

PLANT & PEST ADVISORY

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The Japanese Beetle

Peter W. Shearer, Ph.D., Tree Fruit Entomology



The Japanese beetle was introduced into New Jersey on nursery stock from Japan in 1913. Since its introduction, it has spread to most states east of the Mississippi River. Now it is a seasonal pest and can cause extensive damage to many crops. The larvae feed on roots of plants and are especially damaging to turf and pasture. The adults feed on over 275 species of plants such as fruit trees, flowers, and vegetables.

Adults are about 3/8-1/2 inch long and metallic green to greenish bronze in color. They have white tufts of hair along the bronze forewing. Larvae are C-shaped white-to-cream-colored grubs with brown heads and are about 3/4-1 inch when full grown.

The Japanese beetle overwinters as a grub in the soil. In the spring, they move up towards the soil surface and feed on roots. Adults begin to emerge in late June and are active until late September. Females can lay about 50 eggs apiece 2-6 inches deep in the soil. It takes about 2 weeks for the eggs to hatch. Young larvae first feed on decaying matter then plant roots.

Adult feeding damages both leaves and fruit. Leaf damage usually takes the form of skeletonizing. Fruit feeding results in large holes in the fruit. Ripening fruit is often attacked, making control necessary yet difficult because of pre-harvest interval (PHI) limitations of effective materials. Early peach and apple varieties are most susceptible to adult attack because their time of ripening occurs during Japanese beetle emergence.

Occasional scouting is required to determine if this pest is causing damage. Carbaryl (Sevin) can be used on peaches and nectarines when adult populations are high and damage can be seen. This product has a 3-day PHI for peaches and nectarines. On apple, Imidan is effective and not considered disruptive to IPM programs. Imidan has a 7-day PHI for apple. The facts that these materials do not provide quick knockdown and that new beetles invade from outside the orchard often gives the appearance that control measures are ineffective. Under high pressure, control measures should be applied more frequently. □

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Peach Variety Evaluation

Jerome L. Frecon, Agricultural Agent

What started out as a normal season, maturity-wise, for peaches and nectarines in southern New Jersey -- has changed. The very high day and night temperatures during the past two weeks have resulted in fruit ripening quickly and varieties being harvested a week earlier than normal ripening based on bloom date and pit hardening. (Some very early varieties don't have hardened pits before maturity.)

Raycrest, a small to medium fruited, yellow-fleshed variety, was picked on June 22; Flamin Fury #1 was harvested on June 29 through July 4. We still have problems in some orchards getting size on this cultivar. We have other blocks where size is acceptable. Flamin Fury #5B ripened just after Flamin Fury #1. It has consistently better size. Now, varieties such as Sentry, Garnet Beauty, Glenglo and Summer Serenade are being harvested; they don't have the flesh firmness and handling characteristic we would have with lower temperatures.

Crimson Lady, a very firm, yellow-fleshed variety harvested on July 5, is the best peach we have seen with beautiful red color and 2 1/2 inch size. Unfortunately, like many of the cultivars of California origin, it is susceptible to bacterial spot and does not produce heavily. Crimson Lady is an improvement over Spring Lady which ripens a few days earlier. Sunbrite ripened on July 1 with excellent color and a heavy crop. Harrow Dawn (July 10) from Canada has nice color and exceptional size but ripens unevenly and is not as firm as our California varieties. Empress (June 30); and Rising Star (July 12), are other yellow-fleshed varieties that are better than Derby and Candor. Derby has too many split pits and Candor is difficult to size.

Spring Snow, a California variety, is a beautiful, firm, white-fleshed peach ripening on July 6. Scarlet Pearl ripened on July 8 but is not as firm. Scarlet Pearl has a high acid flavor, while Spring Snow is low acid but both have good size. Sugar May (California origin) is another firm, white-fleshed variety with dark red skin, ripening on July 11. Arctic Star is an attractive, firm-fleshed, white nectarine ripening on July 12, before Arctic Glo. It has similar color but sizes much better and has a low acid flavor -- superior to Arctic Glo. All of these white peaches and nectarines, except Scarlet Pearl, are susceptible to bacterial spot.

To this date, we have had low disease pressure in southern New Jersey. □

Where to Find the Answers on Peach Statistics

Jerome L. Frecon, Agricultural Agent

The National Peach Council recently published the 1999 Peach Statistical Yearbook. The 74-page booklet contains valuable information on prices (page 9 through 15) for fresh market peaches.

Conveniently divided into three sections: (1) U.S. Statistics; (2) California Statistics; and (3) World Peach & Nectarine Statistics, it contains statistics for a period of 10 to 20 years. The statistics and trends are presented in tables and charts.

The Yearbook contains tables and charts of daily FOB prices for four major shipping areas. It also presents 10 years of monthly prices received by growers, monthly retail prices, and the spread between retail and price received by growers. Production, utilized production, shipments by shipping area, peach acreage and yield, and processed utilization are also included. All peach growers will be interested in the trends in peach and nectarine per capita consumption over the past 22 years.

A section on California contains tables and charts of daily packouts, fruit size distribution, shipments by variety, production of fresh and fresh frozen freestone peaches, and shipments start dates and shipment quantity of both white-flesh peaches and nectarines.

Statistics for the world section were collected from the Food & Agriculture Organization of the United Nations. The section shows trends in world production, world exports and world imports. It provides detailed information on production by major producing countries, major exporting countries and major importing countries. Individuals interested in international trade will be especially interested in this section of the Yearbook.

This is the National Peach Council's first publication of the Yearbook. Copies are available for \$25.00 each, prepaid, shipped anywhere in the U.S. Outside the U.S., \$30.00 each prepaid. To receive a copy, make a check payable to National Peach Council, and mail to: National Peach Council, 12 Nicklaus Lane, Suite 101, Columbia, SC 29229. Quantity discounts are available. Allow four to six weeks for delivery. □

Fruit IPM

Dean Polk, Agricultural Agent

Peach

Oriental Fruit Moth (OFM): The second adult flight is at its peak. This means that this is the time when most of the OFM eggs are deposited on the leaves and fruit and subsequently hatch. We observed one block with numerous flagged shoots that had resulted from insecticide being applied immediately prior to last week's heavy rainfall. This demonstrates that trees need to be protected now. Please be aware of all PHIs.

Guthion - 21 days
Imidan - 14 days
Lannate - 4 (3)days
Sevin - 3 days
Ambush - 14 days
Asana - 21 days

Catfacing Insects and Ground Cover: many people have made many observations which connect weedy ground covers with high populations of tarnished plant bugs and other catfacing insects. This past week we saw one orchard with an unmowed ground cover consisting of clover, dock and aster. We sampled over 100 tarnished plant bugs per 50 sweeps, along with over 15 stinkbugs. This is the most we have ever found while doing IPM sampling.

Thrips: Thrips injury and silvering continue to be found, even after Lannate applications. Volume is the key to control, since insecticide must reach under the leaves and into protected areas around the fruit. No immatures are being seen, indicating that we may be soon out of peak activity.

Brown Rot: Some brown rot is present on ripening fruit, primarily on split pit fruit. There are no significant changes from last week, but the potential is there for higher levels, given favorable weather.

Apple

Spotted Tentiform Leafminer (STLM): Many adults are in flight and are laying eggs. We are seeing higher trap counts for this second flight than we have seen in many years. Eggs are hatching and larvae are emerging to produce sap feeding mines. Some locations already have up to 3 mines per leaf. If the mine count exceeds 1 mine per leaf, now is the time to treat.

Codling Moth (CM): Captures of CM adults increased this past week, slightly earlier than usual. However, some of this may be due to the extremely hot weather we have had over the last couple of weeks, speeding up the insect's development. Research with degree day models suggests that CM be treated for the second generation after 1250 to 1300 degree days (base 50) accumulate after first catch (biofix). We are on track to hit this by 7/12-13 in southern counties, and by 7/14 in northern counties.

European Red Mite: Mite predators are now common in many orchards. We saw several locations on Monday with 2 species of predatory mites, plus *Stethorus punctum*, plus minute pirate bugs and lacewings. Predator populations have caused mite populations to crash in several locations.

Dogwood Borer: Traps were recently placed for borer adults, with over 24 per trap being seen in a 3 day catch. Trunk examinations indicate that borers are at mixed stages of adults, pupae and older

larvae. Most of them seem to be at the older larval stage. If you have plantings of dwarf apple rootstock, take some time to examine the graft union and surrounding burr knots if present. Fresh frass is a sure sign of borer activity. Please see the recent article on dogwood borer for control suggestions.

Blueberry

Aphids: Aphid activity dropped significantly over the past week, most of this due to the hot weather earlier in the week. Aphid populations also dropped in apples for the same reason. Most fields where aphids were found had infestation levels of no more than 5% of terminals infested.

Blueberry Maggot (BBM): Maggot fly adult captures increased this past week in many fields, although numbers are still very low. While many sites in Hammonton have yet to see their first fly, over 20 flies per trap were recently captured in an abandoned field that is within 20 yards of managed fields in Hammonton. However, boiling counts indicate that the maggot level is still at "0", even in these fields close to abandoned bushes. This indicates the effectiveness of the commercial programs.

Oriental Beetle: Traps show a continued heavy flight, with high numbers of beetles being trapped on both Atlantic and Burlington County farms. No practical change has been noted since last week.

SEE INSECT TRAP CAPTURES ON PAGE 4

Insect Trap Captures

Tree Fruit - Southern Counties

WEEK END:	RBLR	STLM	TABM-A	CM	AM	OFM	TABM-PLPTB	PTB	
7-May	2.00	947	1.06	0.58		35.41	0.91	0.26	0
14-May	8.00	954	19.24	5.66		29.49	22.12	18.83	0
21-May	0.33	515	43.55	4.22		17.92	39.63	47.96	0
28-May	0.50	265	61.63	6.17		10.19	57.90	57.49	0
4-Jun	0.00	184	58.71	5.94		4.00	59.89	47.47	1.33
11-Jun	2.00	830	55.48	5.61		4.55	79.75	50.13	2.75
18-Jun	11.00	1458	62.94	5.79		5.37	87.58	50.17	5.33
25-Jun	20.67	1481	46.65	2.00	0.00	9.07	65.05	46.20	5.31
2-Jul	51.33	1755	31.51	2.21	0.00	12.62	44.34	37.30	7.00
9-Jul	98.67	2131	15.63	4.39	0.00	13.41	19.08	42.83	12.27

Tree Fruit - Northern Counties

WEEK END:	RBLR	STLM	TABM-A	CM	AM	OFM	TABM-PLPTB	PTB	
7-May	48.99	1062	0	0.30	0	32.51	0		
14-May	48.09	843	1.78	3.53	0	40.13	1.66		
21-May	23.51	381	6.83	3.18	0	15.90	8.47		
28-May	8.39	124	19.89	9.00	0	19.68	16.03		
4-Jun	1.64	82.39	27.05	8.92	0	24.23	30.22		
11-Jun	1.31	589	39.24	5.89	0	18.12	37.09	1.00	
18-Jun	17.50	997	54.56	5.03	0	11.05	44.57	0.44	1.54
25-Jun	36.20	974.81	33.65	2.27	0	6.47	24.92	0.11	1.08
2-Jul	42.21	1599	15.10	2.86	0	18.31	12.00	0.06	1.76
9-Jul	82.66	1677	9.89	1.45	0	29.12	8.47	0.00	5.38

Blueberries -

WEEK END:	Atlantic County						Burlington County					
	RBLR	OBLR	CBFW	SNLH	BBM	OB	RBLR	OBLR	CBFW	SNLH	BBM	OB
7-May	11.8						20.8					
14-May	20						20.5					
21-May	3.07	0.00	0.14				5.40	0.00	0.00			
28-May	4.86	4.91	0.69				0.33	3.00	1.25			
4-Jun	0.72	20.31	1.12				1.00	22.17	0.38			
11-Jun	45.79	16.93	1.50				6.30	16.33	3.56			
18-Jun	83.71	5.57	0.24	0.50	0.00	47.50	26.20	7.00	1.56	4.00	0.00	
25-Jun	45.41	1.78	0.12	0.87	0.10	96.4	26.40	3.71	0.33	0.89	0.03	255.3
2-Jul	42.21	0.24	0.04	0.86	0.02	325.5	48.70	1.17	0.00	1.06	0.41	588.8
9-Jul	45.86	0.30	0.07	0.55	0.29	300.0	33.33	0.57	0.38	0.49	0.74	621.0

Insect Key: RBLR-redbanded leafroller, STLM-spotted tentiform leafminer, TABM-tufted apple budmoth, CM-codling moth, LAW-lesser appleworm, AM-apple maggot, OFM-oriental fruit moth, LPTB-lesser peachtree borer, PTB-peachtree borer, OBLR-obliquebanded leafroller, CBFW-cranberry fruitworm, SNLH-sharpnosed leafhopper, BBM-blueberry maggot, OB-oriental beetle.

Tree Fruit Grower Field Day

July 20 from 1:00 p.m.

Penn State's Fruit Research and Extension Center

Tree fruit growers in Pennsylvania and neighboring states are invited to a field day. Penn State's Fruit Research and Extension Center is located at 290 University Drive, just off Route 234 west of Biglerville in Adams County. Parking and admission are free. A barbecued chicken dinner will be offered to those making reservations in advance of the July 13 deadline (\$5/person). Visitors will tour orchard research plots and hear presentations highlighting new research and extension programs. Presentations will include topics in entomology, horticulture, nematology, plant pathology.

For further details, please call **(717) 677-6116**.

Direct Marketing Educational Bus Tour

Tuesday, August 10, 1999

A bus tour of 3 southern New Jersey and 2 south eastern Pennsylvania retail farm markets with ideas, food, fun, and education. Successful market techniques will be highlighted, with emphasis on merchandising, signage, diversification, store layout and design, display techniques, pricing, successful innovative products and ideas, and past and future obstacles. The tour will include visits to Heritage Station, Linvilla Orchards, Springdale Farms, and Wolff's Farm Market.

Sponsored by the NJ Direct Marketing Association, Rutgers Cooperative Extension, and the NJ Department of Agriculture in consultation with the PA Retail Farm Market Association and Penn State Cooperative Extension.

For more information call **(609) 984-2278**.

Viticulture And Enology Field Day

Wednesday, August 4, 1999

1:00 — 5:00

Rutgers Fruit R&E Center,
Cream Ridge, NJ

Includes demonstrations, sampling, and a field tour, wine flaw identification and prevention, preparing for crush and fermentation, turf options and planting procedures, fall weed management and more.

For more information, please call
(609) 758-7311, ext. 10

Fruit Variety Showcase and Tour

**Thursday
September 9, 1999**

Registration: 3:30 p.m.

Tour: 4:00 p.m.

Dinner: 6:00 p.m.

Rutgers Fruit Research and Extension
Center
283 Route 539
Cream Ridge, NJ

For information or to RSVP call
(609) 758-7311, ext. 10

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