

# PLANT & PEST ADVISORY

FRUIT EDITION \$1.50

JUNE 4, 1996

## Blueberry Notes

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### ◆ D\*z\*n diazinon AG600 WBC, a new formulation of diazinon is now approved for use on small fruits and tree fruits in New Jersey

D\*z\*n diazinon AG600 WBC, a new water-based formulation of diazinon has recently been approved for use on blueberries, cranberries, nectarines, peaches, plums, and prunes, and several other crops in New Jersey. The major difference between the new water-based formulation and the old liquid formulations (AG500 and 4E) is the elimination of petroleum-based solvents that are present in the old formulations. With the removal of the petroleum solvent base, the new water-based formulation is claimed to have significantly less odor, fewer volatile organic compounds, and improved handler and crop safety. The new formulation is classified as non-flammable.

Due to a higher content of active ingredient in AG600 formulation, the amount of formulated material required per acre has been reduced. On blueberries, the recommended rate is 13.5 fl. oz per 100 gal. of water. The new AG600 formulation is labeled for the control of **Cranberry fruitworms, Cherry fruitworms, Blueberry maggots, Aphids, Thrips, Two-spotted spider mites,** and **fire ants** on blueberries. The Restricted Entry Interval (REI) and Pre-harvest Interval (PHI) on blueberries has remained unchanged in the new formulation at 1- and 7- days, respectively.

### ◆ Insect Update

✓ **Cranberry fruitworm (CBFW):** Pheromone trap catches are approaching the peak and eggs are continued to be laid. CBFW females lay eggs in blueberries over a 3-4 week period. The eggs are oval shaped and found on the edge of the calyx of the berry. Eggs hatch in 5-7 days after they are laid. Newly hatched larvae generally enter the berries at the stem end. Unlike Cherry fruitworm, CBFW larvae web several berries together with frass and silk. Infested berries may turn blue prematurely and drop to the ground. CBFW has only one generation each season.

CBFW populations in the past couple of years have been generally low in most fields in Atlantic and Burlington Counties. A single well-timed spray may be sufficient to control such low to moderate populations. If required, insecticide applications for the control of CBFW should be applied in the following 5-10 days. Insecticide options for the control of CBFW include Guthion, Imidan, Lannate or Diazinon.

SEE BLUEBERRY ON PAGE 2

Please consult the first issue of the newsletter for information on re-entry times and pre-harvest intervals.

✓ **Sharpnosed-leafhoppers (SNLH):** The yellow sticky-board traps have not caught SNLH so far. Adult emergence is expected in the very near future.

SNLH is the major vector species of the mycoplasma-like-organism (MLO) that causes blueberry stunt disease. Leafhoppers acquire the MLOs when they feed on stunted bushes. The disease is spread when these leafhoppers inject MLOs into healthy bushes while feeding. 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 by Dr. Don Ramsdell in Michigan indicated that the peak transmission of blueberry stunt disease under field conditions occur in June and late August. Although several species of leafhoppers that occur on blueberries have been implicated in the transmission of blueberry stunt disease, the SNLH constitutes the bulk of the leafhopper population in New Jersey.

SNLH has two generations in New Jersey. This insect overwinters as eggs laid in the tissues of fallen blueberry leaves. Eggs begin to hatch from mid-May, and nymphs reach adult stage in June after completing five instars. Nymphs do not have wings and are not very mobile. Adults are winged, dark brownish-black and highly mobile. Nymphs are brownish-black with a creamy white hourglass-shaped marking on the back and approximately 1/20 inch long. Both nymphs and adults have a distinctly sloped and pointed head. Adults from the second generation can be seen from mid-August onwards.

Insecticides applied for Fruitworms and Aphids should also control SNLH. Rouging and destroying stunted bushes is essential to reduce the spread of this disease. It is also important to control weeds and other woody non-blueberry plants in and around commercial fields, because they can act as hosts of SNLH.

✓ **Aphids and blueberry scorch disease:** Plants showing symptoms of blueberry scorch disease (also known as Sheep Pen Hill disease) are appearing in several fields in both Burlington and Atlantic Counties. This disease is caused by blueberry scorch virus (BBScV), belonging to the carlavirus group of viruses. Primary symptoms of this disease are blighting of both flowers and new vegetative growth at peak bloom. Blighted blossoms fail to produce fruit and infected plants in general are less vigorous than healthy plants.

Two major species of aphids, *Illinoia pepperi* and *Fimbriaphis fimbriata* occur on blueberries in New Jersey. In laboratory experiments conducted in collaboration with Dr. Brad Hillman, Rutgers University, we were able to transmit BBScV from diseased plants to

healthy plants using both these aphid species. Virus transmission under field conditions can occur from early May to mid-August when aphid populations are present. Under greenhouse conditions, this virus can be transmitted by rub inoculation and by grafting. Therefore, it is possible that BBScV may be transmitted under field conditions by mechanical injury. The spread of this virus has only been recorded over short distances. Control of aphids combined with removing and burning infected bushes over a 2-3 year period should prevent further spread of this virus.

Aphids are present at this time in small numbers mainly on the underside of new, succulent leaves and actively growing shoot terminals. Both nymphs and adults suck plant sap and devitalize the leaves. Black sooty mold may develop on the honeydew excreted by aphids. Both winged and wingless forms are present in the fields now. Females of both forms can give birth to live young without mating. Natural control agents such as lacewings, ladybird beetles, syrphid flies and parasitic wasps can provide significant control of aphid populations. Where aphids are a serious problem, post-pollination sprays with Diazinon, Asana or Lannate are suggested. For effective control of aphids, good coverage on both sides of the leaf surface on the entire plant is required. Aerial application of insecticides may not provide adequate coverage. Therefore, where aphids are a major pest target, insecticides should be applied with ground equipment.

✓ **Leafrollers:** Late instar larvae of Obliquebanded leafrollers (OBLR) are present in some fields. OBLR larvae are now feeding on berries as well as leaves. Leafroller larvae feed on the surface of the berry, although late instar larvae can chew away large chunks of the berry. However, they do not bore into the fruit or leave frass near feeding site unlike the fruitworms. Insecticide sprays targeted against fruitworms should provide adequate control of leafrollers and spanworms.

✓ **Blueberry maggot:** Adult maggot flies in New Jersey generally begin to emerge in the third week of June. We employ yellow sticky board traps to monitor adult activity across the entire blueberry growing areas of New Jersey. Insecticide treatments to control blueberry maggots are timed 10 days after the first adult catch in the yellow sticky traps. There is a considerable variation in the time of first adult capture from one field to another. For this reason, we strongly recommend growers to set a few maggot traps on their field and monitor adult activity on a regular basis. These traps are commercially available and can be purchased from one of the following suppliers:

Gemplers  
P.O. Box 270  
211 Blue Mounds Road  
Mt. Horeb, WI 53572  
Tel.: 1-800-382-8473

Trece Inc.  
P. O. Box 6278  
Salinas, CA 93913  
(408) 758-0205

# Fruit IPM

Week Ending 6/7/96

Dean Polk, IPM Agent - Fruit

## ◆ Apple

✓ **Spotted tentiform leafminer (STLM):** Most larvae are in the tissue feeding stage, with a higher percentage of sap feeders in northern counties. Mine levels are all far below treatment levels.

✓ **Tufted apple budmoth (TABM):** The first sprays for TABM are due in southern counties now and from 6/8 to 6/13 in northern counties (see table). The next sprays will be due about 5 to 6 days later (6/6 in southern counties). Much has been said in past newsletters about Penncap use. Keep in mind that there is resistance to many of the organophosphates at least in southern counties. However, some OP's do perform better than others. Penncap and Lorsban give better control than Guthion, which gives better control than Imidan. If you do not want to use Penncap, you can substitute Lorsban 50W (at a higher cost/A). The following are approx. costs according to suggested retail prices:

Chemical	Cost/unit	Rate/A	Cost/A
Azinphos methyl	7.68/lb	1.5 lb	\$11.52
Guthion 50W SP	8.10/lb	1.5 lb	12.15
Imidan 70WP	5.95/lb	2 lb	11.90
Lorsban 50WP	6.85/lb	2-3 lb	13.70-20.55
Lannate LV	5.79/pt	Do not use alone	
Penncap M	2.93/pt	2-3 pt	5.86-8.79

### Combinations:

	Cost/A
Lorsban 1.5 lb + Guthion .5 lb	\$14.12
Lorsban 1.5 lb + Penncap 1 pt	13.20
Lorsban 1.5 lb + Lannate 1-1.5 pt	16.06-18.96
Guthion .5 lb + Penncap 1-2 pt	6.77-9.70
Penncap 1.5 pt + Lannate 1.5 pt	13.09

Remember that **Lorsban 50W is not labeled for peach use.**

Tufted apple moth injury can cost. If fresh market apples are worth \$.15/lb (\$6.30/bu) @ 600 bu/A, gross value is \$3,780/A. A 1% damage rate = \$37.80 loss, a 5% damage rate = \$189/A loss. With peaches @ 400 boxes/A and \$15/box, (\$6,000/A gross) a 1% damage rate = \$60/A, and a 5% damage rate = \$300/A loss. With higher value fruit the losses are correspondingly greater.

✓ **Codling moth (CM):** Based on adult trap captures (biofix points) and degree day (<sup>o</sup>D) accumulations, the first treatments for CM were due in southern counties on 5/28-31 and will be due around 6/6 in Hunterdon County and north. A repeated treatment is advised 2 weeks after the first treatment.

✓ **Apple scab:** An infection period was recorded over most of the state on Sunday to Monday 6/2-3. Active lesions are still present in some locations.

✓ **Rosy apple aphids (RAA):** RAA continues to be a problem in some orchards which did not receive a complete pre-bloom spray for this insect. While RAA will eventually leave for alternate hosts, they will continue to cause damage at present. Lorsban 50W will not work as a rescue treatment. A dilute treatment of Cygon @ 3pt/A is one of the few solutions that does not disrupt mite predator populations.

✓ **European apple sawfly:** Sawfly injury is present in some southern county orchards at up to 15%. This is very unusual and stems from poor to late coverage in the petal fall sprays. There is nothing that can be done with sawfly injury that has already occurred.

✓ **Apple aphids:** The apple aphid/spirea aphid complex is starting to increase. Most samples show infestation levels under 5%, with a high of 30%. We use a treatment threshold of 50% of the growing terminals being infested with healthy colonies. Repeated applications of a Lorsban spray mix will usually suppress aphids so that Cygon is not needed. Aphids should be tolerated, particularly if there are few to no apples. With a minimal crop, treatment is not advised even at the 50%+ level.

## ◆ Peach

✓ **Oriental fruit moth (OFM):** First generation treatments for this pest are completed in all areas of the state. Additional treatments are advised when trap levels exceed 6-8 moths/trap/week, if visible flagging is seen, or if problems have been experienced in the past.

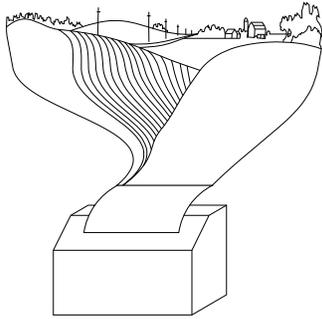
✓ **Catfacing insects:** Most catfacing insect activity is from tarnished plant bugs. Green stink bugs are also active in Gloucester County. In most cases sweep net counts do not exceed 1 to 2 TPB per 50 sweeps. One site was seen where 21 TPB were caught/50 sweeps. High catfacing insect pressure is usually aggravated by weedy ground covers. These are the same ground covers that attract bees and make it difficult to use Penncap for insect control.

✓ **Tufted apple budmoth (TABM):** Trap counts have increased in peach, as well as apple orchards. One site was seen where eggs had already hatched. The same treatments are advised in peaches as in apples, **with the exception that Lorsban 50W is not labeled for peach use (nor Lorsban 4L at this time of year).** Lannate is not suggested in either peach or apple orchards until it is needed for the second generation. See TABM for apples above.

## ◆ Blueberry

✓ **Cranberry fruitworm (CBFW):** Adult trap counts have increased as

SEE IPM ON PAGE 4



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This free service brings extension information to you with a fax machine and a touch-tone phone. You can have time-dependent information delivered within seconds.

**Documents of Interest:**

- ✓ Pesticide Labels
- ✓ Fact Sheets
- ✓ Forms

emergence continues. The highest levels were found in Burlington County, with several Atlantic County sites having no catches at all.

✓ **Redbanded leafroller (RBLR), Obliquebanded leafroller (OBLR), and Green fruitworm (GFW) and Gypsy moth (GM):** Activity has decreased with only sporadic scoutings of green fruitworm and occasional spanworms. Green fruitworms were seen in 2% of our samples where treatment was justified.

✓ **Aphids:** Most aphid infestation levels range from 0 to 1 %. Some higher levels are present, particularly in Atlantic County where levels reached 10% terminal infestation this past week.

◆ **Insect Trap Captures**

Week Ending 4/26 5/3 5/10 5/17 5/24 5/31

**Tree Fruit - Southern Counties**

RBLR	47.9	43.0	13.7	4.0	1.8	0.5
STLM	1282	1215	1334	744	276	76.6
TABM-A	0.0	8.4	5.9	5.8	21.5	29.0
CM	0.0	0.0	0.4	1.7	7.5	6.3
AM	—	—	—	—	—	—
OFM	20.7	29.0	21.4	6.6	11.9	10.7
TABM-P0.0	0.32	2.2	7.4	48.7	70.1	
LPTB	0.0	0.05	1.8	20.8	96.3	67.1
PTB	—	—	—	—	2.0	0.02

**Tree Fruit - Northern Counties**

RBLR	63.6	34.6	0.21	20.0	17.5	4.0
STLM	506	417	450	199	119	43.9
TABM-A	0.06	0.1	0.03	0.5	3.3	10.5
CM	0.0	0.2	0.21	0.3	6.1	8.4
AM	—	—	—	—	—	—
OFM	1.3	14	11	3.2	7.8	4.8
TABM-P0.02	0.0	0.0	0.5	0.4	15.2	
LPTB	0.0	0.0	0.0	0.4	12.4	13.3
PTB	—	—	—	—	1.9	3.2

**Blueberry - Atlantic County**

RBLR	106	79.2	24	4.1	8.6	0
OBLR	—	—	.02	0.4	0.4	1.6
CBFW	—	—	0.0	0.0	0.5	1.5
SNLH	—	—	—	—	—	—
BBM	—	—	—	—	—	—

**Burlington County**

RBLR	51	23.9	14.7	2.8	0.7	0.3
OBLR	—	—	0.0	0.0	0.1	0.6
CBFW	—	—	0.0	0.0	0.6	2.6
SNLH	—	—	—	—	—	—
BBM	—	—	—	—	—	—

**Abandoned Fields (both counties)**

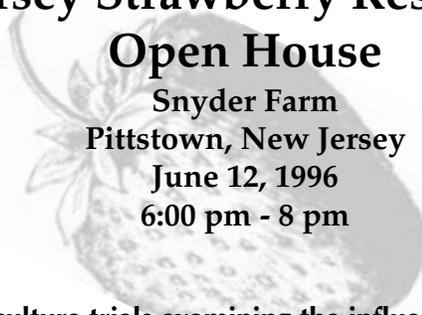
RBLR	23.7	23.5	12	1.5	0.8	0
OBLR	—	—	0.0	0.0	0.0	0.5
CBFW	—	—	0.0	0.0	0.0	0.3
SNLH	—	—	—	—	—	—
BBM	—	—	—	—	—	—

# North Jersey Strawberry Research Trials

## Open House

Snyder Farm  
Pittstown, New Jersey

June 12, 1996  
6:00 pm - 8 pm



- ❖ See strawberry plasticulture trials examining the influence of planting date, row cover removal date, and double cropping on yield, earliness, fruit quality, and returns per acre.
- ❖ See a matted row variety trial with recent commercial releases from the USDA, Cornell University, and Italian breeding programs.

Please contact Peter Nitzsche to RSVP, get further details,  
or schedule an appointment to view the trials on a different date and time.

(201) 285-8300  
(201) 605-8195 FAX

Insect Degree Day Accumulations as of 6/3

Insect	Site & County Biofix Date plus Degree Days Since Biofix
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	Bridgeton Cumb.	Hammonton. Cam.	Hardingville Glou.	Richwood Glou.	Princeton Mercer	Oldwick Hunt.	Morristown Morris
OFM <sub>45</sub>	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 <sub>45</sub>	5/4 - 479 predict 490 on 6/4	5/3 - 491 hit 490 on 6/3	5/2 - 508 hit 490 on 6/2	5/2 - 509 hit 490 on 6/3	5/13 - 366 predict 490 on 6/8	5/20 - 277 predict 490 on 6/11	5/23 - 228 predict 490 on 6/13
CM <sub>50</sub>	5/8 - 305 hit 250 on 5/28	5/8 - 307 hit 250 on 5/28	5/8 - 310 hit 250 on 5/28	5/8 - 310 hit 250 on 5/28	5/11 - 293 hit 250 on 5/31	5/20 - 203 predict 250 on 6/6	5/20 - 198 predict 250 on 6/6

All reported accumulations based on Skybit Inc. data, except Hammonton. 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.

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