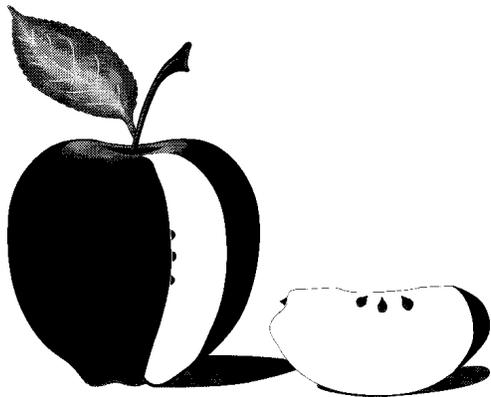


PLANT & PEST ADVISORY

FRUIT EDITION \$1.50

JUNE 18, 1996



Fruit IPM

Week Ending 6/21/96

Dean Polk, IPM Agent - Fruit

◆ Apple

✓ **Spotted tentiform leafminer (STLM):** In southern counties trap captures have increased again this past week as the older tissue feeding larvae pupate and emerge as adults. Egg laying has started for the second brood. While mine counts for the first brood were well below treatment levels on scouted farms, growers should be aware that mine counts can increase quickly during second and third broods. The end of June through early July is also the time when early insecticide applications of Provado can start to break and lose effectiveness.

✓ **Tufted apple budmoth (TABM):** Egg laying continues to take place with the heaviest adult populations seen in Gloucester County. While trap captures of adults average about 75 males/trap, some farms in the Richwood area average over 200 males per trap.

✓ **Codling moth (CM):** Most first generation CM sprays have been applied, except in far northern counties (Morris and north), where a treatment is due by the end of the week to the beginning of next week. In other areas, additional treatments are not needed unless trap captures exceed 5 males per trap per week.

✓ **Apple aphids:** Infested terminals are common, particularly in vigorous trees and/or where the crop is very light. *Where there is little to no crop aphids should be tolerated.* Several blocks have been seen where lady beetles are starting to become very abundant. These will feed on aphids and ultimately control the population. Light cropped blocks are common throughout the state. The lack of fruit set probably resulted from trees being severely drought stressed last season and not receiving adequate irrigation. Where significant crops exist and aphids do need to be treated, options include Cygon, Vydate, Lorsban and Lannate. Lannate fits an integrated program better in August when mites are not a primary issue, but if it is used it should be used at a half rate (1 pt/A) + Lorsban 1.5 lb/A. This combination would be suitable under high TABM pressure, since it is effective for that pest. Vydate 2.5 pt/A + Lorsban will suppress mite populations, especially if oil (1 - 2 qt/A) plus a spreader is added to it. Do not use oil if you are also using Captan.

✓ **European red mites (ERM):** Mite populations are beginning to build where dormant oil but no early season miticides were used. Some blocks which received Apollo under windy conditions are also showing mite populations. The mite predator *Stethorus punctum* is active at

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population levels close to what is needed to control mite populations. At the present time these are only present where Provado was not used.

✓ **Plum curculio (PC):** Isolated fresh oviposition scars were seen in southern Gloucester County. Since overwintering PC adults can be found in orchards for 5 to 7 weeks after activity begins, this should be the last of this type of injury.

✓ **Apple scab, and summer diseases:** Where scab was present and Syllit was used to eradicate established infections, it seems to have worked in most cases. As long as this material is used in combination with another fungicide (Captan in most cases), it is still burning out most lesions. Overwintering leaves have decomposed, ascospores are mostly depleted and primary infections are for the most part over. However, we still need to be aware of secondary scab, black rot and white rot. Sooty blotch and fly speck are also a concern, but the rots are of primary importance. Captan + Ziram combinations @ 2.5 to 3 lb/A each are effective. Several orchards had severe rot problems during 1995. Therefore sufficient inoculum levels exist for potential problems to occur again. Benlate use is discouraged until early to mid August since it kills predatory mites.

✓ **Fire blight:** Shoot blight symptoms are visible in both southern and northern counties in blocks which had fire blight problems last year. Applications of Tennacop 5E @1 pt/A are suggested, along with cutting back all blight 10 to 12" in back of visible symptoms. Make sure to treat pruning cuts or dip pruning shears in bleach or copper solution.

◆ **Peach**

✓ **Oriental fruit moth (OFM):** Adult activity remains very low. In most areas no treatments are needed. One block of 2 year old trees was seen which has not had a complete spray program for the first generation. Old flagging of the tips was easily visible, indicating that first brood larvae have completed development, and will emerge as adults in the near future.

✓ **Catfacing insects:** Very little fresh injury was seen this past week. Sweep net samples of adults and nymphs yielded low numbers except in one case which has a diverse ground cover and many flowering weeds. Weedy ground covers in Hunterdon and Warren Counties have yielded high sweep counts of 20+ tarnished plant bugs per 50 sweeps. If peach orchards are near alfalfa hay fields that are being cut, then fresh insecticide should be applied just prior to the hay cutting.

✓ **Tufted apple budmoth (TABM):** Please see apple section above.

✓ **Lesser Peachtree borer (LPTB):** If growers can treat LPTB populations with a handgun, then treatment is suggested.

The adult flight remains quite heavy as egg laying on Cytospora cankers continues to take place. *Do not try to treat this pest with an airblast sprayer - you are only wasting your time and money.* Please see last newsletter for control recommendations.

✓ **Bacterial spot:** Foliar lesions are present in many blocks in southern counties. All varieties are included. Foliar lesions and some fruit infections are also present in northern counties. One block of nectarines had up to 30% of the fruit infected. Bacterial spot fruit infections will predispose the fruit to brown rot, increasing the need for high quality fungicide use.

✓ **Brown rot:** Brown rot infections are starting to show up on green fruit. While this is the first fruit rot of the season, I should note that the block is predisposed from several factors: 1) There is a considerable amount of blossom blight in the same block, 2) There is some cracking and cold injury to the fruit, 3) The variety is Autumn glo. Given these circumstances, it still shows that the environmental conditions have been favorable for infection.

✓ **Rusty spot:** Very little activity has been seen with one exception. A planting next to blocks of Rome and Jersey Red apples (both with powdery mildew) had up to 20% of the fruit infected. See last newsletter for discussion on powdery mildew and rusty spot.

◆ **Blueberry**

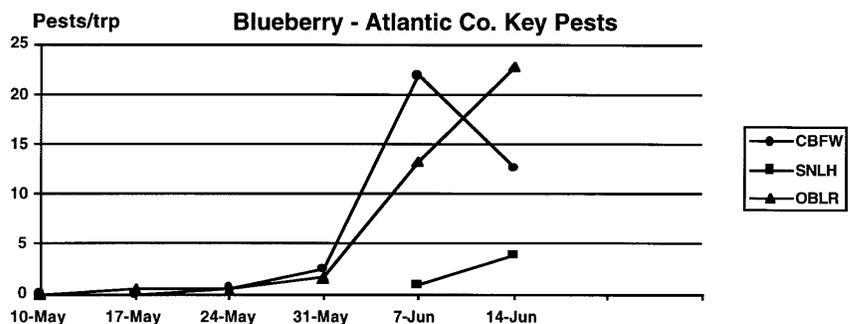
✓ **Leafroller larvae and Gypsy moth:** One sample was found in Atlantic County where gypsy moth larvae exceeded treatment thresholds. These larvae will be killed with normal post pollination sprays for cranberry fruitworm and other insects.

Adult trap captures of **Obliquebanded leafroller (OBLR)** have increased as adults continue to emerge. There is one summer brood per year of this insect. Adults are mating and laying eggs which will produce this larval brood. While this has seldom been a problem in past years, it deserves a watchful eye since adult captures are somewhat higher this year than in previous years.

✓ **Sharpnosed leafhopper:** Adult trap captures increased since last week. Counts in abandoned fields also increased with one Atlantic County abandoned site

SEE LEAFHOPPER ON PAGE 3

Blueberry Key Pests June 17, 1996



at 19 adults per trap. While only one spray may be needed for CBFW if populations are light, growers should also time a treatment close to the peak flight of SNLH if this is a problem. Overall, CBFW counts in Atlantic County are low compared to activity in Burlington County. No such differences exist for SNLH activity which is fairly even in both counties.

✓ **Cranberry fruitworm (CBFW):** Adult activity has decreased indicating that we have already reached peak emergence. The flight in Atlantic County is extremely light while the flight in Burlington County is considerably higher.

✓ **Aphids:** While aphid levels average from 1 to 2% of terminals infested, some Atlantic County locations show over 20% of terminals infested. Growers wishing to treat for this insect should remember that spray volume is a key to aphid control. Aerial applications at 4 to 5 gpa are often not adequate to achieve good control. If growers are using Diazinon for general insect, including aphid control, you should be aware that this year's product does not include blueberries on the label (Ciba and Micro Flo). You must use product that has blueberries listed on the label.

✓ **Blueberry Maggot:** No adults have been caught in either cultivated or abandoned sites as of 6/17.

◆ **Insect Trap Captures**

Wk Endng	5/10	5/17	5/24	5/31	6/7	6/14
Tree Fruit - Southern Counties						
RBLR	13.7	4.0	1.8	0.5	0.5	0.5
STLM	1334	744	276	76.6	283.1	1005
TABM-A5.9	5.8	21.5	29.0	76.3	75.7	
CM	0.4	1.7	7.5	6.3	1.4	1.6

AM	—	—	—	—	—	—
OFM	21.4	6.6	11.9	10.7	2.7	4.5
TABM-P	2.2	7.4	48.7	70.1	78.9	68.5
LPTB	1.8	20.8	96.3	67.1	44.7	72.9
PTB	—	—	2.0	0.02	0.2	2.3

Tree Fruit - Northern Counties

RBLR	0.21	20.0	17.5	4.0	3.1	0.0
STLM	450	199	119	43.9	13.1	352.5
TABM-A0.03	0.5	3.3	10.5	12.6	26.5	
CM	0.21	0.3	6.1	8.4	8.0	7.2
AM	—	—	—	—	—	—
OFM	11	3.2	7.8	4.8	6.4	3.9
TABM-P	0.0	0.5	0.4	15.2	2.2	18.2
LPTB	0.0	0.4	12.4	13.3	28.4	105.8
PTB	—	—	1.9	3.2	7.0	17.0

Blueberry - Atlantic County

RBLR	24	4.1	8.6	0	0.2	27.3
OBLR	.02	0.4	0.4	1.6	13.3	22.8
CBFW	0.0	0.0	0.5	1.5	2.4	0.7
SNLH	—	—	—	—	0.9	3.8
BBM	—	—	—	—	—	—

Burlington County

RBLR	14.7	2.8	0.7	0.3	0.0	0.1
OBLR	0.0	0.0	0.1	0.6	10.3	34.1
CBFW	0.0	0.0	0.6	2.6	21.9	12.7
SNLH	—	—	—	—	0.5	2.9
BBM	—	—	—	—	—	—

Abandoned Fields (both counties)

RBLR	12	1.5	0.8	0.0	0.0	3.0
OBLR	0.0	0.0	0.0	0.5	3.0	14.3
CBFW	0.0	0.0	0.0	0.3	1.5	1.0
SNLH	—	—	—	—	12	15.0
BBM	—	—	—	—	—	—

Insect Degree Day Accumulations as of 6/16							
Insect	Site & County						
	Biofix Date plus Degree Days Since Biofix						
	Bridgeton Cumb.	Hammonton. Cam.	Hardingville Glou.	Richwood Glou.	Princeton Mercer	Oldwick Hunt.	Morristown Morris
OFM ₄₅	4/20 hit 200 on 5/2 hit 400 on 5/19	4/5 hit 200 on 4/27 hit 400 on 5/13	4/19 hit 200 on 5/1 hit 400 on 5/18	4/17 hit 200 on 5/1 hit 400 on 5/18	4/19 hit 200 on 5/3 hit 400 on 5/19-20	4/22 hit 200 on 5/9 hit 400 on 5/22	4/24 hit 200 on 5/14 hit 400 on 5/24
TABM ₄₅	5/4 - 845 hit 490 on 6/4 hit 625 on 6/9 hit 763 on 6/14 predict 898 on 6/18	5/3 - 857 hit 490 on 6/3 hit 625 on 6/9 hit 763 on 6/14 predict 898 on 6/18	5/2 - 876 hit 490 on 6/2 hit 625 on 6/8 hit 763 on 6/13 predict 898 on 6/17	5/2 - 880 hit 490 on 6/3 hit 625 on 6/8 hit 763 on 6/13 predict 898 on 6/17	5/13 - 733 hit 490 on 6/9 hit 625 on 6/13 predict 763 on 6/17 & 898 on 6/22	5/20 - 634 hit 490 on 6/12 hit 625 on 6/16 predict 763 on 6/22 & 898 on 6/25	5/23 - 527 hit 490 on 6/15 predict 625 on 6/20
CM ₅₀	5/8 - 606 hit 250 on 5/28	5/8 - 607 hit 250 on 5/28	5/8 - 613 hit 250 on 5/28	5/8 - 616 hit 250 on 5/28	5/11 - 593 hit 250 on 5/31	5/20 - 495 hit 250 on 6/7	5/20 - 480 hit 250 on 6/7
All reported accumulations based on Skybit Inc. data with some ground verification. OFM base = 45, max = 90, TABM base = 45, max = 91, CM base = 50, max = 88.							
Spray targets based on: OFM: 200 °D after biofix and again 200 °D later (first generation only) TABM: (A.M. sprays) 490, 625, 763, 898 - 1st gen. and 2228, 2415, 2605, 2795 °D after biofix - 2nd gen. CM: 250 °D after biofix and again 2 - 3 weeks later.							

Blueberry Insect Update

Sridhar Polavarapu, Ph.D., Entomology and IPM

✓ **Blueberry maggot (BBM):** Yellow sticky-boards near the Whitesbog-Brownsmill area (Burlington County) caught a few BBM adults on 6/16. This is the very beginning of adult activity. Emergence cages set over overwintering pupa in Whitesbog have also indicated the onset of adult emergence. Adult emergence occurs over a 4-5 week period.

Based on this information, insecticide applications solely targeting BBM are not required until at least the last week of June. For effective control of BBM, insecticides should be applied after most flies have emerged but before any egg laying has occurred. Insecticides will not offer any control if eggs are already laid in the berries. Because the adult female flies require about 10 days to mature and initiate egg laying, insecticide treatments are recommended 10 days after the first adult capture in the yellow sticky-traps. Subsequent treatments are recommended at 10 day intervals, only if adults captures continue in the yellow sticky-traps. This year, in fields that are taking part in our IPM program, we are recommending insecticide treatments exclusively for controlling BBM only if a minimum of *one* BBM fly is captured in the yellow sticky-traps. Insecticide options for controlling BBM include Diazinon, Imidan, Lannate, Sevin, and Malathion. Please check the first issue of the newsletter for information on re-entry times and pre-harvest intervals.

✓ **Oriental beetle (OB):** The first adult Oriental beetles were captured in the pheromone traps around the Hammonton area on 6/14. This is the very beginning of adult flight activity. Pheromone traps are being used for the first time in our IPM program this year, to monitor adult activity in both Atlantic and Burlington Counties.

In our surveys conducted in the past two years, we found that OB is the most predominant grub species infesting blueberries in Atlantic and Burlington Counties. OB adults feed very little and are not regarded as serious pests. The grub stage, however can cause severe damage to the roots, and at times can result in the death of the bush. Most often the infested bushes are stunted, twiggy, and have small leaves and few berries. Adult beetles are slightly smaller than Japanese beetles, but show a wide variation in color from straw-colored to black. Larvae are typical C-shaped whitegrubs nearly identical in size and shape to Japanese beetle grubs.

Adult OB begin to emerge from mid-June onwards. Adult emergence occurs over a 4-5 week period. Females lay eggs from the last week of June to late July. The interval between mating and egg laying can be as short as 1 day, but normally is about 5 days. Eggs are

laid both during the day and night for up to 20 days after mating. Eggs are deposited singly at depths of 1-10 inches. Females on an average lay about 25 eggs. Eggs require 17-25 days to hatch depending on temperature and soil moisture. Egg hatch in New Jersey may occur as late as early September. Grubs continue to feed until late October, and as soil temperatures drop to 50°F, they move downward for hibernation. Grubs spend winters at depths of 2-15 inches. As soil temperatures warm to 43°F during March, grubs begin to move upward. Pupation occurs during late May to early June. There is only one generation each season, although a few grubs have been found taking more than two seasons to reach adult stage.

Currently, there are no insecticides registered for soil application against grubs on blueberries. Chemical control of adults with Sevin, although feasible, may not be very effective considering the non-feeding adult stage and wide window of adult emergence. We are currently evaluating several commercially available products to control the grub stage.

✓ **Cranberry fruitworm (CBFW):** Except for few fields around the Sheep Pen Hill area, trap catches in most fields have declined. In most of these fields, trap catches and damage levels due to CBFW do not justify a second application of insecticide. If aphid populations are low, and no fruitworm damage is present, consider delaying or withholding the second CBFW spray.

✓ **Sharpnosed leafhopper (SNLH):** SNLH numbers on yellow sticky-boards are increasing in several locations. Trap catches in most locations are higher than in previous years. Insecticides applied to control CBFW will also control SNLH. If SNLH numbers on yellow sticky-boards are increasing, and if an insecticide was not applied in the past 10 days, you may consider an application of Imidan or Diazinon.

✓ **Aphids:** Aphid populations are increasing in a few locations. But in most locations, the aphid populations are well under control and may not require an additional application of insecticide.

◆ Re-entry Intervals (REI) and Post-harvest Intervals (PHI):

Following are updated REI and PHI for some of the commonly used insecticides.

Product	REI	PHI
Asana	12 hrs	14 days
Diazinon	12 hrs	7 days
Guthion	48 hrs	7 days
Imidan	24 hrs	3 days
Lannate	48 hrs	3 days
Malathion	12 hrs	1 day
Sevin	12 hrs	0 days

Farm Marketing Tour

Ray Samulis, Burlington County Agricultural Agent

On Thursday, June 20 from 6:30 p.m. till dusk, Rutgers Cooperative Extension and the New Jersey Direct Marketing Association will be co-sponsoring a Farm Management Tour at the Robson Farm located on Route 537 in Jacobstown.

The Robson Farm is a diversified fruit, vegetable, and floral production farm dedicated to producing the highest quality crops in central New Jersey. On the tour, you will see one of the largest pick-your-own operations in New Jersey specializing in strawberries and many other commodities. The farm also has an outstanding farm market that customers come from as far as New York to purchase fresh farm products.

A particular specialty of the farm includes a full complement of fall vegetables including broccoli,

cauliflower, Brussels sprouts, and pumpkins. In addition to outstanding field production, the farm includes state of the art greenhouse structures that feature computerization of watering systems and temperature controls. You will be able to see outstanding examples of soil conservation that include reclamation of former quarries back into productive farm fields.

The New Jersey Vegetable Growers, Production Credit, and many other attendees will be able to see one of the most modern sprayer rinse-loading pads in use anywhere in New Jersey.

For more information, please contact Ray Samulis (609) 265-5050.

Directions to Robson Farm: From either North or South - Take any major road such as Route 130, Route 295, New Jersey Turnpike, to Route 206 until it crosses Route 537 (also called Monmouth Road). The farm is located east (towards Freehold and Great Adventure) on Route 537 in the town of Jacobstown, NJ. □

Weekly Weather Summary for Week Ending 6/17/96

Keith Arnesen, Agricultural Meteorologist

Temperatures averaged much above normal. Extremes were 94 degrees at Freehold on the 12th and 55 degrees at Newton on the 16th. Weekly rainfall averaged 0.84 inches North, 1.69 inches Central, and 0.51 inches South. The heaviest 24 hour total was 6.20 inches at Trenton on the 12th to 13th. Estimated soil moisture, in percent of field capacity, this past week averaged 79 percent North, 70 percent Central and 58 percent South.

Four inch soil temperatures averaged 72 degrees North, 74 degrees Central and 73 degrees South.

The following table contains meteorological information since the start of the growing season March 1st. The table is updated each Monday. □

Weather summary for the week ending 8 am Monday, 6/17/96										
WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC
BELVIDERE BRIDGE	.17	12.86	-.71	88	58	73.	5	609	-11	61
CANOE BROOK	2.64	16.97	2.24	89	60	74.	6	788	204	94
CHARLOTTEBURG	.24	17.30	2.54	87	57	73.	7	649	208	63
FLEMINGTON	1.28	16.24	2.22	87	58	74.	5	734	125	76
LONG VALLEY	.33	14.76	-.29	84	59	72.	6	642	150	69
NEWTON	.41	16.13	2.88	86	55	72.	5	638	134	69
FREEHOLD	.47	14.06	.21	94	61	76.	6	891	200	65
LONG BRANCH	.44	11.57	-2.46	88	63	73.	4	703	74	53
NEW BRUNSWICK	1.40	16.12	2.56	89	61	74.	3	758	25	87
PEMBERTON	.94	13.67	.36	90	64	76.	6	932	210	57
TOMS RIVER	.30	15.53	1.76	92	61	75.	7	791	166	43
TRENTON	6.61	19.90	7.34	87	62	75.	4	791	12	83
CAPE MAY CRT HSE	.66	14.16	1.97	88	65	75.	5	750	53	45
DOWNSTOWN	.54	11.86	-.59	91	63	76.	5	839	38	51
GLASSBORO	1.11	15.94	2.53	90	66	76.	5	900	119	62
HAMMONTON	.26	13.11	.06	91	62	76.	5	855	83	40
POMONA	.05	12.92	.95	92	63	76.	6	777	74	35
SEABROOK	.94	15.92	4.14	90	65	76.	5	856	49	61
ATLNTIC CTY MRINA	.00	10.60	-.77	89	67	74.	5	718	72	38
WOODSTOWN	1.16	14.55	1.22	92	62	77	NA	893	NA	NA

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