

PLANT & PEST ADVISORY

A RUTGERS COOPERATIVE EXTENSION PUBLICATION



Soil, Salt and Tomato Taste

Joseph Heckman, Ph.D., Specialist in Soil Fertility

Sodium and chlorine are nutrients rarely thought of as being potentially limiting or of much importance to tomato production or fruit quality. Nevertheless, a reexamination of traditional fertilizer practices in New Jersey suggests that the combination of these two nutrients (which together make sodium chloride or salt) may be a factor missing from modern tomato cultural practices. In “the olden days” Chilean nitrate (sodium nitrate) was widely used as a nitrogen source in vegetable crop production. But in recent decades it has mostly been replaced with other nitrogen fertilizers that do not provide sodium. Chloride is regularly applied to vegetable crops in the form of potassium chloride (also known 0-0-60).

Observations from some field trials conducted in New Jersey in 2002 and other studies from Israel and Italy appear to suggest that the current near absence of sodium in fertilizers, due to its replacement with other nutrient sources, may have had unanticipated consequences on the flavor of the Jersey tomato. The Israeli researchers described their findings as “results show that the quality – in terms of chemical constituents (mainly sugars and acids), pigments, and especially taste – of fruits from saline-treated plants is superior to that of those from control plants. The improved taste under salinity may stem from salinity-increased acids and sugars and/or from an increase of other flavoring compounds...”

My lab recently conducted some additional field trials to evaluate the effect of amending soil with natural sea salt on the flavor of tomato. We used a product called SEA90 as the source of salt. This material, derived from a marine deposit, is a rich source of sodium, chloride, and smaller concentrations of a wide spectrum of naturally occurring minerals. We applied the SEA90 (5.25 grams per sq. ft.) under the plastic mulch to two varieties of tomato (Ramapo and Florida-47) grown at the Rutgers Snyder Research & Extension Farm in Pittstown, NJ. A similar study was also conducted at the Rutgers Vegetable Research Farm in East Brunswick, NJ but without plastic mulch and somewhat different cultural practices. When the tomato fruit were vine ripe, tomato flavor was evaluated using a taste test panel composed of Rutgers faculty and staff. They were asked to rate several fruit quality and taste parameters from the treated and control plants without any awareness of treatment or the nature of the experiment.

SEE TOMATO TASTE ON PAGE 2

INSIDE

Soil, Salt and Tomato Taste	1
Vegetable Diseases Update	2
Vegetable Diseases of the Week	4
Controlling Leather Rot of Strawberry	5
Insect Update	5
Legislation to Regulate Food Safety Proposed in Washington.....	6
Weekly Weather Summary	7

TOMATO TASTE FROM PAGE 1

For the trial conducted at the Snyder Farm, the taste panel preferred the tomato fruit from the salt (SEA90) treated plants over the fruit from the untreated plants. At the other field trial conducted at the Vegetable Research Farm, the taste panel generally preferred the fruit from the untreated plants. The reason for the different results for the salt treatment is not clear, but the use of different cultural practices may have been a factor. Although we did not collect crop yield data, we did not observe any obvious negative effects of the salt treatment on tomato plant size or fruit production. Additional field trials with SEA90 are planned for the 2009 growing season.

For growers interested in conducting a small trial to evaluate the effect of salt fertilizer on tomato taste here is a suggested protocol: Use 46 grams of SEA-90 a product that is mostly sea salt; Website: www.SeaAgri.com to treat an area 4 square feet or land area needed to grow one tomato plant. Apply the treatment by mixing the SEA-90 product into the soil at time of planting. Flag the treated plant and perform your own personal taste test by comparing the treated fruits to other fruits of the same tomato variety from another part of the field. Leave some border space between plants when sampling fruits for comparing treated and untreated plants. An alternative approach is to use sea water from the Atlantic Ocean. 1300 ml (or 0.35 gallons) of sea water contains about 46 grams of salt which is enough to treat one tomato plant. Apply this seawater as a soil drench around the base of the plant two weeks after transplanting. To prevent leaf burn, do not allow the seawater to touch the leaves.

For growers interested in conducting an on-farm trial, we would be pleased if you report your observations to us. E-mail us at njfarmfresh@njaes.rutgers.edu (with Soil Salinity Trial in the subject line) or call 732-932-7000, ext. 4208 with your contact information so we can follow up during the season. □

Vegetable Disease Update

Andy Wyenandt, Ph.D., Specialist in Vegetable Pathology and Wesley Kline, Ph.D., Cumberland County Agricultural Agent

✓ **Asparagus – Phytophthora crown and spear rot** – In fields with low spots (poorly drained soils) or fields with a history of crown and/or spear rot apply Ridomil Gold 4E (mefenoxam, 4) at 1.0 pt/A, or Ultra Flourish 2E/A (mefenoxam, 4) at 2.0 pt/A, or MetaStar 2E (metalaxyl, 4) at 2.0 qt/A over beds just before 1st harvest. For new plantings, apply the same after planting or after crown covering. For more information please see *2009 New Jersey Commercial Vegetable Production Recommendations Guide*.

✓ **Cabbage – Damping-off** – To help control losses due to damping-off pathogens apply Ridomil Gold (mefenoxam, FRAC code 4) at 1 to 2 pt/A 4E or Quadris (azoxystrobin, 11) at 0.40 to 0.80 fl oz 2.08F/1000 row ft (for Rhizoctonia only), or Ridomil Gold at 1 to 2 pt/A 4E plus Quadris at 0.40 to 0.80 fl oz 2.08F/1000 row ft. in a band up to 7 in. after seeding. For more information please see *2009 New Jersey Commercial Vegetable Production Recommendations Guide*.

✓ **Cole crops – Downy Mildew and Alternaria** – The spring season is just around the corner and its not to early to think about Downy mildew and Alternaria control. Symptoms of Downy mildew include purple to yellowish-brown spots on upper leaf surfaces. A grayish-white spore mass will develop and cover the underside of leaves under ideal temperatures (night temperatures of 46 to 61°F and day temperatures below 75°F. Downy mildew can kill young plants. Heavily infected leaves may drop providing entry points for bacterial infections (Black rot and Soft rot). Symptoms of Alternaria on infected leaves include small, expanding circular lesions with concentric rings that may have a 'shot-hole' appearance as lesions age. Heavily infected seedlings may result in damping-off. Control of Downy mildew and Alternaria begin with preventative fungicide applications. Use one of the following at the first sign of disease and continue every 7 to 10 days (Please refer to the pesticide table on page F21 of the *2009 NJ Commercial Vegetable Production Recommendations* to determine which fungicide is labeled for each specific crop.): Quadris (azoxystrobin, 11) at 6.0 to 15.5 fl oz 2.08F/A, or chlorothalonil (M5) at 1.5 pt 6F/A or OLF, or Cabrio (pyraclostrobin, 11) at 12.0 to 16.0 oz 20EG/A, or Endura (boscalid, 7) at 6.0 to 9.0 oz 70WG/A, or maneb (M3) at 1.5 to 2.0 lb 75DF/A or OLF, or Ridomil Gold Bravo (mefenoxam + chlorothalonil, 4 + M5) at 1.5 lb 76.5WP/A (14-day schedule), or Switch (cyprodinil, 9) at 11.0 to 14.0 oz 62.5WG/A (Alternaria only). For downy mildew only, apply Actigard (acibenzolar-S-methyl, P) at 1.0 oz 50WG/A (begin applications 7-10 days after thinning and re-apply every 7 days for a total of 4 applications per season.), or Aliette (fosetyl Al, 33) at 3.0 to 5.0 lb 80WDG/A (on 14-day schedule). For more information please see *2009 New Jersey Commercial Vegetable Production Recommendations Guide*.

✓ **Leeks (overwintered, spring transplanted) - Purple blotch** – Purple blotch may survive on infected plant material in overwinter plantings and may cause problems in spring transplanted fields and seedbeds. As the weather begins to warm up and spring showers arrive Purple blotch may become problematic in some fields. Symptoms of Purple blotch include tannish-brown, elongated, concentric, circular

SEE DISEASES ON PAGE 3

DISEASES FROM PAGE 2

lesions with chlorotic margins with lesions running parallel with leaf veins. Control of Purple blotch begins with preventative fungicide applications.

Alternate the following fungicides on a 7 to 10 day interval:

Quadris (azoxystrobin, FRAC code 11) at 6.0-12.0 fl oz 2.08F/A, or

Endura (boscalid, 7) at 6.8 oz 70WP/A, or

Pristine (pyraclostrobin + boscalid, 11 + 7) at 10.5 to 18.5 oz 38WP/A

Applications of Quadris or Pristine at high rates will also help control Downy mildew.

✓ **Lettuce – Bottom Rot/Drop** – Spring lettuce season is beginning and growers should take precautions to help control Bottom rot (*Rhizoctonia*) and Lettuce drop (*Sclerotinia*) which may cause potential problems. For Bottom rot, Endura 70W (boscalid, FRAC code 7) at 8.0 to 11.0 oz/A, or iprodione (FRAC code 2) at 1.5 to 2.0 lb/A or OLF should be applied one week after transplanting or thinning and 10 and 20 days later. For Lettuce drop, apply Endura (FRAC code 7) at 8.0 to 11.0 oz 70WG/A, Botran (dichloran, FRAC code 14) at 2.0 to 5.5 lb 75WP/A, or iprodione (FRAC code 2) at 1.5 to 2.0 lb/A beginning one week after transplanting or thinning and again at 10 and 20 days later. For more information on control of Bottom rot and Lettuce drop and other important diseases of lettuce please see the *2009 New Jersey Commercial Vegetable Production Recommendations Guide*.

✓ **Parsley – Septoria Blight /Bacterial (blight) leaf spot** – Leaf spots caused by **Septoria blight** are easily distinguished by small, angular to round leaf spots with grayish-brown centers with a definitive dark, brown margin. Numerous black fruiting bodies develop in the center of lesions. Septoria blight is spread by wind-driven rain, heavy dews and overhead irrigation. Workers and equipment may also spread the disease during wet conditions. Best management practices include i) proper crop rotations of at least 2 years and by using clean or treated seed ii) **scouting fields early** for symptom development iii) keeping workers and equipment out of fields with wet foliage iv) plowing under residue of harvested crop and avoid planting in fields adjacent or near previously infected fields. Applications of Quadris (azoxystrobin, 11) at 6.0 to 15.5 fl oz 20.8SC/A and a fixed copper at labeled rates can be alternated every 7 days for control. **Bacterial leaf spot** (*Pseudomonas syringae*) of parsley can also show up at the same time as **Septoria blight**. Leaf spots caused by Bacterial blight appear as small brown to black spots on the leaves. The pathogen can be soil or seed borne and develops during cool, moist weather. The disease spreads during cool, rainy weather or with overhead irrigation; and is exacerbated by high plant density. The same control measures listed for **Septoria** will assist in preventing the spread of **Bacte-**

rial leaf spot as long as the fixed copper is included with azoxystrobin and the fungicides are applied preventatively. If Oxidate is used, follow the label carefully.

✓ **Spring Peas – Damping-off** -Use an approved seed treatment, or treat seed with a slurry or dust that contains an approved commercial fungicide-insecticide mixture. **See table on page E34 for seed treatment options.** For Pythium control and/or for damping-off and root rot caused by Pythium, apply Ridomil Gold (mefenoxam, 4) at 0.5 to 1.0 pt 4E/A or Quadris (azoxystrobin, 11) at 0.40 to 0.80 fl oz 2.08F/1000 row ft as a broadcast treatment at seeding. For more information on seed treatment options and control please see the *2009 New Jersey Commercial Vegetable Production Recommendations Guide*.

✓ **Spinach Greens (Damping-off)** – See **table on page E34 for seed treatment options.** Apply Ridomil Gold 4E/A (mefenoxam, 4) at 1.0 to 2.0 pt/A, or Ultra Flourish 2E (mefenoxam, 4) at 2.0 to 4.0 pt/A, or Metastar (metalaxyl, 4) at 4.0 to 8.0 pt 2E/A pre-plant incorporated or as a soil surface spray after planting. For more information please see the *2009 New Jersey Commercial Vegetable Production Recommendations Guide*.

✓ **Spinach (Downy Mildew)** - Beginning 2 to 3 weeks after emergence (and prior to symptom development), apply the following on a 7 to 10 day schedule: Quadris (azoxystrobin, 11) at 6.0 to 15.5 fl oz 2.08F/A or Cabrio (pyraclostrobin, 11) at 12.0 to 16.0 oz 20EG/A. Rotate to one of the following fungicides: Actigard (acibenzolar-S-methyl, P) at 0.75 oz 50WG/A, or Aliette (fosetyl Al, 33) at 3.0 lb 80WDG/A, or fixed copper (FRAC code M1) at labeled rates (Copper containing fungicides may cause some phytotoxicity), or Ridomil Gold Copper (mefenoxam + copper, 4 + M1) at 2.5 lb 65WP/A (on 14-day schedule). For more information please see the *2009 New Jersey Commercial Vegetable Production Recommendations Guide*.

✓ **Strawberry – Anthracnose fruit rot** -Strawberry anthracnose can be extremely destructive during warm, wet weather causing significant fruit rot. Symptoms of Anthracnose include blackish-brown circular spots on maturing green fruit and soft, sunken (flat) circular lesions on ripe fruit. On ripe fruit, lesions can expand rapidly and are often covered with a pinkish-orange spore mass. Spores are spread from infected to healthy fruit with splashing water. Control of Anthracnose always begins with a 7 to 10 day preventative spray program no later than 10% bloom and/or prior to disease development. For control apply the following combinations:
#1) captan (M3) at 4.0 lb 50WP/A plus Pristine (pyraclostrobin + boscalid, 11 + 7) at 18.5 to 23.0 oz 38WG/A
#2) captan 5(M3) at 4.0 lb 50WP/A plus Abound (azoxystrobin, 11) at 6.0 to 15.5 fl. oz 2.08F/A or Cabrio (pyraclostrobin, 11) at 12.0 to 14.0 oz 20EG/A

SEE STRAWBERRY ON PAGE 4

STRAWBERRY FROM PAGE 3

- #3) Captevate (captan + fenhexamid, M3 + 17) at 3.5 to 5.25 lb 68WDG/A
For subsequent applications, alternate:
captan (M3) at 4.0 lb 50WP/A plus Abound (azoxystrobin, 11) at 6.0 to 15.5 fl oz 2.08F/A, or
Cabrio (pyraclostrobin, 11) at 12.0 to 14.0 oz 20EG/A with
captan (M3) at 4.0 lb 50WP/A, or
Captevate (captan + fenhexamid, M3 + 17) at 3.5 to 5.25 lb 68WDG/A

To help manage fungicide resistance development, do not make more than 2 consecutive applications of either; Pristine (pyraclostrobin + boscalid, 11 + 7), Cabrio (pyraclostrobin, 11) or Abound/Quadris (azoxystrobin, 11) before switching to another fungicide chemistry.

✓ **Strawberry – Botrytis (Gray Mold) and Blossom blight** – can cause serious losses in strawberry plantings in high tunnels and the field if not controlled properly. Development is favored by moderate temperatures (59 to 77 F) with prolonged periods of high relative humidity and surface wetness. Control of Gray mold (see VDOW) begins with preventative fungicide applications. Apply at 5 to 10 percent bloom and every 10 days until harvest. During periods of excessive moisture, spray intervals of 5 to 7 days may be necessary. Rotate fungicide chemistries to aid fungicide resistance management.

Application #1: captan (M3) at 4.0 lb 50WP/A plus Topsin M (thiophanate-methyl, 1) at 1.0 lb 70WP/A or Switch (cyprodinil, 9) at 11.0 to 14.0 oz. 62.5WG/A

Application #2; Elevate (fenhexamid, 17 - See restrictions) at 1.1 to 1.5 lb 50WDG/A, or Pristine (pyraclostrobin + boscalid, 11 + 7) at 18.5 to 23.0 oz 38 WG/A

Application #3: captan (M3) at 4.0 lb 50WP/A plus Topsin M (thiophanate-methyl, 1) at 1.0 lb 70WP or Switch (cyprodinil, 9) at 11.0 to 14.0 oz. 62.5WG/A

For subsequent applications, alternate:
Captan (M3) at 4.0 lb 50WP/A, or Captevate (captan + fenhexamid, M3 + 17) at 3.5 to 5.25 lb 68WDG/A, or Switch (cyprodinil, 9) at 11.0 to 14.0 oz. 62.5WG/A or Pristine (pyraclostrobin + boscalid, 11 + 7) at 18.5 to 23.0 oz 38 WG/A, or Thiram (M3) at 4.0 to 5.0 lb 65WSB/A. □

Vegetable Disease of the Week

Andy Wyenandt, Ph.D., Specialist in Vegetable Pathology



Anthracnose fruit rot of strawberry



Botrytis fruit rot of strawberry

The NJAES Vegetable Working Group is proud to launch the Vegetable Crops On-Line Resource Center website (www.njveg.rutgers.edu) for New Jersey vegetable farmers. The *new website* is a dedicated source for information relating to all aspects of production, insect, weed and disease management, food safety, marketing and much more! The 2009 Commercial Production Recommendation Guide and FRAC tables are currently available on-line at the site.

Controlling Leather Rot of Strawberry

Andy Wyenandt, Ph.D., Specialist in Vegetable Pathology

Leather rot caused by *Phytophthora cactorum* can be extremely damaging if left uncontrolled, especially if wet soil conditions and rainy weather persist for extended periods. Weather conditions which favor Gray mold development may also favor Leather rot. **Fungicides effective against Gray mold are not highly effective against Leather rot** (i.e. Captan, Topsin-M). Symptoms of Leather rot begin to develop as green fruit begins to develop and mature. On green fruit, infected areas often turn a dark-brown. As infection spreads, entire fruit main turn dark-brown and become 'leathery'. However, some fruit may remain mostly green with only dark-brown margins developing around the point of infection. Importantly, infection may cause fully mature fruit to turn reddish-brown to dark purple or **cause no distinct symptoms**. These 'healthy-looking' fruit have a very unpleasant taste and may be unintentionally harvested for sale. For control of leather rot in:

New Plantings:

Aliette (fosetyl-Al, 33) at 2.5 to 5.0 lb 80WDG/A. Begin 14 to 21 days after planting and continue on a 30 to 60 day interval as long as favorable disease conditions occur, or

Ridomil Gold (mefenoxam, 4) at 1.0 pt 4E/A. Make one application at transplanting plus an additional application at fruit set or 30 days before harvest.

Established Plantings:

Aliette (fosetyl-Al, 33) at 2.5 to 5.0 lb 80WDG/A, or

Ridomil Gold (mefenoxam, 4) at 1.0 pt 4E/A. Apply in spring before first bloom and repeat once in the fall. □

Insect Update

Gerald M. Ghidui, Ph.D., Specialist in Vegetable Entomology

✓ **Onion Maggots** – Onion maggots overwinter as pupae and emerge in mid- to late April in southern New Jersey. The first generation generally peaks about the 1st or 2nd week of May, depending on temperatures. Usually flies can be seen around onion fields as early as mid-April, and they often land on blooming dandelions near or in the field.

Pre-plant or in-furrow treatments include Trigard (cyromazine) as a seed treatment, Lorsban (dry bulb only) or diazinon. There is nothing new for onion maggot control in onions. A request for a section 18 for clothianidin (Poncho) as a seed treatment in green onions, bulb onions and leeks was submitted to the federal EPA just after Christmas 2008, but approval has not yet been received.

Post-emergence sprays include diazinon, malathion and the pyrethroids Ambush, Mustang and Warrior. However, these sprays may be most effective when timed against the 3rd generation of adult flies during peak fly activity in mid-to late August.

New for this year is Lorsban Advanced, a formulation that replaces the older 4E formulation. This product still contains the active ingredient chlorpyrifos, and offers the same control on the same crops, but the new formulation is water based and low odor (the older formulation was an emulsifiable concentrate, or EC). Use rates of the new Lorsban Advanced are the same as for the old formulation.

✓ **Potato insect pests** – Valent has marketed a new insecticide, Belay[®], for potatoes that can be applied as a seed piece treatment. The active ingredient is clothianidin, which is the same active ingredient found in Poncho (used for corn, etc). Field tests with Belay seed treatment show it be excellent for control of **Colorado potato beetle, aphids** and **potato leafhoppers**. Most researchers also believe it will provide some control of **wireworms** that attack the seed piece early in spring. □

Legislation to Regulate Food Safety Proposed in Washington

Rick VanVranken, Wes Kline and Michelle Infante-Casella, Agricultural Agents

There is a lot of speculation these days about federal legislation to make food safety audits mandatory. Three bills have been introduced into Congress this session to address various aspects of food safety, including audits, but especially addressing traceability. Included in many of the rumors is that one bill in particular is backed by big corporations in an effort to shut down organic and small farms, even backyard gardening and community farm markets. There is actually no mention of any of those components in the three bills. However, the recordkeeping and registration requirements proposed could be interpreted as especially burdensome to any small farm or food business. Anyone involved in the produce business, from production through retail, should be paying attention to these proposals.

Some details about the three bills that have been introduced to date include:

- H. R. 1332 called the “Safe Food Enforcement, Assessment, Standards, and Targeting Act of 2009” or the “Safe FEAST Act of 2009” was introduced by Rep. Costa and 21 others and referred to the Committee on Energy and Commerce and the Committee on Agriculture. It will amend the Federal Food, Drug, and Cosmetic Act with respect to the safety of the food supply.
- H. R. 759, also known as the “Food and Drug Administration Globalization Act of 2009”, will also amend the Federal Food, Drug, and Cosmetic Act to improve the safety of food, drugs, devices, and cosmetics in the global market, and for other purposes. It was introduced by Representatives DINGELL, STUPAK, and PALLONE and referred to the Committee on Energy and Commerce.
- H. R. 875, which is getting a lot of attention on the internet and news media, will establish the Food Safety Administration within the Department of Health and Human Services to protect the public health by preventing foodborne illness, ensuring the safety of food, improving research on contaminants leading to food-borne illness, and improving security of food from intentional contamination, and for other purposes. It was introduced by Rep. DELAURO and has 30 co-sponsors. Called the “Food Safety Modernization Act of 2009”, it was referred to the Committee on Energy and Commerce, and the Committee on Agriculture.

In the legislative process, bills are introduced, referred to committee(s) and usually similar bills are combined into a final version. Once it passes one House of Congress, the other must pass a similar bill and those two must be combined as well. By the time that process is completed, the final bill may be quite different than any of these three bills that have been introduced. It also takes time to complete this process. It will be a challenge for Congress to have something in place by Memorial Day, as speculated.

While it is **not government mandated yet**, retail buyers are demanding to have their growers and suppliers implement food safety practices. Third party audits are used to verify the practices and depending to whom you sell determines which is acceptable—USDA, Primus, SQF, or others. The costs, time, and recordkeeping requirements to implement varies tremendously. A potential advantage in having a regulated third party audit system would be a uniform set of standards so that only one audit would be needed if you sell to multiple buyers. Currently, each buyer could require a different audit.

To address these challenges, United Fresh is hosting a **Global Conference on Produce Food Safety Standards**, April 24-25, 2009, in Las Vegas. Details about the conference can be obtained at

www.unitedfreshshows.com/att_global.cfm. □

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged above normal, averaging 49 degrees north, 51 degrees central and 52 degrees south. Extremes were 74 degrees at Hammonton on the 4th, and 31 degrees at Toms River on the 1st. Weekly rainfall averaged 1.09 inches north, 0.97 inches central, and 1.60 inches south. The heaviest 24 hour total reported was 3.00 inches at Glassboro on the 3rd to 4th. Estimated soil moisture, in percent of field capacity, this past week averaged 99 percent north, 99 percent central and 98 percent south. Four inch soil temperatures averaged 49 degrees north, 50 degrees central and 51 degrees south.

The following table contains meteorological information since the start of the growing season march first. The table is updated each Monday and the following is an explanation for each column.

WEEK=TOTAL RAINFALL FOR THE PREVIOUS 7 DAYS ENDING MONDAY MORNING

TOTAL=TOTAL RAINFALL SINCE MARCH 1ST

DEP=DEPARTURE FROM NORMAL OF RAINFALL SINCE MARCH 1ST. A NEGATIVE SIGN INDICATES BELOW NORMAL AND NO SIGN INDICATES ABOVE NORMAL.

MX=HIGHEST TEMPERATURE FOR THAT 7 DAY PERIOD

MN=LOWEST TEMPERATURE FOR THAT 7 DAY PERIOD

AVG=AVERAGE TEMPERATURE FOR THAT 7 DAY PERIOD

DEP=DEPARTURE FROM NORMAL OF THE AVERAGE TEMPERATURE FOR THAT 7 DAY PERIOD

TOTAL=TOTAL NUMBER OF GROWING DEGREE UNITS SINCE MARCH 1ST

DEP=DEPARTURE FROM NORMAL OF GROWING DEGREE UNITS

%FC=PERCENT OF FIELD CAPACITY (SOIL MOISTURE)

Weather Summary for the Week Ending 8 am Monday 4/ 6/ 9										
WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50 MON		
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC
BELVIDERE BRIDGE	.64	2.19	-2.42	68	34	49.	3	20	20	98
CANOE BROOK	1.52	2.72	-2.59	69	34	50.	4	31	31	100
CHARLOTTEBURG	1.49	3.65	-1.32	67	34	48.	4	16	16	98
FLEMINGTON	1.14	2.80	-2.19	68	33	50.	4	32	32	98
NEWTON	.68	2.02	-2.29	66	35	50.	6	23	23	98
FREEHOLD	1.21	2.77	-2.41	68	36	52.	4	44	44	98
LONG BRANCH	.86	2.53	-2.86	66	36	50.	3	23	23	95
NEW BRUNSWICK	.93	2.58	-2.21	68	36	51.	3	36	36	98
TOMS RIVER	1.18	2.83	-2.24	69	31	51.	3	52	52	94
TRENTON	.66	2.12	-2.58	71	32	52.	3	52	52	94
CAPE MAY COURT HOUSE	.69	2.52	-2.05	70	35	51.	2	52	52	94
DOWNSTOWN	missing									
GLASSBORO	3.81	4.71	-.19	72	37	53.	4	42	42	97
HAMMONTON	.91	2.01	-2.69	74	34	53.	4	75	75	94
POMONA	1.06	2.87	-1.81	72	33	53.	5	74	74	92
SEABROOK	1.54	2.68	-1.41	71	34	52.	2	58	58	99
SOUTH HARRISON	missing									
WES KLINE -- GDD BASE 40 PINEY HOLLOW	missing (Ending 3/30/09)									
LAST WEEK	missing (Ending 4/6/09)									
THIS WEEK	missing (Ending 4/6/09)									
TOTAL UNITS BASE 40 FOR FEBRUARY=55	missing (Ending 4/6/09)									

New Jersey Agricultural
Experiment Station
Plant & Pest Advisory
Rutgers School of Environmental
and Biological Sciences
ASB II, 57 US Hwy. 1
New Brunswick, N.J. 08901

RUTGERS

FIRST CLASS
POSTAGE PAID
PERMIT #576
MILLTOWN, NJ 08850

PLANT & PEST ADVISORY VEGETABLE CROPS EDITION CONTRIBUTORS

Rutgers NJAES Cooperative Extension Specialists

Gerald M. Ghidui, Ph.D., Vegetable Entomology
George Hamilton, Ph.D., Pest Management
Joseph R. Heckman, Ph.D., Soil Fertility
Bradley A. Majek, Ph.D., Weed Science
Andy Wyenandt, Ph.D., Vegetable Pathology

Rutgers NJAES-CE County Agricultural Agents

Atlantic, Richard W. VanVranken (609-625-0056)
Burlington, Raymond J. Samulis (609-265-5050)
Cape May, Jenny Carleo (609-465-5115)
Cumberland, Wesley Kline, Ph.D. (856-451-2800)
Gloucester, Michelle Infante-Casella (856-307-6450)
Hunterdon, Winfred P. Cowgill, Jr. (908-788-1338)
Middlesex, William T. Hlubik (732-398-5260)
Monmouth, Bill Sciarappa, Ph.D. (732-431-7260)
Morris, Peter J. Nitzsche (973-285-8300)
Passaic, Elaine F. Barbour, Agric. Assistant (973-305-5740)
Salem (856-769-0090)
Warren, William H. Tietjen (908-475-6505)

Vegetable IPM Program (732-932-9802)

Joseph Ingerson-Mahar, Vegetable IPM Coordinator
Kristian E. Holmstrom, Research Project Coordinator II

Newsletter Production

Jack Rabin, Associate Director for Farm Services, NJAES
Cindy Rovins, Agricultural Communications Editor

Pesticide User Responsibility: Use pesticides safely and follow instructions on labels. The pesticide user is responsible for proper use, storage and disposal, residues on crops, and damage caused by drift. For specific labels, special local-needs label 24(c) registration, or section 18 exemption, contact RCE in your County.

Use of Trade Names: No discrimination or endorsement is intended in the use of trade names in this publication. In some instances a compound may be sold under different trade names and may vary as to label clearances.

Reproduction of Articles: RCE invites reproduction of individual articles, source cited with complete article name, author name, followed by Rutgers Cooperative Extension, Plant & Pest Advisory Newsletter.

The Vegetable Crops On-Line Resource Center website is a dedicated source for information on production, insect, weed and disease management, food safety, marketing and more:
www.njveg.rutgers.edu

For back issues of the Plant & Pest Advisory:
www.rce.rutgers.edu/pubs/plantandpestadvisory