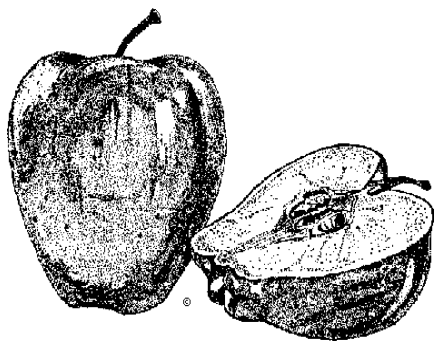


PLANT & PEST ADVISORY

FRUIT EDITION \$1.50

AUGUST 20, 1996



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Fruit IPM - Week Ending 8/16/96

Dean Polk, IPM Agent - Fruit

◆ Apple

✓ **Codling moth:** Trap captures in many northern counties represent high insect pressure. Even though the degree timed application window is over, additional insecticide applications are needed when trap captures exceed 5 males per trap per week. Do not cut the rate of insecticide if trap counts are high, and make sure coverage is adequate.

✓ **Spotted tentiform leafminer (STLM):** Third brood mines are present above treatment level (excess of 2 - 3 mines per leaf) on several farms. Where the majority of mines is in the sap feeding stage Provado, Lannate or Vydate are suggested. Lannate will also control emerging tufted apple budmoth larvae (TABM) at this time. For leafminer control alone, Provado is probably the most effective material, followed by Vydate and Lannate.

✓ **Tufted apple budmoth (TABM):** Second flight adult trap counts have increased this week. Heavy egg laying and hatch is now occurring in most southern counties. A much lighter degree of pressure is present in northern counties. A treatment is due at the beginning of this week in southern areas (see degree day chart). This will be the third of four treatments. The last treatment should be applied around 8/24-25 in southern counties. This should be the last treatment unless a high degree of adult activity continues into early September. The new material, "Confirm" is the most effective material we have. If TABM, Codling moth and other "worms" are the only pests present, this may still be a good choice, but should be used in full cover applications. Where leafminers or maggot is present, Lannate or another insecticide should be used.

◆ Peach

General insect activity: Both oriental fruit moth and catfacing insect activity has been very low on most farms, with a few notable exceptions.

✓ **Tufted apple budmoth (TABM):** See apple section for TABM summary. **Lorsban 50W and Confirm are not labeled for peach use.** Otherwise all suggestions for apples apply to peaches and nectarines.

✓ **Bacterial spot:** A considerable amount of bacterial spot is starting to show up in Rios and Autumn glo. Since this is the last week that any copper or Mycoshield should be applied for these varieties, it is really too late to fix the problem. One young peach block was seen

IPM CONTINUED ON PAGE 2

IPM CONTINUED FROM PAGE 1

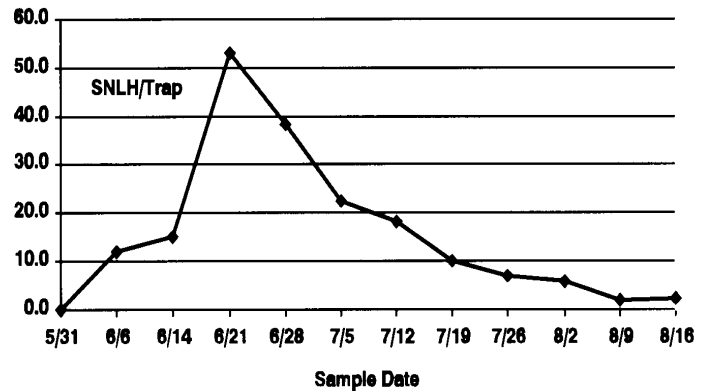
where two copper sprays were skipped earlier in the season with considerable levels of bacterial spot, while a mature block of the same variety was fairly clean; thus indicating the effectiveness of copper even in this high pressure season.

◆ Blueberry

✓ **Sharpnosed leafhopper:** Trap catches are at low levels. No treatments are needed at this time. We normally see a peak in second generation leafhopper activity in late August to early September, at which time insecticides are suggested. No such peak has been seen yet, see graph below.

✓ **General insect activity:** Redbanded leafroller activity has increased some, but is of no importance since the commercial harvest is over. □

Blueberry - SNLH Trap Record 1996 Abandoned Sites



Insect Trap Captures

Week Ending	6/7	6/14	6/21	6/28	7/5	7/12	7/19	7/26	8/2	8/9	8/16
Tree Fruit - Southern Counties											
RBLR	0.5	0.5	26.8	54.8	36.7	20.3	9.7	5.3	10.9	21.7	20.5
STLM	283.1	1005	1876	1734	1071	854	1039	1476	1341	959	756
TABM-A	76.3	75.7	59.4	37.4	10.7	4.8	6.7	19.1	21.0	21.3	24.5
CM	1.4	1.6	4.3	1.4	0.2	0.3	1.2	3.2	2.0	2.1	1.1
AM	--	--	1.0	0.0	0.1	0.0	0.13	0.0	0.1	0.1	0.1
OFM		2.7	4.5	8.4	8.0	3.7	2.9	5.9	5.6	3.1	3.0
TABM-P	78.9	68.5	46.3	30.0	8.6	9.7	7.7	20.0	30.6	19.6	19.6
LPTB		44.7	72.9	102.2	55.1	36.8	30.7	22.5	12.4	17.4	23.6
PTB	0.2	2.3	3.5	7.0	3.2	3.5	3.4	5.8	3.9	3.9	3.9

Tree Fruit - Northern Counties											
RBLR	3.1	0.0	9.8	25.5	19.2	8.4	0.4	17.6	1.5	1.4	8.5
STLM	13.1	352.5	1085	932	794	627	557	620	787	1302	1393
TABM-A	12.6	26.5	32.2	25.5	10.0	3.2	1.1	1.1	0.2	1.6	2.0
CM	8.0	7.2	11.5	7.5	5.1	2.4	6.1	7.6	4.7	9.3	7.9
AM	--	--	--	.04	.02	0.7	0.4	0.0	0.3	0.1	0.2
OFM		6.4	3.9	9.5	6.3	4.9	4.3	3.2	3.6	3.4	7.2
TABM-P	2.2	18.2	52.0	3.7	20.0	10.0	0.0	0.0	0.0	0.2	2.2
LPTB		28.4	105.8	74.8	30.4	9.5	9.8	7.0	18.7	3.7	8.0
PTB	7.0	17.0	13.2	16.3	8.0	6.2	4.1	9.3	5.5	7.0	6.6

Blueberry - Atlantic County											
RBLR	0.2	27.3	178	141	6.5	45.4	16.9	8.4	6.4	5.1	5.1
OBLR	13.3	22.8	31.0	15.0	2.3	0.8	0.7	3.0	3.5	0.4	0.7
CBFW	2.4	0.7	1.2	0.02	0.08	0.1	0.0	0.0	0.0	0.0	0.0
SNLH	0.9	3.8	2.3	2.1	1.2	0.8	0.2	0.3	0.4	0.5	0.1
BBM	--	--	0.2	0.16	0.2	0.3	0.1	0.1	0.2	0.4	0.6
OB			403	831	774	1451	1173	450	182	71	36

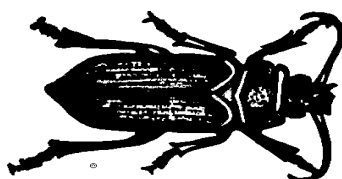
Burlington County

RBLR	0.0	0.1	41.5	96	73.4	45.0	9.9	3.1	1.2	5.0	6.9
OBLR	10.3	34.1	46.5	21.4	7.0	1.0	0.3	0.9	0.6	0.5	2.0
CBFW	21.9	12.7	2.9	0.8	0.0	0.1	0.0	.08	0.0	0.0	0.0
SNLH	0.5	2.9	7.9	7.5	1.8	1.6	0.9	0.1	0.6	1.9	0.6
BBM	--	--	0.0	0.11	0.2	0.2	0.4	0.3	0.5	2.6	0.3
OB		--	509	449	840	663	356	112	51	37	

Abandoned Fields (both counties)

RBLR	0.0	3.0	38.3	70.0	47.0	34.0	10.0	8.0	0.5	5.0	0.8
OBLR	3.0	14.3	59.0	34.5	15.5	4.0	1.0	1.5	2.0	0.5	0.8
CBFW	1.5	1.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SNLH	12	15.0	53.2	38.5	22.5	18.3	10.0	6.9	6.0	1.9	2.2
BBM	--	--	0.0	3.2	6.8	37.0	47.0	19.5	8.3	2.6	1.2
OB					435	191	122	51	51	4.0	

Insect key: RBLR = redbanded leafroller, STLM = spotted tentiform leafminer, TABM = tufted apple bud moth, CM = codling moth, AM = apple maggot, OFM = oriental fruit moth, LPTB = lesser peachtree borer, PTB = peachtree borer, OBLR = oblique banded leafroller, CBFW = cranberry fruitworm, SNLH = sharpnosed leafhopper, BBM = blueberry maggot, OB = oriental beetle.



Insect Degree Day Accumulations as of 8/18							
Insect	Site & County						
	Biofix Date plus Degree Days Since Biofix						
	Bridgeton Cumb.	Hammonton. Cam.	Hardingville Glou.	Richwood Glou.	Princeton Mercer	Oldwick Hunt.	Morristown Morris
TABM₄₅ 2nd Gen	5/4 - 2613 Hit 2228 Aug 4-1st trt Hit 2415 Aug 11-2nd trt Hit 2605 Aug 18-3rd trt Predict 2795 Aug 24-4th trt	5/3 - 2605 Hit 2228 Aug 4-1st trt Hit 2415 Aug 11-2nd trt Hit 2605 Aug 18-3rd trt Predict 2795 Aug 25-4th trt	5/2 - 2629 Hit 2228 Aug 4-1st trt Hit 2415 Aug 10-2nd trt Hit 2605 Aug 18-3rd trt Predict 2795 Aug 24-4th trt	5/2 - 2631 Hit 2228 Aug 4-1st trt Hit 2415 Aug 10-2nd trt Hit 2605 Aug 18-3rd trt Predict 2795 Aug 24-4th trt	5/13 - 2444 Hit 2228 Aug 10-1st trt Hit 2415 Aug 18-2nd trt Predict 2605 Aug 24-3rd trt	5/20 - 2298 Hit 2228 Aug 16-1st trt Predict 2415 Aug 22-2nd trt Predict 2605 Aug 30-3rd trt	5/23 - 2164 Predict 2228 about Aug 21 1st trt Predict 2415 Aug 27 2nd trt
CM₅₀ 2nd Gen	5/8 - 2032 hit 1250 - 7/15	5/8 - 2041 hit 1250 - 7/15	5/8 - 2051 hit 1250 - 7/15	5/8 - 2052 hit 1250 - 7/15	5/11 - 1990 hit 1250 - 7/17	5/20 - 1844 hit 1250 - 7/22	5/20 - 1802 hit 1250 - 7/24
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 + 2 - 3 weeks later; 2nd generation at 1250 - 1300 °D after biofix + another spray 14 to 21 days later.							

Weather Summary for the Week Ending 8am Monday 8/19/96

Keith Arnesen, Agricultural
Meteorologist

Temperatures averaged below normal. Extremes were 88 degrees at Canoe Brook on the 18th and Toms River on the 19th and 55 degrees at Long Valley on the 14th. Weekly rainfall averaged 0.61 inches north, 2.28 inches central, and 2.95 inches south. The heaviest 24 hour total was 3.05 inches at Atlantic City Marina on the 12th to 13th. Estimated soil moisture, in percent of field capacity, this past week averaged 71 percent north, 89 percent central and 86 percent south. Four inch soil temperatures averaged 68 degrees north, 71 degrees central and 72 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 8/19/96

WEATHER STATIONS	R A I N F A L L		TEMPERATURE				GDD BASE50		MON	
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC
Belvidere Bridge	.53	25.16	2.63	84	56	69.	-1	1843	-125	61
Canoe Brook	.60	26.76	3.10	88	56	72.	1	2181	205	66
Charlotteburg	.47	31.27	7.39	83	56	69.	1	1875	316	59
Flemington	.52	30.41	7.58	85	56	69.	-2	2023	-3	67
Long Valley	.36	26.74	2.12	82	55	68.	0	1836	84	65
Newton	1.16	27.43	5.41	84	56	68.	0	1833	36	77
Long Branch	2.25	22.14	-.25	84	60	69.	-3	2044	-37	69
New Brunswick	1.42	30.21	7.85	86	58	70.	-3	2134	-112	84
Pemberton	2.92	31.48	8.82	86	57	71.	-1	2403	199	84
Toms River	3.28	26.82	3.87	88	56	71.	0	2067	1	78
Trenton	1.54	34.91	13.63	86	57	70.	-4	2143	-207	65
Cape May Court House	3.44	27.44	7.63	85	60	71.	-3	2198	172	69
Downstown	2.09	24.20	3.25	85	58	72.	-1	2313	-42	70
Glassboro	3.29	29.69	7.78	84	60	72.	-2	2400	67	87
Hammonton	2.69	23.88	1.94	87	58	71.	-3	2339	3	82
Pomona	3.50	24.60	4.47	86	58	70.	-2	2194	16	92
Seabrook	2.62	27.17	7.07	86	58	72.	-2	2352	-16	67
Atlantic City Marina	3.05	22.11	2.82	85	58	70.	-3	2081	-20	64
Woodstown	3.03	26.72	4.92	87	56	72.	NA	2460	NA	NA

Horticultural Research Twilight Meeting

Date: August 28, 1996
Time: 6 - 8:30 pm (rain or shine)
Location: Rutgers Snyder Research and Extension Farm
 Pittstown, NJ 08867

Contact: Peter Nitzsche (201) 285-8300
 Win Cowgill, (908) 788-1339
 William Tietjen (908) 475-6505

Highlights

Fruit Trials: Dwarf sweet cherry production
 New peach cultivars for north jersey
 NJAES and Co-op series scab resistant apple cultivar evaluations
 French Ax 'Gala' apple trellis planting
 New dwarfing apple rootstocks
 Strawberry plasticulture

Pesticide Safety: Spray drift considerations on the urban suburban fringe
 Pesticide credits will be awarded

Blueberry Insect Update

Sridhar Polavarapu, Ph.D., Entomology

◆ **Sharpnosed leafhopper (SNLH):** The second generation adults of SNLH are being seen in the field for the past two weeks. Adults have been trapped from several commercial fields in Atlantic and Burlington Counties. Trap counts are very low at this time. The trap catches are not expected to peak for another two weeks. In the past few years, Sharpnosed leafhopper populations have generally remained very low. The post-pollination insecticide sprays applied for controlling other blueberry pests may have controlled the nymphs and adults of Sharpnosed leafhoppers in the first generation and contributed to their population decline.

SNLH is the vector of the mycoplasma-like-organism (MLO) that causes blueberry stunt disease. Diseased bushes are generally stunted with many short, slender twigs and shortened internodes. Leaves on diseased bushes are often cupped downward and are reduced in size. Fruit set and berry size are generally reduced and bush life is shortened. Experiments conducted in Michigan by Dr. Don Ramsdell indicated that peak transmission of blueberry stunt disease under field conditions occur in June and late August.

If you have not already removed stunted blueberry bushes, this would be a good time to pay attention to rouging stunted bushes. Removal of stunted bushes should be completed well before the peak flight of the SNLH. This will minimize the further spread of stunt disease to healthy bushes. Please remember to spray diseased bushes with insecticide before removing them. Where stunt disease has traditionally been a problem, insecticide treatments should be timed to coincide with the peak trap catches. In New Jersey, trap catches generally peak during late August to early September. Nursery owners will also require to apply an insecticide to control SNLH in order to obtain New Jersey Department of Agriculture Certification.

◆ **Termites:** In past years, several growers have requested information on termite infestations on blueberries. In our surveys to date in New Jersey, we have seen very few fields with some degree of termite infestation. Very few of these infestations were found on live and bearing bushes. The following article excerpted from "Diseases and Arthropod Pests of Blueberries" by Robert Milholland and John Meyer of North Carolina State University, may provide additional information.

The eastern subterranean termite, [*Reticulitermes flavipes* (Kollar)], is abundant throughout the eastern United States where it lives in association with dead and decaying wood. Since blueberry plantings in North Carolina are often grown on land which has been recently cleared of trees and shrubs, there is often a considerable amount of termite-infested debris left in the soil. When the supply of this wood becomes depleted, termites may begin to attack the living roots and crowns of blueberry plants.

Termites are social insects that live beneath the ground in nests containing reproductive forms (winged and wingless) as well as sterile workers, nymphs, and soldiers. A sprawling network of tunnels and enclosed passageways connects the nest with many suitable feeding sites. Workers and soldiers are most frequently encountered in the field; these are wingless individuals with soft, white bodies. The workers are about 5 mm long (3/16 inch) and resemble ants, while the soldiers are slightly larger and have brown, cylindrical heads with stout mandibles.



New termite colonies become established in early spring when new reproductive forms leave an established nest. These individuals are black with long slender wings, quite different in appearance from the other workers. After an initial mating flight, the male and female burrow into wood, construct a small nest chamber, and rear their first brood of workers. Eventually, workers take over duties in the nest, forage for food, and care for the young. An average size colony with several thousand individuals takes four or five years to develop.

It is difficult to assess how much injury termites actually cause in blueberry fields. Most infestations probably do not result from the establishment of new colonies but occur instead as established colonies enlarge their range of feeding. In many cases, termites appear to be secondary invaders, feeding upon plants which have already been weakened or killed by other insects or diseases. Damage to living plants is generally confined to the small roots; larger roots occasionally may be injured, but termites rarely invade an entire crown and kill the plant. Termite galleries are rather distinctive because they follow the grain of the wood and are usually packed with dirt and spotted with dark excrement.

Complete control of termites in established plantings is difficult to obtain because the insects remain protected within the wood. Soil insecticides applied around the base of the plants and disked into the soil will usually help reduce populations, but careful site preparation before planting is the best way to prevent termite damage. Remove all large roots, branches, and other wood debris from the field, plow the land thoroughly to encourage decomposition of organic matter, and finally, incorporate an insecticide into the soil before new plants are set. □

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