in high tunnels through the winter. In several high tunnel strawberries, but not on outdoor strawberries, I found many mite eggs. The light yellowish eggs are pearl-like in appearance and are attached to the undersides of leaves or on stems (Fig. 1). Aphid species found were the potato aphid, *Macrosiphum euphorbiae* and the green peach aphid, *Myzus persicae*. Aphids are still in low numbers outdoors, but in some places in the high tunnels aphids started multiplying rapidly when we had

those few days of very warm weather. These overwintering populations of aphids and mites can be difficult to control as they are “entrenched” in the strawberries. Growers should check their strawberries for both mites and aphids now, especially if you have them in a high tunnel or under a row cover.

The most difficult thing to accomplish for good control is getting adequate spray coverage. Many of the spray applications do a good job of covering the top of the leaves, but do a poor job of reaching the underside of the trifoliates. The underside area of the leaf that usually sees very little chemical deposition is in the ‘palm’ of the leaf (Fig 2). These are the areas where mites and aphids can still be found even after a few sprays and need to be carefully checked a few days after an application. Good coverage is essential. One grower used a leaf blower-like back pack sprayer and applied 9 gallons of spray onto three rows of strawberries in a 14 x 100 ft area. Two applications of 1% (by volume) horticultural oil were applied about 7-8 days apart. He got excellent spray coverage on the underside of his leaves and consequently excellent control of the mites and the few aphids that were present using the horticultural oil. Control of the adults and nymphs was around 98%. By using two applications about one week apart it is possible to control not only the adults and nymphs, but also the newly hatched eggs. Oil is a good management tactic to use at this time of year as the plants are small and any possible burn from using the oil is a very low risk. An added benefit of the oil is that is rather inexpensive. I would like to see growers use something like oil now and save the other chemicals for later in the season when plants are much bigger and there is a flare up of mites or aphids. Using oils now will also greatly reduce any development of mite resistance to other chemicals over the course of the season. Acramite, and Agrimek are two excellent miticides. However, Acramite should only be used once during a season and resistance is possible if multiple applications are made or if there is poor coverage. Thionex or Provado can be used for aphid control.



Figure 1 Two spotted spider mite adults and eggs

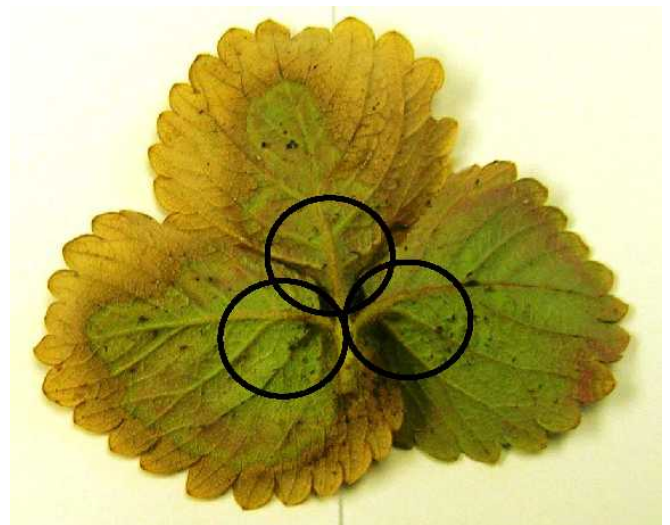


Figure 2 Underside are of strawberry trifoliolate where mites can avoid chemical sprays

Agronomic Crops

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

Alfalfa

In addition to alfalfa weevil, be sure to watch fields for an increase in pea aphid populations. Heavily infested plants may turn yellow and wilt. Although generally not a problem, pea aphids prefer cool, dry conditions and can be a problem in both the first cutting and during spring seedling establishment. This species tends to congregate on the tips of alfalfa plants where they feed on young, succulent developing shoots. To sample for aphids, clip alfalfa stems at the base of the plant and record the number present per plant. You may want to examine

plants over a white bucket to collect any aphids that are dislodged from the plants. In seedling stage alfalfa, a treatment should be considered if you find 5 aphids per stem. As a general guideline, you should consider a treatment in alfalfa less than 10 inches tall if you find 40-50 aphids per stem. The treatment threshold for alfalfa 10 inches or taller in height is 75- 100 per stem.

If you have not started to sample for alfalfa weevil, be sure to begin sampling fields on a weekly basis. Look for small larvae feeding in the tips of plants producing a round, pinhole type of feeding. Once you detect tip feeding, a full field sample should be taken. In general, no treatment should be needed before you observe 50 percent of the tips with feeding damage. A more accurate way to time an application and try to avoid multiple insecticide applications would be to sample stems and determine the number of weevils per stem. A minimum of 30 stems should be collected per field, placed top first in a bucket to dislodge larvae from the tips and then count the number of weevils per stem. The following thresholds, based on the height of the alfalfa, should be used as a guideline when making a treatment decision: up to 11 inches tall - 0.7 per stem; 12 inches tall - 1.0 per stem; 13 - 15 inches tall - 1.5 per stem; 16 inches tall - 2.0 per stem and 17 - 18 inches tall - 2.5 per stem.

Field Corn

In general, black cutworm trap catches remain low. Although no precise numbers are available, moth catches of 9 to 15 moths per 7-day period have been associated with a moderate to high potential for cutworm outbreaks in field corn. Larvae should be large enough to begin cutting when about 300 base-50 degree-days have accumulated since peak moth activity and egg laying. Pheromone trap catches can help determine when peak moth flight and egg laying occurs; however, they cannot predict the amount or magnitude of cutting that will occur. The presence of a major flight only means that the potential for an outbreak exists. Adverse weather, lack of adequate food for newly hatched larvae, predation, and disease can reduce larval populations. You can use pheromone trap and degree-day information to estimate or predict when first cutting will occur.

Scouting of seedling corn near the first cutting date is the best way to determine whether a problem exists. Just a reminder, if you plan to tank-mix an insecticide with an herbicide for cutworm control, it should be done at, or immediately following planting. Insecticides combined with early burn-down applications, 2-3 weeks before planting, have not provided effective control. For the most recent pheromone trap catches, be sure to check trap catches posted weekly on the University of Delaware IPM website at <http://ag.udel.edu/extension/IPM/traps/currentbcwtraps.html>

Timothy

We are starting to hear reports from other areas of heavy cereal rust mite activity. As soon as fields green up, you should begin checking for cereal rust mites and the early signs of infested leaves, especially in fields with problems in past years. These mites are microscopic, so the use of a 20x-magnifying lens is necessary. If rust mites become a problem, Sevin XLR Plus still has a 24(c) label on timothy for rust mite management. The following is a link to the 24(c) label for Delaware. <http://www.cdms.net/ldat/ld332028.pdf>. You must have this label in your possession at the time of application.

Wheat

Be sure to begin sampling fields for cereal leaf beetle activity. We have found the first evidence of adult feeding, so fields should be scouted early for the presence of egg masses. In recent years, the threshold for cereal leaf beetle has been adjusted to include sampling for eggs, especially in high management wheat fields or areas where problems were experienced the previous year. The eggs are elliptical, about 1/32 inch long, orange to yellow in color when first laid, changing to a burnt orange prior to hatching. Check our website for pictures of cereal leaf beetle adults, larvae and eggs: <http://www.udel.edu/IPM/facts/clbpictures.htm>

Generally, eggs are laid singly or in small scattered groups (end-to-end) on the upper leaf surface and parallel to the leaf veins. Cereal leaf beetle larvae are brown to black, range in size from 1/32 to 1/4 inch long, and eat streaks of

tissue from the upper leaf surface. Since cereal leaf beetle populations are often unevenly distributed within the field, it is important to carefully sample fields so that you do not over or under estimate a potential problem. Eggs and small larvae should be sampled by examining 10 tillers from 10 evenly spaced locations in the field while avoiding field edges. This will result in 100 tillers (stems) per field being examined. Eggs and larvae may be found on leaves near the ground so careful examination is critical. You should also check stems at random while walking through a major portion of the field and sampling 100 stems. The treatment threshold is 25 or more eggs and/or small larvae per 100 tillers. If you are using this threshold, it is important that you wait until at least 50% are in the larval stage (i.e. after 50% egg hatch).

Why Shouldn't I Let the Animals Graze that Close? – *Richard Taylor, Extension Agronomist;* rtaylor@udel.edu

Early in the spring before cool-season forages really take off, it is often tempting to place animals on pastures and let them graze as close as they want and in doing so you can reduce your need for hay/grain and allow the animals out of confinement. This practice is especially prevalent among those who are not set up for rotational grazing or don't have the time to spend moving animals from pasture to pasture. The potential for damage to your pasture with this practice depends on your stocking density (animal units per acre), pasture species, animal species, weather, fertility, and a number of other factors. I often see this practice used by the small grazer who has limited land with which to work (Photo 1). Let's discuss a few of these factors with emphasis of their impact on pasture health.

Stocking density or the number of grazing animal units per acre often is determined by outside circumstances such as acres of pasture available and number of animals on the farm instead of by forage availability and forage (pasture) growth rate. Early in the spring as grasses and legumes are coming out of the winter and using up the last of their stored energy (starch-sugar-

carbohydrate) reserves to produce new leaves, the amount of leaf area available to intercept sunlight and fix carbon dioxide as sugars is very limited. Pasture plants left ungrazed quickly produce enough leaf area to become self-sustaining and capable of sustaining the rapid growth rate we traditionally think of for cool-season forages in late spring. If animals are allowed to graze this new growth before the pasture plants reach the self-sustaining point, the plants are forced to use any remaining stored food reserves to generate new leaves. When the food reserves eventually are completely used up, the plant, where possible, will cannibalize existing tissue (roots and other tissues) to support new growth. If close grazing persists, plants run out of energy or tissues to sacrifice and die or are weakened to the point that even if grazing is halted the plants are not able to compete with germinating weeds or other plants not favored by the grazing animal.



R. Taylor

Photo 1 An overstocked (2 horses per acre), continuously grazed pasture showing the impact of early grazing on stand density. In the upper left corner, note the winter hay fed site.

Pasture species is another key factor in how well the pasture can adapt to early close grazing. Pasture species that have many basal (low growing) leaves are generally less susceptible to close grazing. Kentucky bluegrass, the ryegrasses, the festuloliums, and to some degree tall fescue have basal leaves that allow them to tolerate some close grazing. Kentucky bluegrass and the ryegrasses will tolerate early close grazing the best.

Horses are one of the closest grazing animals and can often keep pastures grazed right down to the soil level (Photo 2). Horses also graze almost continuously due to the small size of their stomach and the fact that fiber digestion takes place in the enlarged cecum that comes after the small intestines. In addition, we often overstock horses on pastures and this places additional stress on pastures. Whenever you graze early in the season, be sure to understand the grazing habits of your animals and avoid adding additional stress to pastures as they begin spring growth.



R. Taylor

Photo 2 A pasture (April 5) grazed to within a ¼ to ½ inch of the soil surface by horses.

Overgrazing early in the spring can have significant repercussions ranging from stand loss, low vigor (and thus lower yields) for the remainder of the season, weed encroachment, and susceptible plants subject to damage from other seasonal stresses (temperature, moisture, insects, diseases, and weeds). Favorable growing conditions are not enough to overcome the damage done to these pastures that eventually may need partial or complete renovation to restore them to optimal productivity.

What options do you have when you are not set up for rotational grazing? As expensive as it may be to keep animals in the barn or on a sacrifice lot where you will have to provide them with hay or other feed, this remains your best and often only option. You need to keep animals off pastures until adequate growth has occurred. A rule-of-thumb suggests allowing pastures to obtain 2 inches of additional growth (above the

suggested normal height) before the first grazing period for all forages. For example, Kentucky bluegrass, many clovers, and bermudagrass should be about 4 inches high when you begin grazing but for the first spring grazing cycle you should allow them to reach 6 inches before starting.

Another option available is to ensure the animals are well fed before they are let out onto the pasture. This works for ruminants but will not work as well if grazing horses. Horses with their small stomachs tend to graze a large percentage of the time they are on pasture. To use this option with horses, you will need to limit the time they spend on the pasture to a few hours per day, lengthening the time as the grass approaches the suggested height for grazing. A second caution—if you have less than 2 to 3 acres available per horse, you are close to the point of overstocking the pasture and will need to be very careful not to over graze.

A third option partially discussed above is to limit the amount of time the animals are allowed to graze on a pasture in early spring. Depending on the growth rate of the pasture it can range from one or two hours per day to many hours per day. This is appropriate where a lack of interior fencing does not allow rotational grazing but the manager has time available to move animals between the barn or exercise/sacrifice lot and the pasture.

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

Volatile Commodity Markets Become Weather Driven

Now that we have USDA's Planting Intentions Report under our belts we can look for volatility in the commodity markets to increase. This means that we can expect, and are in for, large price swings. Energy production has breathed new life into corn and soybean prices. U.S. farmers have responded by reporting that they intend to plant 90.45 million acres of corn this spring, representing a 12.15 million acre increase over actual corn plantings for last year.

Increased corn acreage is primarily coming from decreased U.S. soybean and cotton acres. The corn market is going to be weather sensitive because large production needs to be realized. The soybean market is going to be weather sensitive because of the huge drop in planted acres indicated in the March 30th report, 67.14 million acres this year vs. 75.5 million acres planted to soybeans last year.

The lion's share of commodity trader attention directed at following weather developments for '07 corn and soybean production will go to what is commonly know as the 'Corn Belt'. Just five states will produce about 55% of all the corn grown in the U.S. this year. They are Iowa, Illinois, Nebraska, Minnesota, and Indiana. Further, the lion's share of attention to what the weather is doing in the Corn Belt will go to the two states that produce 30% of total U.S. corn production: Iowa, and Illinois.

Weather markets are often spoken of, generally possible, and seldom materialize within a production year. However, this year is being billed as the 'exception' to the rule. First, the U.S. is going to need to get somewhere between 87 to 90 million acres of corn planted this year in order to maintain an adequate supply/demand balance. Therefore, any indication of planting delays will result in a 'weather' premium bid into the corn market. We then will need to get somewhere between 87 to 90 million acres of corn pollinated and well on its way to producing a trend line or better yield. The actual size of the '07 U.S. corn crop won't become known until after the first of July. The actual size of the '07 U.S. soybean crop won't become known until August. Therein lies plenty of time for the weather to impact U.S. corn and soybean prices well into early to mid-summer.

Market Strategy

Since the end of March corn and soybean prices have performed in an extremely volatile manner. Dec '07 corn futures are currently trading at \$3.80 per bushel. Nov. '07 soybean futures are trading at \$8.05 per bushel, a 2:1 corn-to-soybean price ratio indicating that corn is still the favored crop to plant.

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of March 29 to April 4, 2007

Readings Taken from Midnight to Midnight

Rainfall:

0.02 inch: April 1

0.77 inch: April 4

Air Temperature:

Highs Ranged from 80°F on April 2 to 56°F on March 31 and April 4.

Lows Ranged from 52°F on April 2 to 30°F on March 30.

Soil Temperature:

56°F average.

(Soil temperature taken at a 2" depth, under sod)

Additional Delaware weather data is available at <http://www.rec.udel.edu/TopLevel/Weather.htm>

Weekly Crop Update is compiled and edited by Emmalea Ernest, Extension Associate - Vegetable Crops

Cooperative Extension Education in Agriculture and Home Economics, University of Delaware, Delaware State University and the United States Department of Agriculture cooperating. Distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914. Delaware Cooperative Extension, University of Delaware. It is the policy of the Delaware Cooperative Extension System that no person shall be subjected to discrimination on the grounds of race, color, sex, disability, age or national origin.