The New York Berry News

CORNELL UNIVERSITY

Volume 01, Number 6 August 16, 2002

What's Inside

Currant News & Events:

January 22-25, 2003: *North American Strawberry Growers Association Annual Meeting*, Puerto Vallarta, Mexico. Contact Erin Griebe 810-229-9407. Email: NASGAHQ@aol.com.

February 18-19, 2003: *The Niagara Peninsula Fruit &Vegetable Growers' Association* and the *Ontario Horticultural Crops Conference* have joined together to bring you the Ontario Fruit & Vegetable Convention (OFVC), Brock University, St Catharines. Theme "Growing Together". Contacts: Chairman: Tony Sgambelluri 905-945-1713 (Cell 905-651-1264); Vice Chair: Bob Cobbledick 905-945-9057; Trade Show Chairmen: Ross Parker 905-562-4136 and Ralph Troup 905-563-826

— Strawberry —

Irrigation is the word across New York State as the dry weather over the past month and a half continues to add unwanted stress to local fruit crops. The lack of water hurt some blueberry and raspberry growers as berries failed to size in time for harvest; and strawberries are a bit sluggish coming out of renovation.

On the bright side, the lack of water and high day time temperatures put a stop to many common berry rots, such as blueberry anthracnose. The only common disease that thrives under these conditions is powdery mildew and, sure enough, this disease has been showing up across the state on a number of farms. Nova 40W is labeled for control of powdery mildew on both raspberry and strawberry. The disease can affect establishment in new strawberry plantings. So, if it is a problem, I would consider at least two applications of Nova 40W at the rate of 2.5 oz/A applied on a 10-14 day schedule.

If you have not done so yet, a foliar nutrient analysis should be on your schedule. Last months issue of the NYBN covered how to go about getting a nutrient analysis (this applies to ALL fruit crops).

— Raspberry —

As fruit ripens, tarnished plant bug continues to represent a threat on fall bearing raspberries, as are cane borer and picnic beetles. Also keep an eye out for symptoms of feeding by potato leafhopper. The greenish adult hoppers inject toxins into leaves as they feed, sometimes causing leaves to curl and to reduce shoot growth. The adult raspberry crown borer makes its appearance in late July and August. The adult is a very attractive moth that superficially resembles a yellow jacket. You may notice the adults resting on foliage during the day. It's the larvae, though, that cause the major problem. Reddish-brown eggs are placed on foliage in August and September. After hatching the larvae find a protected place near the base of the cane to spend the winter. The next spring the larvae enter the crown and roots where they spend the next year. In the second year the larvae continue to feed until early summer, at which time they form pupae and then emerge as adults in late summer to start the cycle over again. During the growing season look for withering, wilting and dying canes, often with half-grown fruit. Destroying these canes may help reduce crown borer populations. Note that no insecticides are currently registered in New York for control of crown borer. In late August or early September keep an eye out for injury on canes originating from egg laying activity of tree crickets. The female inserts eggs in canes, leaving long rows of punctures that can weaken the cane.

This is also the time of year when you should begin to prune out spent floricanes. This is particularly important if cane diseases such as anthracnose, cane blight, or spur blight were present. Diseased canes should be pruned out preferentially and destroyed. If

the prunings are left near a planting they can reinfect the planting again next season.

— Blueberry —

In years when the "typical" problems do not show up, other problems begin to show (or at least take center stage). On blueberries, I have run into at least three interesting disorders this year. First, in several plantings I have seen cases where the new shoots have produced only fruit and no new leaves. I have had a few conversations with colleagues to try to figure out the problem, and everybody seems to agree that this phenomenon was caused by some environmental stress. The exact stress, however, seems to be debatable. It has been suggested that drought stress suffered last year and throughout the winter may have led to this problem; and/or cool temperatures during bloom; and/or drought stress this year. In any case, I think it is important to keep plants well watered during the latter part of summer and fall.

Figure 1. Symptoms of leaf-tip dieback.

A second problem is the occurrence of a 'leaf tip dieback' leading, in some cases, to a shoot dieback. Again, the consensus is that this is being caused by drought stress, possibly in combination with the high temperatures. I would certainly agree that this is a definite possibility. In one of the samples that I came across, however, we found that nearly all of the shoots had damage caused by stem borer. However, not all of the plantings that have this dieback have had borer damage. Therefore, it is important to inspect the shoots for little pinhole entry points and/or slice the shoots lengthwise to see if you can find the borer or its damage (i.e., a hollowed-out pith) to either confirm or eliminate this as a possible cause.

Blueberry stem borer, a beetle. However, the damage is caused by the larva of a beetle. The eggs are deposited on small stems near the tip. After hatching, the legless grub tunnels into the stem and continues down the cane. The larva stays with the stems for three years. Tunneling in canes reduces vigor and weakens the plant. This pest is generally not a serious problem and is managed through selective pruning of weak shoots.

The last problem(?) is what Peter Oudemans refers to as the "Black Shadow" disease. Both Peter and I have run across this 'disease' recently and have attempted to isolate and identify the causal organism and, more importantly, determine what it might be doing to the plant. Initial isolations suggest that we are dealing with a yeast, but we haven't gone as far as to prove that these yeasts are causing the symptoms. At this stage of the game, I am interested in finding out how widespread is Black Shadow...more on this as the story unfolds.

Figure 2. Symptoms of Black Shadow ("BS") disease (photo courtesy of Peter Oudemans).

— Currant & Gooseberry —

Keep an eye out for spider mite damage during the hot and dry period of the summer.

Cornell/UMass Small Fruit Tour Highlights, July 23-24, 2002

Cathy Heidenreich[1], Bill Turechek[1], & Sonia Schloemann[2]. [1] Dept. of Plant Pathology, Cornell University, Geneva, NY; [2]University of Massachusetts, Amherst, MA.

A group of faculty, extension and technical staff, and graduate students from Cornell University attended a 2 day small fruit tour of Massachusetts. The tour was organized by Dr. Bill Turechek (Small Fruit Pathologist at Cornell University) and Sonia Schloemann (Small Fruit Extension Specialist at the University of Massachusetts, Amherst, MA.).

The trip kicked off Tuesday morning with a tour of ***Nourse Farms, Inc.*** Nourse Farms is a commercial fruit farm and small-fruit nursery in their 69th year as a producer of small-fruit plants for commercial growers and home gardeners and is located in the Pioneer Valley of Western Massachusetts.

We first visited the commercial fruit farm where Tim Nourse showed us several commercial plantings of

Figure 1. After spending time in tissue culture, plants are moved to the nursery. The beds with single plants pictured here will fill with runner plants by fall. Dormant runner plants will be machine harvested, sorted, and put into cold storage in early December for spring sales.

strawberries, raspberries, blackberries, red currants, and gooseberry grown for local sales. Next, we visited the nursery where Tim explained the steps involved in the production of strawberry and raspberry (Figure 1). Many of their strawberry raspberry plants originate from tissue cultured mother plants. This practice assures the production of virus-free plants, guarantees that the variety is true to type, and gets growers 2nd to 3rd generation plants.

From here the group returned to the main nursery where we visited the tissue culture facilities where stock plants are propagated, virus indexed and often heat treated prior to becoming the elite stock we saw planted in the nursery beds. Our visit ended with a tasty picnic lunch provided by our hosts, including freshly harvested red raspberries over ice cream, we were able interact with nursery staff and exchange ideas and information. Our many thanks to Tim Nourse and his staff for making us welcome!

The next stop was ***Hamilton Orchards***, located in the hills of New Salem just west of the Quabbin Reservoir. The farm, owned and operated by Bill Hamilton, is a diversified fruit farm that markets their fruit by PYO, an on-site fruit stand, farmers markets and wholesale accounts. Along with 20 acres of tree fruit, Hamilton Orchards has 5 acres each of highbush blueberries, summer and fall raspberries, and blackberries. They have just finished their second year of greenhouse raspberry production and have a SARE Grower Grant to look at outdoor containerized raspberry production using 'Tulameen' long cane plants (Figure 2). The fruit production in this trial was dramatic in both size and yield!

Blueberries here were just coming into harvest at Hamilton's and we stopped to look at the crop as a

Figure 2. Bill Hamilton's containerized raspberry production using 'Tulameen' long cane plants.

thundershower started to roll in. These berries are marketed from their farm stand and processed into baked goods and preserves for farm stand sales as well. They are also sold at the Boston Farm market and other wholesale outlets. We took shelter briefly in the farm stand and then braved the deluge to travel on to our next stop, the ***UMass Cold Spring Orchard Research Center*** in Belchertown, MA.

Torrential rains made driving difficult and the curving mountain roads were awash with heavy rain and debris. In fact, we had an exciting adventure in reaching the

Figure 3. How many scientists does it take to move a tree? Actually, most of the hard work was done by the time this photo was taken. Really!

Research orchard as we encountered a downed tree branch caught in some power lines. After successfully passing this obstacle we were met by another vehicle that hailed us to explain the road was impassable above us due to a large downed tree. That didn't stop us! We decided to investigate further before turning around,

and being resourceful, prepared scientists, we decided we had the technology needed to continue...a hand saw and a lot of hands (Figure 3)!

We arrived finally at the research orchard. This orchard was purchased by the Massachusetts Fruit Growers Association in the 1960's and donated to the university for the purpose of having a facility where researchers at UMass could develop and demonstrate new advances in fruit production. Most of the facility has been devoted to tree fruit production, but more and more small fruits are being integrated into the facility. In addition to research and demonstration, the Cold Spring Orchard is also a self-supporting commercial orchard and education center for school tours etc. Recent small fruit additions to the orchard include a currant and gooseberry planting, a table grape planting and plans are underway for new blueberry plantings and possibly strawberries.

After braving the drizzle to tour the small fruit plantings here, it was decided discretion was the better part of valor and we called it a day and returned to the hotel to dry off. We later sampled some of the local color by dining at the Amherst Brew Pub, which had not only excellent cuisine, including deep fried Prideman pickles, but also lots of different brews to sample.

Day two of the tour began early as we traveled in a convoy to ***Tougas Family Farm*** in Northboro. This farm is also a diversified fruit farm, focusing primarily on PYO. They have approximately 5 acres each of blueberries and strawberries, 2.5 acres of summer and fall raspberries, and a lot of tree fruit. They also have an on-site farm stand and snack bar and petting zoo. Mr. Tougas explained to us that they do about 150 school tours per year, which provides a reasonable income above and beyond the PYO operation. These

tours are primarily for grade school and preschool age children, who have the opportunity to ride in the wagon, pick their own fruit, have lunch and play in the petting zoo and playground area. Cost per child runs $3.50 if they brown bag or $4-$5 if they eat in the snack bar.

The blueberries at Tougas' were completely netted to keep birds out. Unfortunately, the netting was not fine enough to exclude Japanese beetles which were doing a lot of damage to the berries and plants. Mr. Tougas also told us about strawberry cropping problems due to serious root feeding pests such as oriental beetles. The Tougas' are currently working with Rich Cowles of the CT Ag Station in Windsor and making releases of parasitic nematodes for control of these root pests.

The second stop on Wednesday was the ***Kosinski Farm*** in Westfield, the largest blueberry farm on our stop with 30 acres of highbush blueberry under production. Berries are mechanically harvested and packed at this operation, and most of the fruit is sold to wholesale accounts. This also is a diversified fruit and

Figure 5. Mechanical berry sorter at Kosinki's

vegetable farm, with a new roadside stand not far from the main farm.

Our last stop of the tour was ***Blue Heaven Blueberry Farm*** in Chester. And this farm was indeed "blue heaven" high in the Berkshire Mountains, not far from the NY border. This farm, Sonia told us, was typical for the state with 12 acres of blueberries sold to wholesale accounts and as PYO. This site is one of the two confirmed sites in the state where Blueberry Scorch Virus has been found. We were able to see

Figure 6. Symptoms of *Blueberry scorch virus*.

symptoms of the disease in the field (Figure 6), and try out the new Blueberry scorch field detection kits Hydros, Inc.

A good time was had by all and many thanks to our guides, Sonia and Duane, and to the Massachusetts small fruit growers who graciously took time out from their busy schedules to swap notes with a bunch of their New York neighbors!

Mulches in Small Fruit Crops

Kathleen Demchak, Senior Extension Associate, Penn State University, University Park, PA

Mulches include applied organic matter, living mulches, and plastic mulches. Organic forms of mulch offer many benefits to small fruit plantings. They help to conserve soil moisture, minimize soil temperature fluctuations, and eventually become a source of nutrients for the crop plants. Mulch buffers the soil pH, improves the soil structure, and holds minerals in the soil, reducing the amounts of nutrients leached.

The carbon:nitrogen ratio of the mulch largely determines when nitrogen in the mulch becomes available. This is the amount of carbon in the organic matter as compared to the amount of nitrogen. The cutoff for nitrogen tie-up is 30:1, meaning that mulches with a carbon:nitrogen ratio greater than this will tie up nitrogen. If the carbon:nitrogen ratio is less than 20:1, the mulch is a source of nitrogen for the plants. The carbon:nitrogen ratio for any material decreases as it decomposes. Carbon:nitrogen ratios for legumes range from 9:1 to 19:1, so they are a nitrogen source for plants. The C:N ratio for various types of straw can be anywhere from 20:1 to 50:1; for aged, dark brown, hardwood sawdust is around 60:1; and for fresh sawdust ranges from 300:1 to 700:1. This is why fresh sawdust should not be applied to plants, and why additional nitrogen is needed when plants are mulched with sawdust.

Straw mulch is used in strawberries for winter protection. Soil temperatures remain warmer in mulched plantings, and soil freeze/thaw cycles causing root breakage are minimized. Besides protecting the crowns from wind and cold, mulch also provides weed control, helps to keep the berries clean during harvest, and helps control of leather rot and anthracnose. Apply mulch when strawberry plants are dormant (leaves appear somewhat flattened and some cultivars turn reddish). The soil temperature should be around 40˚F for several days. Usually these events occur sometime during late November to mid-December. The mulch should be loosely applied between 3 and 6 inches thick, and should be free of weed and grain seeds. As a rule of thumb, it takes about 1 ton of straw per acre to apply 1 inch of mulch. Any type of straw can be used, though wheat is best. Rye straw compacts, and oats and barley break down quickly, and may be nearly gone by harvest. Remove mulch when the soil temperatures again reach 40˚F, usually in late March or early April. Growers sometimes delay mulch removal in order to delay bloom. While this works to a limited extent, bloom will be delayed by only a couple of days, and yields will be decreased if mulch removal is delayed too long.

In bramble production, straw mulch should be applied during the establishment year. Raspberry root growth is decreased if soil temperatures are too high. Tissue cultured raspberry plants are sensitive to herbicides. Mulching raspberries decreases soil temperatures, increases soil moisture, and provides weed control. The mulch should be applied to a depth of 2-4 inches. After the establishment year, foliage from the plants will shade the ground, giving many of the same benefits that mulch does during the establishment year. Do not mulch raspberries after the establishment year, especially if soils are heavy. Root rots may otherwise set in.

Mulching is important for blueberry production on mineral soils. Blueberry roots are fine, have no root hairs, need soil with an open structure, don't tolerate dry soil, and don't tolerate heat. In nature, blueberries grow in soils with a high organic matter content. Blueberries grow best at a soil pH of 4.5-5.0, but may tolerate a wider range if they are mulched. If blueberries are grown in a mineral soil and are mulched, the roots are often found at the interface of the soil and mulch. The roots will cover a wide area, but may be quite shallow. If mulching is discontinued, the roots will become exposed, dry out, and be exposed to high temperatures. Many sources of organic matter work

well, though those with a high pH or salt content should be avoided. Sawdust or bark is most commonly used, in which case additional nitrogen will probably be needed. The mulch should be applied 3-5" deep and 3-4' wide. About 1 inch will be lost per year, so it should be replenished every 2-3 years.

Living mulches have been tested in strawberry production. Benefits include wind protection, use as a winter mulch grown "in place", and weed control between the rows. Results from these experiments varied quite widely with the type of crop grown as the living mulch. Yield increases have been found upon occasion, but more commonly yields of strawberries have been depressed or stayed the same. Until more data is obtained, this practice is not recommended except on a small-scale basis for growers who wish to try it.

Sod planted between the rows in bramble and blueberry production could loosely be considered a living mulch, and is valuable for weed control between the rows. Hard fescue, in particular, has worked well as a non-encroaching slow-growing sod.

Plastic mulch is used in strawberries and can be used for day-neutral strawberry production. Black plastic is most commonly used; other colors of mulch have been tried on a limited basis. Black plastic reduces weed competition except through the planting holes, warms the soils, and increases soil moisture. This obviously can only be used in systems where runner production and daughter plant establishment is not needed. The ability to fertigate also must be factored in, as nutrients cannot otherwise be applied post-planting. Plastic mulch also has been used in bramble production during the establishment year, though the benefits are questionable as new primocanes will find it difficult to emerge and the mulch will need to be removed. Plastic mulch should not be used in blueberry production, as the application of an organic mulch will deliver many of the same benefits in a more suitable manner. If plastic mulch is used, eventually blueberry roots will end up growing in two tiers, both above and below the plastic. *(Source:* All Ontario Berry Grower Vol 8, August 2002)

Bad Bug Smackdown

Art Agnello, Dept. of Entomology, Cornell University, Geneva, NY

[*Editor's note:* Although originally written for a tree fruit audience, the natural enemies discussed here can be found in small fruit systems and are just as important to conserve.]

There are many insects present in apple orchards that provide a benefit to growers by feeding on pest species. It is important that growers and orchard managers be able to recognize these natural enemies, so that they are not mistaken for pests. The best way to conserve beneficial insects is to spray only when necessary, and to use materials that are less toxic to them (see Tables 5 and 12 in the Pest Management Guidelines for Commercial Tree Fruit Production). This brief review, taken from the New York IPM Tree-Fruit Fact Sheet No. 18, covers the major beneficial insects that are likely to be seen in N.Y. orchards, concentrating on the most commonly seen life stages. Factsheet No. 23, "Predatory Mites", reviews mites that are important predators of leaf-feeding mites.

CECIDOMYIID LARVAE (*Aphidoletes aphidimyza*)

This fly (Family *Cecidomyiidae*) is an aphid predator, and overwinters as a larva or pupa in a cocoon. Adults emerge from this cocoon, mate, and females lay eggs among aphid colonies. The adults are delicate, resembling mosquitoes, and are not likely to be seen. The eggs are very small (about 0.3 mm or 1/85 in. long) and orange. They hatch into small, brightly colored, orange larvae that can be found eating aphids on the leaf surface. These predacious larvae are present from mid-June throughout the summer. There are 3-6 generations per year. In addition to aphids, they also feed on soft-bodied scales and mealybugs.

SYRPHID FLY LARVAE (Family *Syrphidae*)

The Family Syrphidae contains the "hover flies", so named because of the adults' flying behavior. They are brightly colored with yellow and black stripes, resembling bees. Syrphids overwinter as pupae in the soil. In the spring, the adults emerge, mate, and lay single, long whitish eggs on foliage or bark, from early spring through mid-summer, usually among aphid colonies. One female lays several eggs. After hatching, the larvae feed on aphids by piercing their bodies and sucking the fluids, leaving shriveled, blackened aphid cadavers. These predacious larvae are shaped cylindrically and taper toward the head. There are 5-7 generations per year. Syrphid larvae feed on aphids, and may also feed on scales and caterpillars.

LADYBIRD BEETLES (Family *Coccinellidae*)

• *Stethorus punctum*: This ladybird beetle is an important predator of European red mite in parts of the northeast, particularly in Pennsylvania, and has been observed intermittently in the Hudson Valley of N.Y., and occasionally in western N.Y. *Stethorus* overwinters as an adult in the "litter" and ground cover under trees, or in nearby protected places. The adults are rounded, oval, uniformly shiny black, and are about 1.3-1.5 mm (1/16 in.) long. Eggs are laid mostly on the undersides of the leaves, near the primary veins, at a density of 1-10 per leaf. They are small and pale white, and about 0.3-0.4 mm (1/85 in.) long. Eggs turn black just prior to hatching. The larva is gray to blackish with numerous hairs, but becomes reddish as it matures, starting on the edges and completing the change just prior to pupation.

There are 3 generations per year in south-central Pennsylvania, with peak periods of larval activity in mid-May, mid-June and mid-August. The pupa is uniformly black, small and flattened, and is attached to the leaf.

• Other Ladybird Beetles: Ladybird beetles are very efficient predators of aphids, scales and mites. Adults are generally hemisphere-shaped, and brightly colored or black, ranging in size from 0.8 to over 8 mm (0.03-0.3 in.). They overwinter in sheltered places and become active in the spring. Eggs are laid on the undersides of leaves, usually near aphid colonies, and are typically yellow, spindle-shaped, and stand on end. Females may lay hundreds of eggs. The larvae have well-developed legs and resemble miniature alligators, and are brightly colored, usually black with yellow. The pupal case can often be seen attached to a leaf or branch. There are usually 1-2 generations per year. One notable species that is evident now is *Coccinella septempunctata,* the sevenspotted lady beetle, often referred to as C-7. This insect, which is large and reddish-orange with seven distinct black spots, was intentionally released into N.Y. state beginning in 1977, and has become established as an efficient predator in most parts of the state.

LACEWINGS (Family *Chrysopidae*)

Adult lacewings are green or brown insects with net-like, delicate wings, long antennae, and prominent eyes. The larvae are narrowly oval with two sickle-shaped mouthparts, which are used to pierce the prey and extract fluids. Often the larvae are covered with "trash", which is actually the bodies of their prey and other debris. Lacewings overwinter as larvae in cocoons, inside bark cracks or in leaves on the ground. In the spring, adults become active and lay eggs on the trunks and branches. These whitish eggs are laid singly and can be seen connected to the leaf by a long, threadlike "stem". Lacewings feed on aphids, leafhoppers, scales, mites, and eggs of Lepidoptera (butterflies and moths).

TRUE BUGS (Order *Hemiptera*)

There are many species of "true bugs" (Order Hemiptera) such as tarnished plant bug, that feed on plants, but a number of them are also predators of pest species. The ones most likely to be seen are "assassin bugs" or reduviids (Family *Reduviidae*), and "damsel bugs" or nabids (Family *Nabidae*). These types of predators typically have front legs that are efficient at grasping and holding their prey.

PARASITOIDS

Parasitoids are insects that feed on or in the tissue of other insects, consuming all or most of their host and eventually killing it. They are typically small wasps (Order Hymenoptera), or flies (Order Diptera). Although the adult flies or wasps may be seen occasionally in an orchard, it is much more common to observe the eggs, larvae, or pupae in or on the parasitized pest insect. Eggs may be laid directly on a host such as the obliquebanded leafroller, or near the host, such as in the mine of a spotted tentiform leafminer. After the parasitoid consumes the pest, it is not unusual to find the parasitized larvae or eggs of a moth host, or aphids that have been parastized ("mummies"). Exit holes can be seen where the parasitoid adult has emerged from the aphid mummy.

GENERALIST PREDATORS

There is a diversity of other beneficial species to be found in apple orchards, most of which are rarely seen, but whose feeding habits make them valuable additions to any crop system. The use of more selective pesticides helps to maintain their numbers and contributes to the level of natural control attainable in commercial fruit plantings. Among these beneficials are:

• Spiders (Order Araneae): All spiders are predaceous and feed mainly on insects. The prey is usually killed by the poison injected into it by the spider's bite. Different spiders capture their prey in different ways; wolf spiders and jumping spiders forage for and pounce on their prey, the crab spiders lie in wait for their prey on flowers, and the majority of spiders capture their prey in nets or webs.

• Ants (Family Formicidae): The feeding habits of ants are rather varied. Some are carnivorous, feeding on other animals or insects (living or dead), some feed on plants, some on fungi, and many feed on sap, nectar, honeydew, and similar substances. Recent research done in Washington has shown certain species (Formica spp.) of ants to be effective predators of pear psylla.

• Earwigs (Family Forficulidae): Although these insects may sometimes attack fruit and vegetable crops, those found in apple orchards are probably more likely to be scavengers that feed on a variety of small insects.

Skin Cancer and the Farmer

Michelle Bross, Burlington County Master Gardener &
Raymond Samulis, Burlington County Agricultural Agent

Probably more than any other group of workers, farmers know and respect the importance of the sun. But because they are outdoors and are exposed to the sun on a daily basis, they are also high on a list of candidates for sunburn, premature aging and skin cancer. At a 1991 farm event in Wisconsin, a health screening showed that nearly 25 percent of the 780

people checked had some sort of pre-cancerous skin disorder.

When exposed to the sun, skin can go through a series of short-term changes:

• *Suntan:* as a defense mechanism to the sun, the body produces a pigment called melanin, which turns the skin brown. Tanning does not prevent skin cancer.

• *Sunburn:* occurs when the body received excessive amounts of radiation, of which the full effect is not realized until 14 to 24 hours later. The skin may also blister, which indicates a second-degree burn.

Exposure to the sun can also have some long-term effects:

• *Skin changes:* the sun can cause the skin to age, wrinkle, thicken, dry out, freckle and blemish, and develop a rough texture.

• *Skin cancers:* are caused by excessive exposure to the sun's ultra-violet rays. Sunburns are not the only conditions that can lead to the development of skin cancer.

Contrary to some beliefs, skin cancer is not associated with any single event, such as severe sunburn, but rather with progressive changes in the skin's makeup over years of sun exposure. Research has shown that cumulative sun exposure is a major factor in the development of skin cancer. Small changes occur in the skin each time it is exposed to sunlight. People, who freckle, burn easily, rarely tan, have a fair complexion, have blond or red hair and have blue or gray eyes, experience greater skin changes. Other risk factors are a history of skin cancer in the family and geographic location (ultra-violet light is stronger as elevation increases, and where there is less cloud cover.)

Types of skin cancer

There are three main types of skin cancer. Basal-cell carcinoma and Squamous-cell carcinoma are very common and easily curable. Melanoma, if not detected early, can be very dangerous and even deadly. Every year, approximately 32,000 new cases of Melanoma develop, causing about 6,700 deaths. Melanoma is different from other skin cancers because it has a tendency to spread to other parts of the body. Once it reaches vital organs, Melanoma is very difficult to treat, and can be lethal.

People who work outdoors (such as agricultural workers), are exposed to the sun on a daily basis. It is extremely important that they be keenly aware of skin cancer's warning signals, and get into the habit of doing regular examinations of their skin.

The best way to find early skin cancer is to look for changes in skin growths or the appearance of new growths. Some changes are:

• Change in size or color of a mole, pigmented growth or spot.

• Oozing, bleeding or change in the appearance of a bump or nodule.

• Spread of pigmentation beyond its border.

• Change in sensation, such as itchiness, tenderness or pain.

If any of these warning signs exist, it is imperative that the physician be contacted as soon as possible. Early detection is critical. Nearly 100 percent of those patients diagnosed with basal and squamous cell cancers will survive five years or more if treated promptly. Melanoma patients, if treated promptly, have a 90 percent chance of a five-year survival rate.

Prevention of Skin Cancer

The easiest way to reduce exposure to ultra-violet radiation is to avoid the sun. Critical times are midday hours between 10:00 a.m. and 3:00 p.m. This may be impossible for some workers, but scheduling tasks around this period could reduce exposure when sun is the most dangerous. If at all possible, make use of shaded areas during the high-risk hours, and use a tractor fitted with shade protection. The ears, face, eyes and back of the neck are extremely sensitive to sun exposure. Luckily, these and other body parts can easily be protected from the sun by wearing proper clothing, sunglasses and sunscreen.

Protection for the face and other parts of the head is easy: wear a hat. Although the baseball cap has been the trademark of many farmers, it does not protect the ears, temples and neck. Hats that have full, wide brims will do a better job on those areas. The hat must also be practical for other conditions, such as heat, humidity, wind and rain. A Wisconsin study found that farmers want a hat that is attractive, inexpensive and washable. But, the key is to wear the hat. The most, well-designed hat is ineffective if it's seldom worn. Even the most effective hats can block only 50 percent of the ultraviolet rays that reach the eyes. A good shade hat, combined with the use of sunglasses, is a better way to protect eyes from sun exposure. Proper clothing can also protect against the sun and minimize heat stress. Lightweight long-sleeved shirts with collars, and long pants, preferably 100 percent cotton, provide both comfort and protection. Parts of the body that cannot be covered can be protected with sunscreen. Sunscreens recommended for outdoor workers should have a sun protection factor (SPF) rating of at least 15. Read the label to know when to re-apply and whether it is

waterproof.

Remember: people who spend a lot of time outdoors working can suffer from more than just exhaustion or heat stress. They are at risk for skin cancer and other diseases that result from years of exposure to the sun. Be aware of the risks and make it a habit to protect yourself. References: www.ae.iastate.edu and www.maui.net. (*Source:* Blueberry Bulletin, Vol. XVIII, No. 17)

Check out the NYSAES Tree Fruit and Berry Pathology web site at:

www.nysaes.cornell.edu/pp/extension/tfabp

Questions or Comments about the New York Berry News?

Send inquiries to:

Dr. William (Bill) Turechek
New York Berry News, Editor
Department of Plant Pathology
New York State Agricultural Experiment Station
690 W. North Street
Geneva, NY 14456

OR *Email*: wwt3@cornell.edu

WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, JULY 21st, 2002

	Temperature				Growing Degree Days (Base 50)			Precipitation (Inches)			
	High	Low	Avg	DFN[1]	Week	Season[2]	DFN	Week	DFN	Season	DFN
Hudson Valley											
Albany	91	58	74	2	171	1380	139	0.18	-0.52	12.89	0.71
Glens Falls	88	49	69	-2	135	1155	80	0.92	0.26	13.61	1.91
Poughkeepsie	91	57	74	2	169	1347	49	1.85	0.94	18	3.64
Mohawk Valley											
Utica	90	55	72	2	152	1211	100	0	-0.84	19.99	6.04
Champlain Valley											
Plattsburg	83	51	67	-5	120	1084	-17	0	-0.68	16.39	5.67
St. Lawrence Valley											
Canton	84	49	69	1	137	1076	112	0.07	-0.7	16.12	4.78
Massena	83	50	68	-2	127	1040	11	0.12	-0.58	16.78	6.35
Great Lakes											
Buffalo	88	60	75	4	176	1303	127	0.13	-0.54	11.3	-0.29
Colden	87	52	69	2	137	1047	107	0	-0.77	11.99	-1.97
Niagara Falls	91	58	75	4	180	1263	74	0.21	-0.41	12.17	0.77
Rochester	94	58	75	5	175	1390	237	0.06	-0.52	13.81	3.69
Watertown	85	46	70	2	140	1067	104	0	-0.41	11.93	2.77
Central Lakes											
Dansville	92	55	73	4	165	1293	145	1.27	0.62	12.52	0.86
Geneva	90	56	73	3	165	1255	127	0	-0.63	12.71	1.08
Honeoye	90	51	71	-1	151	1194	22	0.72	0.13	13.85	2.43
Ithaca	90	54	72	4	153	1163	143	1.46	0.69	16.76	4.41
Penn Yan	92	56	75	4	174	1324	196	0.18	-0.45	10.43	-1.2
Syracuse	93	56	74	4	169	1394	230	0.01	-0.83	16.24	3.21
Warsaw	84	55	70	4	142	1038	165	0.05	-0.69	18.16	4.66
Western Plateau											
Alfred	90	56	72	5	155	1144	209	0.32	-0.49	15.45	1.82
Elmira	93	54	73	3	159	1239	153	0.28	-0.48	15.73	3.71
Franklinville	87	51	69	4	133	971	194	0.95	0.18	16.71	3.15
Sinclairville	87	58	71	5	149	1095	212	0	-0.88	15.53	0.47
Eastern Plateau											
Binghamton	88	57	72	3	155	1173	122	0.67	-0.1	17.29	4.8
Cobleskille	90	53	71	3	150	1151	178	0.76	-0.01	14.38	0.83
Morrisville	86	54	70	2	138	994	72	0.23	-0.54	17.45	4.12
Norwich	92	53	71	3	148	1097	125	1.08	0.31	17.27	3.67
Oneonta	92	54	73	6	160	1224	326	1.54	0.65	18.4	3.7
Coastal											
Bridgehampton	95	56	74	3	172	1306	169	0.4	-0.23	13.57	0.16
New York	95	70	81	5	218	1932	298	0.92	-0.03	13.06	-0.89

1. *D*eparture *F*rom *N*ormal
2. Season accumulations are for April 1st to date

The information contained in these weekly releases are obtained from the New York Agricultural Statistics Service (http://www.nass.usda.gov/ny/), who in turn obtains information from reports from Cornell Cooperative Extension agents, USDA Farm Service Agency, Agricultural Weather Information Service Inc., the National Weather Service and other knowledgeable persons associated with New York agriculture. Their cooperation is greatly appreciated.

WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, JULY 28th, 2002

	Temperature				Growing Degree Days (Base 50)			Precipitation (Inches)			
	High	Low	Avg	DFN[1]	Week	Season[2]	DFN	Week	DFN	Season	DFN
Hudson Valley											
Albany	92	56	73	2	165	1545	149	0.33	-0.37	13.22	0.34
Glens Falls	87	46	70	-2	140	1295	80	0.17	-0.53	13.78	1.38
Poughkeepsie	93	57	71	-2	150	1497	38	1.39	0.53	19.39	4.18
Mohawk Valley											
Utica	94	54	72	2	154	1365	107	0.81	-0.03	20.8	6.01
Champlain Valley											
Plattsburg	93	51	69	-3	133	1217	-27	1.13	0.39	17.52	6.06
St. Lawrence Valley											
Canton	89	44	70	2	140	1215	118	1.33	0.55	17.45	5.33
Massena	88	45	68	-2	127	1167	-1	0.67	-0.06	17.45	6.29
Great Lakes											
Buffalo	91	55	73	3	165	1468	140	2.17	1.45	13.47	1.16
Colden	85	48	68	0	127	1174	108	0.52	-0.25	12.51	-2.22
Niagara Falls	90	51	73	2	165	1428	89	1.32	0.68	13.49	1.45
Rochester	95	53	74	4	167	1557	259	1.25	0.62	15.06	4.31
Watertown	92	46	70	2	144	1211	115	1.57	1.12	13.5	3.89
Central Lakes											
Dansville	90	50	71	0	147	1440	145	1.29	0.66	13.81	1.52
Geneva	93	48	71	0	148	1403	128	1.47	0.84	14.18	1.92
Honeoye	91	47	71	-2	146	1340	14	1.06	0.45	14.91	2.88
Ithaca	90	50	70	2	145	1308	155	0.35	-0.41	17.11	4
Penn Yan	93	51	73	2	159	1483	208	1.03	0.4	11.46	-0.8
Syracuse	98	53	75	5	176	1570	259	0.52	-0.32	16.76	2.89
Warsaw	88	49	68	2	128	1166	174	1.97	1.23	20.13	5.89
Western Plateau											
Alfred	91	51	70	3	141	1285	228	1.24	0.47	16.69	2.29
Elmira	92	50	72	3	154	1393	167	0.31	-0.39	16.04	3.32
Franklinville	87	45	67	3	124	1095	206	1.18	0.41	17.89	3.56
Sinclairville	88	55	71	4	147	1242	240	2.85	1.96	18.38	2.43
Eastern Plateau											
Binghamton	88	54	70	1	142	1315	124	0.19	-0.58	17.48	4.22
Cobleskille	90	53	70	3	142	1293	193	0.3	-0.47	14.68	0.36
Morrisville	87	52	68	0	130	1124	76	0.43	-0.34	17.88	3.78
Norwich	91	53	70	2	140	1237	134	0.52	-0.19	17.79	3.48
Oneonta	91	54	71	4	146	1370	353	0.84	0	19.24	3.7
Coastal											
Bridgehampton	85	51	69	-4	135	1441	149	0.51	-0.16	14.08	0
New York	97	64	76	-2	183	2115	292	0.12	-0.79	13.18	-1.68

1. *D*eparture *F*rom *N*ormal
2. Season accumulations are for April 1st to date

The information contained in these weekly releases are obtained from the New York Agricultural Statistics Service (http://www.nass.usda.gov/ny/), who in turn obtains information from reports from Cornell Cooperative Extension agents, USDA Farm Service Agency, Agricultural Weather Information Service Inc., the National Weather Service and other knowledgeable persons associated with New York agriculture. Their cooperation is greatly appreciated.

WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, AUGUST 4th, 2002

	Temperature				Growing Degree Days (Base 50)			Precipitation (Inches)			
	High	Low	Avg	DFN[1]	Week	Season[2]	DFN	Week	DFN	Season	DFN
Hudson Valley											
Albany	92	63	78	6	196	1741	191	0.32	-0.44	13.54	-0.1
Glens Falls	92	57	75	6	176	1471	117	0.96	0.2	14.74	1.58
Poughkeepsie	92	62	77	5	188	1685	66	0.56	-0.28	19.95	3.9
Mohawk Valley											
Utica	94	58	76	7	185	1550	149	0.21	-0.59	21.01	5.42
Champlain Valley											
Plattsburg	88	58	75	6	177	1394	10	0.05	-0.77	17.57	5.29
St. Lawrence Valley											
Canton	87	60	76	9	183	1398	173	0.16	-0.69	17.61	4.64
Massena	87	59	75	6	176	1343	42	0.16	-0.61	17.61	5.68
Great Lakes											
Buffalo	88	63	77	7	192	1660	185	0.84	0.03	14.31	1.19
Colden	86	53	73	6	163	1336	144	0	-0.83	12.51	-3.05
Niagara Falls	90	58	77	7	193	1621	135	0.58	-0.16	14.07	1.29
Rochester	93	60	79	10	204	1761	323	0.21	-0.48	15.27	3.83
Watertown	88	57	75	7	177	1388	159	0.29	-0.27	13.79	3.62
Central Lakes											
Dansville	91	59	76	7	187	1627	191	0.48	-0.17	14.29	1.35
Geneva	91	60	77	8	193	1596	176	0.44	-0.19	14.62	1.73
Honeoye	92	54	76	5	181	1521	46	0.61	-0.03	15.52	2.85
Ithaca	94	55	76	8	185	1493	207	0.27	-0.5	17.38	3.5
Penn Yan	94	61	79	10	208	1691	271	0.27	-0.36	11.73	-1.16
Syracuse	98	60	80	10	211	1781	327	0.84	0.05	17.6	2.94
Warsaw	86	57	73	7	164	1330	220	0.46	-0.31	20.59	5.58
Western Plateau											
Alfred	90	57	75	9	179	1464	288	0.73	0.03	17.42	2.32
Elmira	95	55	77	8	191	1584	219	0.25	-0.45	16.29	2.87
Franklinville	88	53	73	9	166	1261	267	0.92	0.08	18.81	3.64
Sinclairville	87	60	74	8	166	1404	283	0.45	-0.46	18.83	1.97
Eastern Plateau											
Binghamton	91	59	76	8	185	1500	176	0.15	-0.62	17.63	3.6
Cobleskille	93	57	76	9	181	1474	248	0.52	-0.24	15.2	0.12
Morrisville	89	57	75	8	174	1298	128	0.62	-0.15	18.5	3.63
Norwich	94	56	76	8	182	1419	190	0.46	-0.24	18.25	3.24
Oneonta	92	60	76	11	184	1554	418	0.52	-0.32	19.76	3.38
Coastal											
Bridgehampton	94	64	80	8	209	1650	202	0.14	-0.56	14.22	-0.56
New York	96	72	85	8	243	2358	346	0.66	-0.24	13.84	-1.92

1. *D*eparture *F*rom *N*ormal
2. Season accumulations are for April 1st to date

The information contained in these weekly releases are obtained from the New York Agricultural Statistics Service (http://www.nass.usda.gov/ny/), who in turn obtains information from reports from Cornell Cooperative Extension agents, USDA Farm Service Agency, Agricultural Weather Information Service Inc., the National Weather Service and other knowledgeable persons associated with New York agriculture. Their cooperation is greatly appreciated.

WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, AUGUST 11th, 2002

	Temperature				Growing Degree Days (Base 50)			Precipitation (Inches)			
	High	Low	Avg	DFN[1]	Week	Season[2]	DFN	Week	DFN	Season	DFN
Hudson Valley											
Albany	92	52	72	2	154	1895	197	0	-0.77	13.54	-0.87
Glens Falls	88	45	68	-2	127	1598	111	0	-0.81	14.74	0.77
Poughkeepsie	90	51	68	-5	130	1815	42	0.42	-0.42	20.37	3.48
Mohawk Valley											
Utica	92	50	68	-2	127	1677	137	0.17	-0.65	21.18	4.77
Champlain Valley											
Plattsburg	85	50	69	0	134	1528	12	0.02	-0.89	17.59	4.4
St. Lawrence Valley											
Canton	86	46	67	-2	119	1517	139	0	-0.91	17.61	3.73
Massena	85	51	67	-2	121	1464	35	0	-0.83	17.61	4.85
Great Lakes											
Buffalo	85	53	69	-3	133	1793	175	0	-0.9	14.31	-0.29
Colden	86	48	66	-3	109	1445	133	0.22	-0.64	12.73	-3.69
Niagara Falls	87	582	69	-2	133	1754	126	0	-0.83	14.07	0.46
Rochester	89	53	71	2	145	1906	334	0	-0.76	15.27	3.07
Watertown	84	44	66	-3	112	1500	143	0	-0.67	13.79	2.95
Central Lakes											
Dansville	89	48	66	-4	115	1742	167	0.26	-0.44	14.55	0.91
Geneva	86	54	68	-3	127	1723	163	0	-0.69	14.62	1.04
Honeoye	90	45	66	-5	117	1638	17	0	-0.7	15.52	2.15
Ithaca	91	46	66	-2	116	1609	196	0.08	-0.69	17.46	2.81
Penn Yan	91	52	70	0	142	1833	273	0.03	-0.66	11.76	-1.82
Syracuse	93	54	70	1	142	1923	331	0.28	-0.49	17.88	2.45
Warsaw	82	50	65	-2	104	1434	212	0.18	-0.66	20.77	4.92
Western Plateau											
Alfred	88	42	64	-3	101	1565	273	0.33	-0.37	17.75	1.95
Elmira	94	43	67	-3	120	1704	206	0.38	-0.31	16.67	2.56
Franklinville	85	41	62	-3	87	1348	249	0.56	-0.29	19.37	3.35
Sinclairville	84	47	65	-2	103	1507	272	0.07	-0.9	18.9	1.07
Eastern Plateau											
Binghamton	92	51	68	-2	123	1623	168	0.32	-0.41	17.95	3.19
Cobleskille	92	48	67	-1	122	1596	247	0.3	-0.47	15.5	-0.35
Morrisville	87	49	65	-3	105	1403	115	0.44	-0.33	18.94	3.3
Norwich	94	47	66	-2	113	1532	180	0.17	-0.54	18.42	2.7
Oneonta	91	50	68	3	130	1684	434	0.26	-0.58	20.02	2.8
Coastal											
Bridgehampton	94	55	73	2	164	1814	212	0.34	-0.41	14.56	-0.97
New York	92	62	77	1	189	2547	350	0.01	-0.83	13.85	-2.75

1. *D*eparture *F*rom *N*ormal
2. Season accumulations are for April 1st to date

The information contained in these weekly releases are obtained from the New York Agricultural Statistics Service (http://www.nass.usda.gov/ny/), who in turn obtains information from reports from Cornell Cooperative Extension agents, USDA Farm Service Agency, Agricultural Weather Information Service Inc., the National Weather Service and other knowledgeable persons associated with New York agriculture. Their cooperation is greatly appreciated.