

PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

JUNE 2, 2004



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Postemergence Herbicide Injury and the Weather

Brad Majek, Ph.D., Specialist in Weed Science

Warm, but not hot temperatures, high humidity and soil moisture, and cloudy weather has resulted in rapid growth and less cuticular wax development on leaf surfaces of many crops and weeds. Growers often call crops growing under these conditions "SOFT".

Crops and weeds are more sensitive to postemergence herbicides and spray additives than they usually are! Weeds are easy to kill, but crop injury is more likely to occur, or may be more severe than usual. Observe the following precautions to minimize the risk of herbicide injury to vegetable crops.

- Use the lowest recommended rate of postemergence herbicides when a rate range is suggested.
- Omit spray additives if the herbicide label indicates they are optional.
- Use nonionic surfactants instead of oil concentrates when the herbicide label indicates that either can be used.
- Do not add liquid fertilizers to "heat up" postemergence herbicides.
- Delay postemergence herbicide application until three to five days of bright sunny dry weather has "toughened" the crop unless the weeds must be sprayed before they grow too large to be controlled. Consider alternate weed control methods if temporary cosmetic damage to the crop foliage is unacceptable.

Listed below are commonly used postemergence herbicide treatments for some vegetables and comments on avoiding injury when crops are "SOFT".

✓ **Cucurbit crops** - Poast 1.5EC should be applied without oil concentrate, or application delayed until the weather changes. Oil concentrate can burn cucurbit leaves when applied alone, without an herbicide when cucurbits are "SOFT". Small seedling grasses will be effectively controlled without oil concentrate.

✓ **Tomatoes** - Delay the application of Sencor/Lexone until after 3 to five days of bright sunny dry weather has "toughened" the crop. Never use spray additives with Sencor/Lexone.

✓ **Sweet corn** - Avoid using 2,4-D during these weather conditions. Switch to atrazine and oil concentrate or delay 2,4-D application until the weather improves and use drop nozzles to avoid spraying 2,4-D into the whorl.

SEE HERBICIDES ON PAGE 2

Rough Weather Brings Heavy Winds and Hail Damage

Andy Wyenandt, Ph.D., Post Doctoral Associate in Vegetable Pathology and Wes Kline, Ph.D., Cumberland County Agricultural Agent

The rough weather over the past few days not only brought with it heavy rains but high winds and hail damage in parts of Atlantic and Cumberland Counties. In some areas the high winds caused stems of tomato, pepper and eggplants to snap off, leaving wounds for bacterial infections to occur. Hail damage was also prevalent in some areas on lettuce, tomato, pepper and eggplant. A sure sign of hail damage includes holes in leaves or plastic mulch as well as vegetable leaves that appear to be sliced. This type of damage can also lead to bacterial problems in the future.

Growers should make a fungicide application as soon as possible in the field affected. Also, scout surrounding fields for such signs because the damage may not be evident at first or present throughout the field. Make an application of Oxidate or a copper fungicide + maneb with a spreader sticker spray adjuvant to tomato, pepper and eggplant for control of bacterial diseases. Repeat the applications every 7-10 days to protect the plants. □

HERBICIDES FROM PAGE 1

✓ **Snap beans** - Newly emerged snap beans at the unifoliate to first trifoliate leaf stage of growth may be burned on the first bright sunny day without any herbicide treatment. Do NOT use oil concentrates or other spray additives on snap beans. Poast 1.5EC should be applied without oil concentrate, or application delayed until the weather changes. Small seedling grasses will be effectively controlled without oil concentrate. Basagran applications for broadleaf weed and yellow nutsedge control should be delayed until the weather improves unless the weeds will grow too large to be controlled. Delay Basagran application until the snap beans have two fully expanded trifoliate leaves. Position the nozzles between the rows and directing the spray to wet only the bottom half of the snap bean plant. Avoid wetting the growing shoot and at least one fully expanded trifoliate leaf to minimize or eliminate risk of crop injury and maturity delay. □

Asparagus's Second Season

Andy Wyenandt, Ph.D., Post Doctoral Associate in Vegetable Pathology

With harvest coming to a close, the second half of Asparagus season will soon begin as fernstalks begin to develop. Asparagus growers should consider this time period 'half-time' and begin to develop a schedule for scouting their fields for foliar disease development. Two important pathogens growers need to scout for on a regular basis are **Purple spot** and **Rust**. Both pathogens are easily diagnosed by the characteristic symptoms they produce on infected plants.

Purple spot lesions can appear on the spears during the harvest season and reduce quality, as well as on fern growth later in the summer. Characteristic symptoms of Purple spot include small (1 to 2 mm) slightly sunken elliptical reddish-purple lesions on spears and ferns. Damage to ferns can cause premature defoliation which will reduce carbohydrate flow and reduce yield for the next growing season. Chopping the fern and incorporating the debris in the fall after the fern senesces can help destroy overwintering sources of the fungus, however these practices may also lead to **Fusarium** infection. Once fernstalks are full-size, fungicide applications (chlorothalonil) should be repeated every two to four weeks until frost.

Rust is another important pathogen of asparagus. Rust can easily be diagnosed in the field early in the season by the cream-colored oval lesions (6 to 19 mm) its produces. A few weeks later these lesions will appear reddish-brown. These reddish-brown lesions can produce spores which can cause more infections leading to further disease development. Control of Rust is extremely important and necessary in one and two year old beds, even with Rust resistant varieties. Growers need to begin scouting for symptom development in late-June in non-cutting beds and apply fungicides if necessary. In cutting beds, fungicide applications typically begin in mid-August. Fungicide applications of Chlorothalonil, mancozeb or myclobutanil rotated on a 7 to 10 day schedule will help control rust.

Although Purple spot and Rust are easily diagnosable in the field, growers who don't scout on a regular basis may find themselves playing into 'overtime' trying to catch up with both diseases. This summer researchers at RAREC are going to evaluate a disease forecasting system known as TomCast to help asparagus growers properly time their fungicide applications. □

Pest Notes

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

✓ **Colorado Potato Beetles – eggplant, potato, and tomato:** Numerous **Colorado potato beetles** have been reported especially on tomato and eggplant, and a few on potatoes. Although most growers applied Admire 2F to tomato and eggplant transplants, the application was likely made too early, with more than 1 month to go before the transplants were placed in the field. This gives too much time for that much of the material to be washed out of the transplant cell through frequent watering. Also, material that is translocated through the plant will begin to break down, and will become less and less effective over time as the transplant grows. When the plants are placed in the field, there is little effective material left in the plant to combat the potato beetle.

The solution is to harden the plants off and apply the transplant treatment approximately 7 days before they are set in the field. This 1-week delay allows the plants enough time to take up the Admire, but also maximizes the length of time that the plant will have an effective treatment to protect it from the potato beetles.

For plants that are now in the field and becoming defoliated by potato beetles, a foliar spray should be applied because overwintering adults are still active and depositing eggs, and egg masses are still found on the plants and are hatching. Adults, small larvae and large larvae are actively feeding on the plant tissue, and damage will become very evident as soon as the temperatures warm up and the rain stops!

✓ **Eggplant:** See the suggestions for tomato above for management of **Colorado potato beetle** on smaller transplants. Recommended insecticides for control of potato beetles on eggplant include the neonicotinoids (Admire, Platinum, Actara, Assail or Provado) at-planting or early in the season (not both), and the non-neonicotinoids including *Bt* (see above) for small larvae, cryolite (Prokil cryolite or Kryocide), SpinTor, Thionex, or Vydate L (see above under the tomato discussion). Guthion used to be effective, but may no longer have activity against potato beetles.

✓ **Potato:** There has been much rain and extended periods of cool weather, and it is best to closely monitor the crop for an increase in **potato beetle** larvae on the leaves to indicate that the at-plant or preplant applications of a pest management material (Gaucho, Admire, Platinum, etc) is losing effectiveness or is no longer effective. There is a discussion on pages F130-F131 of the 2004 Commercial Vegetable Production Recommendations for New Jersey concerning the best method to use for estimating potato beetle populations, and the thresholds to consider for determining if treatments are necessary. Most effective treatments include Agri-Mek,

Avaunt tank-mixed with PBO, *Bt* (such as Raven or Novodor) for small larvae, cryolite (Prokil cryolite, Kryocide), Imidan WP, SpinTor, Thionex (ex-Thiodan), SpinTor, or Vydate L. Avaunt and SpinTor are also effective against **European corn borer** (currently active), and Imidan, Thionex and Vydate are very effective against **potato leafhoppers** (just beginning to appear in New Jersey).

✓ **Tomato:** If Admire 2F or Platinum 2SG was already used, it is advised to use a non-neonicotinoid insecticide for all future foliar sprays (the neonicotinoids include Admire, Platinum, Actara, Assail, and Provado). Alternative-chemistry insecticides that are still effective include Agri-Mek, azadirachtin (such as Azatin, Ecozin, Neemix) for small larvae, a *Bt* insecticide such as Novodor or Raven for small larvae, cryolite, SpinTor or Thionex (ex-Thiodan). Vydate will control **potato beetles** very well, but it is most effective if the plant has adequate foliage on it and is actively growing. (Note – Vydate L *can* be applied through the trickle system and is very effective against potato beetles for smaller transplants when used as such). Guthion used to be effective, but may no longer have activity against the potato beetle.

It is important to note that in all probability the pyrethroid insecticides will not be effective against the potato beetles. It would likely be a waste of money to use a pyrethroid for this purpose.

✓ **General Information:** Monitor fields closely to determine levels and even stages of **Colorado potato beetles**, and follow suggested thresholds in the 2004 Vegetable Recommendations for all crops. Treat only when necessary, and spot-treat if possible (especially around field borders, edges, etc). If Admire or Platinum (or similar chemistry materials) were used preplant or at-plant, **DO NOT** use a neonicotinoid insecticide at this time. Also, **DO NOT** use a neonicotinoid insecticide *after mid-June* regardless if one was used earlier or not (this will reduce the potential of the development of insecticide resistance against these materials in the second generation **potato beetle** populations emerging at this time). Use high-pressure, high volume to obtain thorough coverage, and re-assess the effectiveness after the application (3-6 days post-spray, depending on the material used). Lastly, **ROTATE** the class of insecticide for maximum effectiveness; insecticide classes can be obtained from Table D-6 (Toxicity of Insecticides) in the 2004 Commercial Vegetable Production Recommendations for New Jersey. Use labeled rates and follow all label directions and restrictions. □

IPM Update

Kristian Holmstrom, Program Associate in Vegetable IPM

Sweet Corn

Blacklight trap catches of adult **European corn borer (ECB)** have increased through the latter half of last week and subsided somewhat with cooler night temperatures since the weekend. Overall, activity is moderate with some local hot spots (see ECB map). The highest concentrated activity over the past week was in parts of Hunterdon County, although ECB catches are increasing in areas to the south. ECB feeding injury in whorl stage sweet corn is now apparent in many fields. As tassels begin to emerge from the whorls, discoloration and live larvae are evidence of an infestation. Consider treating if more than 12% of plants have fresh feeding or live larvae in the tassels. Be sure to make an insecticide application at the full tassel stage to prevent ECB larvae from getting down to the developing ears. Because some early sweet corn in the southern counties are now silking, it is important to treat them weekly to prevent ECB larvae resulting from eggs laid on the flag leaves from getting directly into the ears. As yet, **corn earworm (CEW)** trap catches are extremely light, with just a few scattered individuals in the south. If CEW increases, their numbers will dictate how often the silking corn needs to be treated. In the absence of CEW, weekly treatments should be sufficient to protect against ECB while the adult flight is still occurring. The highest average nightly **ECB** blacklight trap catches are:

Milford	7	Cohansey	4	Folsom	3
Hammonton	7	Burlington	3	Indian Mills	3
Seeley Lake	6	Cinnaminson	3	Oldwick	3
Sergeantsville	5	Croton	3	Morristown	2
Tomatoes					

Tomato plantings in the northern counties have been largely pest free thus far. However, recent local hail events have caused differing degrees of injury to the plants. Hail causes numerous wounds on the stems and leaves of the plants, allowing easier entry for **bacterial organisms**. It is a good idea to treat the plants with a copper product in combination with mancozeb if hail injury is suspected. This will not eliminate the threat, but will provide some protection while the wounds scar over. Begin the regular foliar fungicide program promptly. This is important where injury has occurred, or where inadequate rotation has been practiced. See the *2004 Commercial Vegetable Production Recommendations* for spray materials and rates.

Peppers

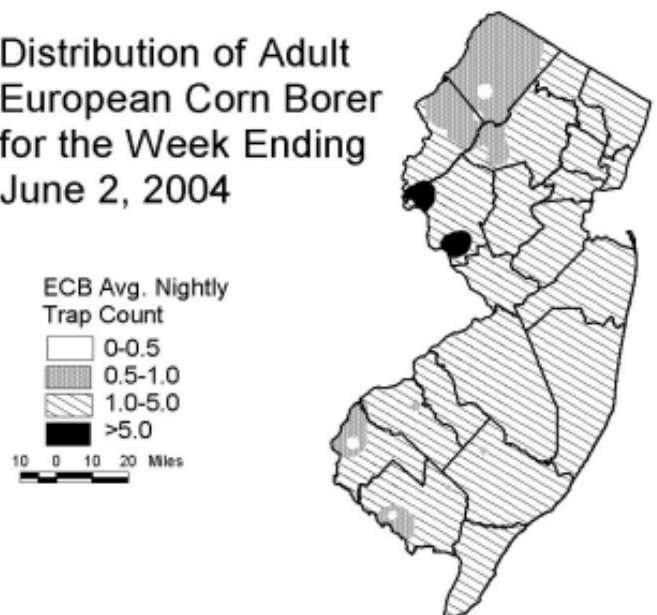
Be sure to check pepper plantings at least weekly for the presence of **ECB** eggmasses. It is important to treat when more than 2 eggmasses are found on 100 leaves (2

leaves per plant on 5 consecutive plants in 10 random locations). ECB larvae will bore into the main stem on recent transplants, killing the plant above the point of entry and delaying the development of the plant. Be sure to look for the appearance of **aphid** colonies as well. Make note of the presence of predators such as lacewing larvae, ladybird beetles or syrphid fly maggots. Aphid parasitoids may also be present, and are evidenced by bloated, golden colored aphid husks within the colonies. Consider treating if greater than 120 aphids are found on 100 leaves. This level of aphids is usually not exceeded early in the season unless pyrethroid insecticides are used.

Potatoes

Potato leafhopper (PLH) is active in many areas now. Although potato varieties differ in their reaction to PLH feeding, it is wise to be aware of the PLH population and treat fields preventatively when adult numbers reach or exceed 1 per sweep. With a sweep net, make 10 sweeps in at least 5 random locations in the field. Consider treating at the above action threshold. If nymphs are present in the sample, or if no sweep net is available, check 10 leaves each in 10 random locations in the field, and consider treating if 1 or more nymph is found per 10 leaves. Do not wait for the damage (known as "hopper burn") to appear. Once this yellowing and downward cupping of leaves is apparent, some yield reduction may be unavoidable.

Distribution of Adult European Corn Borer for the Week Ending June 2, 2004



Data collected and processed by: Kris Holmstrom, Marilyn Hughes
Rutgers Cooperative Extension & Center for Remote Sensing

Make Your Workers Aware of Lyme Disease

June is peak tick season and preventing deer tick bites is key to preventing Lyme Disease. Prevent Tick Bites: Prevent Lyme Disease (FS443) is a factsheet available at your Rutgers Cooperative Extension county office or on-line at www.rce.rutgers.edu/pubs/pdfs/fs443.pdf. An educational slide show on Lyme Disease can be viewed on-line at:

<http://ifplantscouldtalk.rutgers.edu/slideshow/lyme>.

For information in English and Spanish on Lyme Disease visit the American Lyme Disease Foundation, Inc. website at <http://www.aldf.com>. See the links for "What is Lyme Disease?" and "Frequently Asked Questions". □



From left to right: The deer tick (*Ixodes scapularis*) adult female, adult male, nymph, and larva on a centimeter scale. Source: Centers for Disease Control and Prevention, Division of Vector-Borne Infectious Disease

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged near normal, averaging 63 degrees north, 65 degrees central and 68 degrees south. Extremes were 91 degrees at several locations on the 25th, and 35 degrees at Belvidere on the 30th. Weekly rainfall averaged 1.22 inches north, 0.68 inches central, and 0.72 inches south. The heaviest 24 hour total reported was 1.35 inches at Charlotteburg on the 26th to 27th. Estimated soil moisture, in percent of field capacity, this past week averaged 80 percent north, 67 percent central and 67 percent south. Four inch soil temperatures averaged 66 degrees north, 67 degrees central and 71 degrees south.

Weather Summary for the Week Ending 8 am Monday 5/31/ 4

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC
BELVIDERE BRIDGE	.76	10.75	-.63	87	35	64.	0	616	282	76
CANOE BROOK	1.29	13.88	1.30	88	39	64.	0	626	319	84
CHARLOTTEBURG	1.54	13.43	1.04	85	37	60.	-1	543	332	87
FLEMINGTON	.73	13.09	1.19	89	39	65.	1	612	288	73
LONG VALLEY	1.23	11.24	-1.59	84	48	63.	1	527	278	84
NEWTON	1.75	12.21	1.19	87	40	63.	1	542	289	89
FREEHOLD	1.10	13.31	1.43	90	42	65.	0	667	280	81
LONG BRANCH	.45	11.89	-.37	77	44	63.	-1	503	163	58
NEW BRUNSWICK	1.15	12.33	.62	81	42	64.	-2	623	204	86
TOMS RIVER	.42	12.79	.95	91	40	66.	3	696	336	54
TRENTON	.27	11.06	.31	90	43	67.	0	671	210	46
CAPE MAY COURT HOUSE	1.46	11.61	1.20	87	49	66.	1	632	222	90
DOWNSTOWN	.35	10.78	.10	90	45	68.	1	770	295	54
GLASSBORO	.18	14.40	3.03	91	50	70.	4	801	345	52
HAMMONTON	.71	12.09	1.02	90	43	68.	2	786	338	68
POMONA	.70	10.29	-.02	91	43	67.	2	712	327	72
SEABROOK	.93	12.37	2.56	91	54	71.	4	866	386	69
SOUTH HARRISON	.12	14.47	3.28	89	49	70	NA	820	NA	NA
WES KLINE — GDD BASE 40 PINEY HOLLOW										
Last Week	223	(Ending 5/24/04)								
This Week	200	(Ending 5/31/04)								



NOFA-NJ Twilight Meeting Vegetable Pest Identification Series

Spring Hill Farm, Hopewell, NJ
Tuesday June 8, 2004
4:30 – 8:00 pm

Join us for an exciting, hands-on workshop about identifying the pests on your early season vegetable crops. Joseph Ingerson-Mahar (RCE Vegetable IPM Coordinator) and Kristian Holmstrom (RCE Vegetable IPM Program Associate) will lead both a talk and tour of this diversified vegetable farm. After a brief overview of the role of Integrated Pest Management in organic farming, as well as the importance of and methods for pest ID, the RCE team will walk the farm, covering the primary crops for seasonally-specific pests, and answer any questions that participants may have. *To register, call (609) 737-6848 or email mazzara@nofanj.org*

Event Schedule

4:00-4:30pm- Bring "Unknowns" from your farm for consultation.
4:30-5:30pm- Optional Brown Bag Dinner. Drinks provided.

TALK

5:30pm- Review of IPM and how it applies to organic farmers
5:40pm- Field Scouting and Demo
6:00pm- Importance of Pest ID and Use of Thresholds
6:15pm- Monitoring Pests Using Traps

WALK

6:30pm- Current Pests in Various Crops. Walk the farm, identifying crops and pests to discuss individually.

DIRECTIONS

Spring Hill Farm is located at 135 Princeton Ave. (Carter Rd.) in Hopewell.

From the North (Rt. 206): Follow Rt. 206 South. Make right at light onto Carter Rd. (Rt. 569). See *** below

From the North (Rt. 31): Follow Rt. 31 South. Make a left onto Rt. 518. Follow toward Broad St./Hopewell, make left at light. Make right at 3rd light (Princeton Ave.) Farm is on the right after the school.

From the South: Take 295N (NJ) or 95N (PA) and get off at the Lawrenceville/Rt. 206N exit. Follow Rt. 206 north for approximately 2 miles (through four lights), make a left onto Carter Rd. at the 5th light. *** Follow for 4-5 miles (through 3 lights). Farm is on left at bottom of hill (2nd mailbox).

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