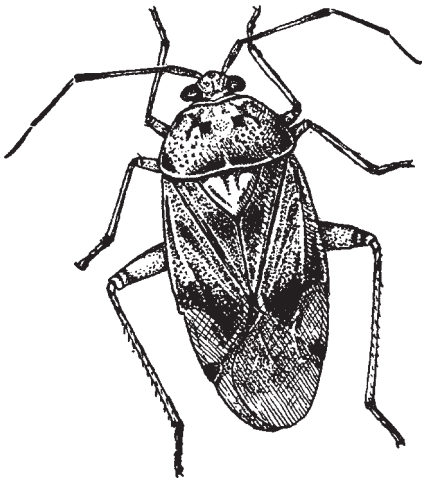
RUTGERS COOPERATIVE EXTENSION AT THE NEW JERSEY AGRICULTURAL EXPERIMENT STATION

PLANT & PEST ADVISORY

FRUIT EDITION $1.50 JUNE 15, 1999



INSIDE

Fruit IPM

Dean Polk, Fruit IPM Agent

Peach

✔ **Oriental Fruit Moth (OFM):** Adult trap counts are at low levels in most southern locations, although the second flight is just starting to emerge on some farms. Overall OFM pest pressure is light in southern counties, with no treatments needed for this pest (trap counts less than 6-8 adults per trap). Pest levels are higher in northern counties, with some locations still showing over 20 moths per trap. Insecticide is still required under these conditions.

✔ **Catfacing Insects (Tarnished plant bugs, stink bugs):** Adults are still being seen in sweep net samples, along with small amounts of fresh fruit injury (about 1 to 1.5%). This is now the primary insect target on most commercial farms. These insects thrive in weedy areas, especially areas with flowers and seed heads, including clover and vetch. We have seen a marked difference in those blocks with clean sod ground covers vs. those blocks with weedy ground covers. A number of samples this past week showed 10 to 15 TPB adults per 50 sweeps in weedy ground cover compared to 0 to 1 TPB adults in clean sod. The bottom line is that growers skipped insecticide in the blocks with clean sod, but had to use insecticide in those blocks with weedy ground covers.

✔ **European Red Mite:** Mites are starting to be treated in some peach blocks. Remember that mite predators can play an important role in peach pest management just as they do in apples. When predators are present, lower rates or alternate middle sprays of miticide are possible and do a good job of control. One alternate middle application of Apollo @4oz/Ac is in effect a use rate of 2 oz per acre when predators are present.

✔ **Thrips:** Both adults and nymphs are present in ground cover and the trees. Early silvering was seen recently in one nectarine block. Western flower thrips have several generations per season, and build up to peak flight activity during late July through August or September. Thrips thrive on weedy ground covers, especially those containing clover. Just pick a handful of clover and knock it against a hard white surface, and you will see the small yellow/white thrips crawling around. Thrips also survive well in dry weather - heavy rains can suppress thrips populations. Given what we have seen so far, the following is advised when thrips are present:

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Section 18 Approval for Scholar 50WP on Peach and Nectarine

Norman Lalancette, Ph.D., Tree Fruit Pathology

The U.S. EPA has recently granted New Jersey a specific exemption under provisions of section 18 of FIFRA for use of Scholar 50WP. Tree fruit growers/packers may now use Scholar, a fungicide manufactured by Novartis Crop Protection, as a postharvest fungicide treatment on peach and nectarine.

This fungicide, which contains the active ingredient fludioxonil, controls both **brown rot** and **Rhizopus rot**. As an added benefit, Scholar also has activity against **Gibertella rot** and **gray mold**, two postharvest diseases that are not as common in New Jersey, but can occur. Scholar provides a very effective disease control replacement to Rovral, which is no longer registered for postharvest use on stone fruit. Use of Scholar should help augment the shelf life and quality of fruit, particularly after disease-favorable seasons.

Packers of peach and nectarine may make one application of Scholar for fresh shipment. The labeled rate is 8-oz/100 gal water containing an appropriate water-wax/oil emulsion for the crop being treated. Treat 200,000 lbs. of fruit per 100 gal of solution using a spray-application system to obtain thorough coverage. Concentrated applications using low volumes are allowed, as long as 8 oz of fungicide product is applied to 200,000 lbs. of fruit. Scholar is not labeled for use in hydro-coolers.

As always, read and follow label directions. ❑

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1) At 3 weeks pre harvest treat nectarines with 1/2 lb/Ac Carzol, with enough volume to run between the leaves. This is important since we know that thrips like to "hide" under leaves where they are hard to reach. Carzol has a 21-day PHI. Carzol will adequately suppress thrips in peaches when applied for mites or catfacing insects.
2) At 7 to 10 days pre harvest, treat nectarines with Lannate @ 1 to 1.5 lb/Ac. Again, use as high a volume as possible.
3) Minimize broadleaf weeds and clover in the ground cover. There is still time to do this given an adequate herbicide and 2,4-D program.

✔ **Rusty Spot:** Mildew and rusty spot pressure is still high. Although this is late for use of Nova on rusty spot, we are still suggesting treatments on the most sensitive varieties.

Apple

✔ **Tufted Apple Budmoth (TABM):** Trap counts remain high, while degree day counts dictate continued coverage for this insect. While Skybit DD counts advise that we should be on our 4th alternate middle spray in southern counties, we are backing that off about a week (3rd application) because of our field observations. Fresh TABM egg masses and 1st to 2nd instar larvae are present in some commercial and abandoned orchards. Given the extended flight and early stages seen in the field, we anticipate that treatments should continue over the next 10+ days in southern counties. Some areas in northern counties also appear to have higher pressure than normal, at least as far as trap counts are concerned, with counts over 100 adults per trap in Monmouth County. Traditional (non-Confirm) programs should have 1 to 1.5 pt Lannate in the spray mix at this time.

✔ **Apple Scab:** Scab is present on some farms with about 5% of leaves infested on some blocks. An old standby which has had past resistance, Syllit @1.5 to 2 lb/Ac has done a good job at "burning out" established scab lesions. This will cost extra dollars, and is not advised if only low levels of scab are found. A tight protective schedule will probably be adequate in these cases.

✔ **Spotted Tentiform Leafminer (STLM):** The second adult flight started the week of June 7 as seen in the increased trap captures. Adults will mate and lay eggs with 1st instar sap feeders appearing this week. The sap feeding larval (mine) count will increase over the next week to 10 days before tissue feeders are evident. This is when the mines *start* to become visible from the top side of the leaf surface and are no longer susceptible to insecticide treatment. This will be the best timing for insecticide treatments for sap feeders if needed, or if sufficient mines are present, for merit treatment. This is the second brood of leafminer larvae. The threshold for second brood larvae is slightly more than for first brood larvae. Many factors will determine how many mines a tree can tolerate, some of which are the crop load, variety and water stress. Plan on tolerating 1 or slightly more than 1 mine per leaf.

✔ **Apple Aphids:** A mixture of apple aphids and spirea aphids is present over most of our apple acreage. While we can tolerate fairly high populations before controls are needed, growers will probably want to initiate sprays after at least 50% of terminals are infested with healthy aphid populations. In some areas of the State we have seen blocks with up to 100% of terminals infested. There are a number of products registered for control. Many of the same

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materials that control aphids also control leafminers. Therefore, try not to apply 2 similar materials with close timing for different pests. If you can wait until a leafminer decision is made, and you decide to treat for leafminers, then Provado will also control aphids. Lannate will also suppress aphids, and can also be used for leafminer control as larvae hatch. Cygon can also be used for aphid control, and does not harm mite predators, but does nothing for leafminers. Vydate is also an option, and will control both pests.

Drought: One block of 4 year old trees was recently seen with leaf burning, starting at the leaf tips and outer margins, on mostly older leaves. Injured trees were on light soil on the uphill side of a slight slope. This appeared to be drought injury, and points to the need for irrigating trees, especially young trees on dwarfing rootstocks. While some areas of the State are experiencing afternoon showers, earlier temperatures in the upper 90's with no rain have been harsh on young plantings.

Blueberry

Aphids: Aphid populations are not present on about 63% of samples. Provado seems to be doing an excellent job. Where aphids are present, populations are light, with 1-2% of terminals infested. Only one farm had higher levels.

Plum Curculio: As growers get ready to make the first pickings in early varieties, be aware of the presence of plum curculio. PC egg scars are present on about 15% of samples, but at low levels. Blowers will separate most of these from good fruit, but larvae may be present in these fruit.

Leafrollers: Larvae are present in about 20% of samples. Some fields continue to have leafroller populations over treatment levels. Trap captures of redbanded leafrollers have increased over the last week. This is the start of the second of three flights. Egg masses will be laid on leaves over the next couple of weeks, with larvae appearing by the end of the month through early July.

Cranberry Fruitworm (CBFW): Sprays for this insect have been applied on most farms. However, one area in Burlington County shows about 2% CBFW injury. The field has a considerable woods border, which is where most of the injury was found. This is also a field where a total of only 3 adults were captured all season. We have also seen fields with considerably higher trap counts and no injury to date.

Insect Trap Captures

Tree Fruit - Southern Counties

WEEK END:	RBLR	STLM	TABM-A	CM	LAW	AM	OFM	TABM-P	LPTB	PTB
7-May	2.00	947	1.06	0.58	0	0	35.41	0.91	0.26	0
14-May	8.00	954	19.24	5.66	0	0	29.49	22.12	18.83	0
21-May	0.33	515	43.55	4.22	0	0	17.92	39.63	47.96	0
28-May	0.50	265	61.63	6.17	0	0	10.19	57.90	57.49	0
4-Jun	0.00	184	58.71	5.94	0	0	4.00	59.89	47.47	1.33
11-Jun	2.00	830	55.48	5.61	0	0	4.55	79.75	50.13	2.75

Tree Fruit - Northern Counties

WEEK END:	RBLR	STLM	TABM-A	CM	LAW	AM	OFM	TABM-P	LPTB	PTB
7-May	48.99	1062	0	0.30		0	32.51	0		0
14-May	48.09	843	1.78	3.53		0	40.13	1.66		0
21-May	23.51	381	6.83	3.18		0	15.90	8.47		0
28-May	8.39	124	19.89	9.00		0	19.68	16.03		0
4-Jun	1.64	82.39	27.05	8.92		0	24.23	30.22		0
11-Jun	1.31	589	39.24	5.89		0	18.12	37.09		1.00

Blueberries -	Atlantic County					Burlington County				
WEEK END:	RBLR	0BLR	CBFW	SNLH	BBM	RBLR	0BLR	CBFW	SNLH	BBM
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		

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.*

Watering Peach Trees

Jerome L. Frecon, Agricultural Agent

Watering newly planted and young peach trees is beneficial during our current drought. Rainfall levels are 20-30% below normal since March 1st.

The goal of watering young trees is to optimize tree growth and root expansion. Trees should not be stressed or soil saturated around the root system.

Peach tree water use values were developed and published in Tulane County Orchard Notes, by Dr. R. Scott Johnson at the University of California, Kearny Agricultural Research Station. These may be applied to your orchard by measuring 3 dimensions: east to west diameter, north to south diameter, and average tree height in the field. Multiply these together to get tree volume.

The following table, developed by Johnson, factors and establishes these values:

- **Irrigation efficiency.** The table assumes high efficiency since the test trees were irrigated with multiple drip emitters. If microsprinklers are used, there could be more soil evaporation and water application that goes beyond the root zone. Such trees could require 10-20% more water. For most flood or furrow irrigated orchards (not used in New Jersey) application efficiency is usually poor and more water may be required.
- **Current weather conditions.** Since the table is based on long term temperature averages, abnormally hot or cold spells should be taken into account when scheduling irrigations.
- **Soil type.** On very sandy soils where water may be leaching beyond the root zone, the need for extra water is likely.
- **Cover crops & weed growth.** The values in the table were derived from trees with no weed growth. Any other plant growth in the orchard will significantly increase the water requirements.

Based on ten years of research in Mullica Hill, I still believe low water use trickle irrigation is best for Southern New Jersey peach trees in sandy soils. I have had no tree loss and excellent tree growth and fruit size on Loring peach trees irrigated based on tensiometers measuring soil deficits to trigger irrigation. The system consists of 2 and later 4 – 2 gallons per hour pressure compensation emitters at each tree.

The water source is a shallow (120′) well. The system with 1″ drip line is low maintenance. Over the past 10 years only 52 out of 960 emitters have been replaced. One pressure valve and 6 tensiometers have been replaced. Water usage has been lower than comparable systems I have monitored. ❑

Table 1. Water use of young trees in gallons per week.

Tree Volume (ft x ft x ft)	March	April	May	June	July	Aug.	Sept.	Oct.
10	9*	13	23	30	44	34	22	9**
25	9*	14	24	36	45	35	23	10**
50	10*	16	27	40	49	38	25	11**
100	12*	19	31	45	54	43	28	13**
200	17*	26	40	57	67	54	37	18**
300	22*	33	46	63	72	59	42	23**
400	26*	40	55	74	84	69	50	28**
500	31*	48	61	82	90	76	55	33**
600	35*	54	69	93	101	86	63	38**

**Some growers do not have trees planted in March. This chart only implies what amount of water peach trees need. It does not imply that in Southern New Jersey all trees need to be irrigated every month, particularly in March & April. If water use is controlled early in the growing season, root growth will be improved if trees are not stressed or excessive water is not applied.*

***Water values for late September and October are high under Southern New Jersey conditions because of lower mean temperatures in New Jersey at this time.*

Health Benefits from Apples and Apple Juice

Reprinted from North Carolina Cooperative Extension, Apple Production Newsletter, Vol. 2 (5), May 1999.

Moms now have one more reason to encourage kids to eat apples and drink apple juice, thanks to a new research study from the University of California at Davis (UC-Davis) Medical Center. The study demonstrates that these foods contain components that may fight heart disease and help combat the effects of "bad" cholesterol.

UC-Davis researchers found that antioxidants extracted from apple juice and apples help significantly reduce oxidation of low-density lipoprotein (LDL) cholesterol, often called the "bad" type of cholesterol, and thus may protect against heart disease, the leading cause of death in the United States. Their in-vitro study will be published in the April 16 issue of the *Life Sciences Journal*, and will be presented April 20 at the Experimental Biology '99 conference being held in Washington, DC.

"We found the amount and activity of antioxidants in apple juice and apples to be significant," said research co-author Dr. Eric Gershwin, chief of the Division of Rheumatology, Allergy and Clinical Immunology at UC-Davis School of Medicine and Medical Center. "In fact, if you went out and ordered a hamburger, drinking apple juice instead of beverages routinely consumed at fast food restaurants—could possibly help protect your body against the fats in that burger."

"Children tend to like apples and apple juice, and this information indicates that there are more health benefits to these foods than we thought previously." Said UC-Davis Medical Center dietitian Dianne Hayson.

The UC-Davis researcher stressed the value of eating nutrient-rich foods. "Eating something that contains all sorts of natural substances is much more healthy than taking a handful of different pills which aren't digested or absorbed the way something natural like apple juice or an apple would be," said Gershwin.

Previous in-vitro studies have indicated that red wine, tea and purple grape juice have antioxidant capabilities. Apple juice now joins this elite list as a cholesterol-fighting food.

Phytonutrients found in apples and apple juice have previously been shown to act as antioxidants. In 1997, the *American Journal of Epidemiology* reported on a 25-year study of 10,000 Finnish men that found that intake of antioxidant flavonoids, and in particular, the consumption of the flavonoid 'querceting' found in apples, appeared to reduce the incidence of lung cancer. Similar research from the same study group in Finland, published in the *British Medical Journal* in 1996, connected the same phytonutrients in apples to a reduced risk of heart disease.

Submitted by Jerome L. Frecon, Agricultural Agent ❑

Dogwood Borer Infestation in NJ Apple Orchards

Win Cowgill, Agricultural Agent and Dean Polk, IPM Fruit Agent

With the introduction of higher density apple orchards and the utilization of dwarfing clonal rootstocks, the dogwood borer has been observed in New Jersey apple orchards. The dogwood borer (*Synanthedon scitula*), was discovered for the first time in the Northeast in the 1980's. They have been observed as a problem in apple orchards in Virginia, West Virginia, Maryland, New York and Michigan.

Untreated infestations of dogwood borers may reduce yields and in rare cases girdle young trees. The infestation occurs primarily in burrknots and at the graft union in callus tissue on the more dwarfing clonal dwarfing rootstocks. Burrknots are root initials that most often appear on the shanks of exposed rootstocks, such as the M9 clones, M26, M7 and especially MARK. Growers also should be aware of burrknot producing scion cultivars such as Empire and Gala.

Cultural control should consist of keeping the trunk area weed-free so moisture does not remain any longer than necessary. Tree guards also provide an ideal growth environment for burrknots and prevent pesticide applications from reaching the trunks. The use of white latex paint on the trunks is also effective in helping to prevent the infestation of burrknots with dogwood borer. We utilize a mixture of 50% white latex paint with a low acrylic content mixed with 50% water. This makes a white wash that can be sprayed on the trunks and rootstock shanks. It assists in the prevention of south west injury as well.

In 1998 at the Rutgers University Snyder Research and Extension Farm in Pittstown, NJ, nine year old Empire trees on M26 rootstock were found to have nearly 100% infestation of dogwood borer larvae in the scion and rootstock produced burrknots. Up to 6 larvae per burrknot were found in some of the trees. The

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trunks of the trees are guarded with solid plastic tree guards, aiding in a favorable environment for the formation of burrknots and reducing the amount of pesticide reaching them.

For chemical control, Lorsban 50W has a label for dogwood borer on apples This is a Gowan product. The label rate lists 3 lb./A of Lorsban 50 W. However, for effective dogwood borer control the application should be made with a handgun soaking the tree trunks and burrknots with the solution and puddling the solution at the base. Utilize the 3lb/A rate in 100 gallons of water. Penn State says 6 oz per tree with a backpack sprayer directed at the burrknots and the surrounding tissue is effective. Do not exceed the 3lbs/100gallons per acre rate.

Yes, there are pheromones available and they can be trapped. We will be placing dogwood borer traps at selected locations in New Jersey apple orchards. The pesticide application should be made just after peak flight. In New Jersey most of our borer activity is from late July into August.

For more information on dogwood borers visit the Penn State Web Site at http://tfpg.cas.edu/part2/part23k.htm or obtain the Cornell Fact Sheet on Dogwood Borer at: http://www.nysaes.cornell.edu/ipmnet/ny/fruits/FruitFS/dgwdborer.html, or the West Virginia website at http://www.caf.wvu.edu/kearneysville/pest_month/insectfocusocto.html ❑

Calendar of Meetings

June 25 & 26, 1999 - The Changing World of Beekeeping, Holly House, Cook Campus New Brunswick, NJ. Cost: $75.00, Optional Lunch: $7.50 (per day). Contact the Rutgers University Office of Continuing Professional Education at (732) 932-9271.

July 7, 1999 - Twilight Fruit Meeting and Demonstration Tour of Rutgers Agriculture Research & Extension Center, 121 Northville Road, Bridgeton, New Jersey (609) 455-3100. Contact – Jerry Frecon (609) 863-0110 for information.

Biology and Control of Summer Trunk Insect Pests

Dick Straub, Extension Entomologist, Cornell University, Highland Research Lab

The following excerpt is reprinted from the NYSAES Scaffolds newsletter, June 7, 1999: Volume 8, No. 12 http://www.nysaes.cornell.edu/ent/scafolds/1999/6.7_coming.html

Borers

In recent years, the incidence of infestations by dogwood borer (DWB), *Synanthedon scitula*, has become noticeably prevalent. Infestations of this clearwing moth in apples are almost always located in burrknots or graft unions that are planted too high above ground level. Burrknots are aggregations of root initials that can develop on the above-ground portion of the rootstock; all commercial dwarfing and semi-dwarfing rootstocks have a tendency to develop burrknots. Some chemicals with hormone effects, such as NAA, can increase the expression of burrknots, as will failure to keep the area around the trunk weed-free and open to sunlight.

The adult seeks out these spots to lay eggs, particularly if they are surrounded by vegetation or protected by something such as mouse guards. Moreover, mouse guards may frequently house weeds and shield the lower trunk from incidental exposure to insecticide cover sprays. Sustained feeding by dogwood borer at the graft union may severely weaken the tree at this juncture, or girdle the trunk and cause a slow decline in tree health. Orchards with mouse guards in place should be examined for signs of damage.

All grafted trees in New York should be periodically checked for infestation. White latex paint brushed on the exposed portion of the rootstock will prevent new infestations of the borers, and also protect against southwest injury to the bark. Dilute trunk applications of an insecticide with good residual activity can provide control of established infestations. Lorsban 50WP is the most effective labeled material if applied during the period between July 15 and August 15, bearing in mind the specific pre-harvest intervals.

Submitted by Win Cowgill, Agricultural Agent ❑

Deer Survey Results On-Line

Rutgers' New Jersey Agricultural Experiment Station (NJAES) Center for Wildlife Damage Control conducted a 65 question survey of New Jersey's farmers in 1998 to improve understanding of how deer, and current deer management practices, impact agriculture. This comprehensive opinion survey determined farmers' perceptions of deer and identified and quantified how current deer management practices impact their farming. Survey results should lead to improved deer management programs that are more responsive to the needs of farmers seeking solutions to crop damage.

The Rutgers Deer Survey Results with color maps are now available on the Web: http://www.rce.rutgers.edu/programs/wdc/deer.htm. ❑

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