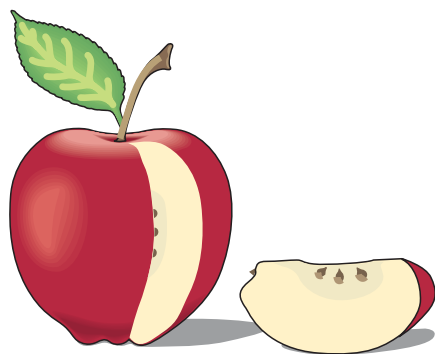


PLANT & PEST ADVISORY

FRUIT EDITION \$1.50

AUGUST 26, 2003



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Fall Borer Control Considerations

(Dave Kain, PhD. and Art Agnello, PhD. , Specialist in Entomology, NJAES, Geneva, NY

(Reprinted from Scaffolds SCAFFOLDS Fruit Journal, Geneva, NY Volume 12, No. 24)

There is increasing concern throughout the Northeast about damage done to apple trees by borers. The species of primary concern is dogwood borer, but American plum borer can be prevalent in western New York apple orchards that are close to tart cherry and peach orchards. While we do not yet fully understand the effects that these borers have on dwarf trees, we do know that they reduce vigor and can, in time, completely girdle and kill trees.

Over the last three growing seasons, we have tested a number of insecticides against these borers. Lorsban is very effective for this use and we would strongly urge growers to take advantage of it where needed. In 2001 and 2002 we compared some other materials, including white latex paint, endosulfan, Avaunt, Surround, Intrepid, and Danitol with Lorsban, with varying results. To make a long story short, only Avaunt and Danitol, applied two or three times, respectively, in midsummer, provided control comparable to one application of Lorsban.

Our tests so far have shown that borers can be controlled season-long by applying Lorsban at various times in the spring and summer. While postbloom trunk applications of Lorsban are still allowed, enabling growers to spray at the peak of the dogwood borer flight, applying this material prebloom as early as half-inch green works well, too, and may be more convenient. Fall also may be a good time to control dogwood borer. Results from 2002 indicated that Lorsban applied postharvest the previous year (sprays went on in October 2001) controlled both generations of dogwood borer. An October 2002 application of Lorsban similarly provided control of the first generation of dogwood borer this year. (Second generation control results will be in in late September or October.) Lorsban works when applied in the spring and fall because it infiltrates burrknott tissue and kills larvae concealed within. It is also very persistent in wood so it continues to work for a considerably long time after it is applied (apparently 9-12

SEE FALL BORER ON PAGE 2

months in our trials). Fall application may offer growers a more convenient alternative for applying borer control sprays.

In a survey we conducted recently, we observed some relationships between borer infestation and various orchard parameters such as the proportion of trees with burrknots, proximity to stone fruit orchards and presence of mouseguards. Conventional wisdom has held that borer problems are worse where mouseguards are in place. Mouseguards can contribute to increased expression of the burrknots borers invade and may shield borers from predators and insecticide sprays. This has led some growers to contemplate removing mouseguards under the premise that mice are easier to control than the borers. However, results of our survey indicate that dogwood borer larvae may be found as readily in trees without mouseguards as in those with them. (American plum borer may be a different story in orchards near tart cherry or peach trees.) The orchard in which we're conducting borer control trials has never had mouseguards and there is no shortage of dogwood borers. If mouseguards are deteriorated and no longer protect the tree, there may be some small advantage, in terms of borers, to removing them. But, in orchards where mouseguards still provide protection against rodents, removing them for the sake of borer control is probably not worth the risk. Instead, we would recommend the use of trunk sprays to control borers. Even with mouseguards on, insecticides will give adequate control if they are applied carefully (i.e., a coarse, low-pressure, soaking spray with a hangun). Bottom line: as we go into fall, consider using Lorsban after harvest to control borers, and reconsider removing mouseguards on trees where they still afford protection.

[Ed. Note We're printing this article as an update from last year's version on borer management because of its timeliness and applicability to the situation in many commercial orchards recently.] □

Submitted by Win Cowgill

"A Really Big" Fruit Variety Showcase

by Jerome L. Frecon, Agricultural Agent

We expect to have over 150 varieties of peaches, nectarines, flat peaches and plums, not including apples and pears, at our showcase on Wednesday, September 3, 2003. In addition, we will have comments from our speakers. (Note: program at <http://gloucester.rce.rutgers.edu>) We are also going to have a taste test panel of the standard peach and nectarines, with some promising advanced selections and some leading varieties from California. Julie Elmer, from our Rutgers Food Innovations Research and Extension Center in Bridgeton, will lead the taste testing program.

We will also be introducing a new peach cider from one of our Gloucester County growers – Circle M. Farms. Samples of this new beverage will be available.

Since we will be having a light supper before the tasting please let us know if you will be attending by calling us at 856 307-6450 Ext 1.

The following are a sampling of some of the peach and nectarine varieties that we are planning to display:

White Fleshed Peaches and Nectarines

Arctic Belle
Arctic Gold
Arctic Jay
Arctic Pride
Arctic Queen
Arctic Snow
Blushing Star
Benedict
Emeraude
Klondike
Lady Nancy
Raritan Rose
Snow Beauty
Snow Bride
Sugar Lady
Sugar Giant
Snow Giant
White Lady

White and Yellow fleshed Flat Peaches and Nectarines

NJ F133
NJ D51-270
NJ D91-134
NJ D91-128
NJ D91-120
NJ10-156-02
Saturn

USDA BY 93P4046F

USDA BY 93P4065F

SEE REALLY BIG FRUIT ON PAGE 3

REALLY BIG FRUIT FROM PREVIOUS PAGE

USDA BY 93P3562F

USDA BY 93P4062F

USDA BY 93P4055F

USDA B Y93P4053F

Yellow Fleshed Peaches and Nectarines

Autumnglo
Allstar
Arkansas 9
Beekman Fayette
Bounty
Buddie's Pride
Burchell B16.091
Carogem
Coral Star
Challenger
Contender
Curcio Tristar
Curcio Jerseystar
Ernie's Choice
Encore
EW 170
Fantasia
Flameglo
Flaming Red
Flamin Fury PF 15B
Flamin Fury PF 14 Jersey
Flamin Fury Lucky 13
Flamin Fury PF 17
Flamin Fury PF 23
Flamin Fury PF 20-007
Flamin Fury PF 24-007
Flamin Fury PF 25
Flamin Fury PG 27A
Flame Prince
Flavor Top
Fruit Acres 63
Fruit Acres 120
Fruit Acres 79
Fruit Acres 71
Fruit Acres 86
Glowingstar
Harrow Beauty
Harrow Fair
Jerseyglo
Jerseyqueen
Johanna Sweet
Jolly Red Giant
John Boy
July Flame
June Princess
Laurel
Loring
Melick's Early Topaz

Ovation
O'Henry II
Pammie Bear
Paul Friday ABC
Paul Friday CBA
Paul Friday BAC
Paul Friday 214
Paul Friday 215
Paul Friday 303
Paul Friday 18B
Redgold
Redhaven
Ruston Red
Sunglo
Sweet Dream
Summer Beauty
Summer Blaze
Summer Sweet
Summer Zee
Sparkling Red
WH 124
USDA BY96P2531
USDA BYP2838
BT 87P994
USDA BY88P2251

**N.J.A.E.S White and Yellow Fleshed
Peaches and Nectarines**

NJ C-120
NJ D90-4
NJ D90-40
NJ D90-49
NJ H30-80
NJ H15-20
NJ K32-118
NJ K40-34
NJ L12-4
NJ L11-159
NJ L1-73
NJ 19-28
NJ 12-143
NJ D92-172
NJ D88-59
NJ D80-8
NJ 293
NJ 7-28
NJ 318
NJ 325
NJ D90-49
NJ 293

Plums

USDA BY 81-5570
Flavor Rich
Flavor Queen

Apple Harvest Delayed in Northern New Jersey

Win Cowgill, Agricultural Agent

As we approach Gala and McIntosh harvest in North Jersey, apple maturity appears to be running 6-8 days behind "traditional" harvest dates. This growing season continues to challenge growers, cool-hot, wet-dry. Traditional summer apples, like JerseyMac, Paulared and the new cultivar from Minnesota, Zestar®, have been delayed 7 plus days.

From observations and maturity tests on selected cultivars conducted Monday the 24th, this later maturity will continue into September. Usually by September we have "caught up" but not in 2003. Peach cultivars harvested to date have been running 5- 7 days behind as well.

The near record low temperatures in the high 40's and low fifty's this past Saturday and Sunday nights, stimulated some good red color development on Paulareds, Gala, Macs and Jonathans. Even most Red Delicious strains significantly increased red color over the weekend.

Summer Apples

Hackettstown-Warren County	Pressure	Brix	Starch-Iodine
Paulared	16	8	2.7

JerseyMac harvest is just about complete in the Northern Counties and Zestar® which normally ripens with Paulared was harvested last Wednesday at the Rutgers Snyder farm. Paulared was within 7 days of harvest in Hackettstown, Warren County.

McIntosh

Rogers Red McIntosh was tested from the Rutgers Snyder Farm in Hunterdon County. This strain of Mac was light for us this year but is beginning to color up nicely. It is running at least 6 days late.

Hunterdon-Snyder Farm	Pressure	Brix	Starch-Iodine
Rogers Red Mac	17.5lbs	7%	2.2

Growers in Central and North Jersey should watch their Mac's closely for Red Color development and drop. If blocks were not treated with Retain®, it is too late for this season to apply on McIntosh. Applications of NAA can be used instead.

Gala

Background color has historically been one of the best indicators of maturity for Gala. Fresh market Galas should be harvested when the background color is turning from a yellow to a cream color. SI index with the Gala Starch chart can be a guideline as well.

Hunterdon- Snyder Farm	Pressure	Brix	Starch
Treeco-42 Gala	25	8.5%	1
Stark Galaxy Gala	23	7%	1

Gala strains traditionally come into maturity around Labor Day for Northern New Jersey growers but appears to be at least a 6 days behind this season. Gala does not have a long storage life, so growers need to be conscious of its maturity stage if they have plans to hold it for any length of time. Multiple pickings must be used on Gala to get consistent fruit quality and size. □

Strawberry:

Pete Probasco, County
Agricultural Agent

Remember to spray fungicides on strawberry tips each week during the propagation and inject Ridomil gold through the drip irrigation after transplanting (1 pt/A). Ridomil will help control *Phytophthora cactorum* and red stele, two diseases we see on strawberries after planting in NJ. Do not over water your plugs after they have rooted since that can start these *Phytophthora* diseases. Sometimes we don't see the disease until the following spring. □



Calendar of Events

August 20 – August 22, 2003 – North American Strawberry Growers Association Summer Tour, Park Inn & Suites, Brandywine Valley, PA and tours S. Jersey and S. PA. Contact: NASGA Business Office at 526 Brittany Drive, State College, PA 16803, phone: 814-238-3364, fax: 814-238-7051 or email: info@NASGA.org or www.NASGA.org.

September 3, 2003 – Fruit Variety Showcase, Rutgers Cooperative Extension of Gloucester County, Clayton, NJ. Contact: Jerome L. Frecon at 856-307-6450 ext 1.

Improving Drainage of Wet Soils with Gypsum

Joseph Heckman, Extension Specialist Soil Fertility

Higher-than-normal amounts of rainfall are stressful to crops grown on poorly drained soils. Use of gypsum to improve the structure and drainage of wet soils has a long history. The practice of applying gypsum (also called landplaster) to agricultural land began in Europe and the idea came to America around 1770. The New Jersey Agricultural Experiment Station published in 1953 an excellent bulletin entitled "Gypsum for Improving Drainage of Wet Soils". This article will summarize the major points of that bulletin, which is no longer in print, and offer a current perspective on how to use gypsum for soil improvement.

Application of finely ground gypsum improves soil drainage and aeration as a result of the binding of calcium to dispersed clay particles. This effect of calcium of bringing clay particles together into relatively unstable clusters is called flocculation. Calcium flocculation of clay particles is especially helpful on sodium or salt damaged soils. Although organic amendments, such as manure or compost, can also improve soil structure, the joint use of organic amendments and gypsum gives the best results (Figure 1).

Chemistry of Gypsum

When calcium sulfate is hydrated ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$), or combined with water, it is called gypsum, and when it is free of water, it is referred to as the anhydrite (CaSO_4). Gypsum contains 23% calcium and 19% sulfur while calcium sulfate contains 29% calcium and 24% sulfur. Calcium sulfate gradually converts to gypsum when in contact with water. Finely ground gypsum is many times more soluble in water than finely ground agricultural limestone or calcite (CaCO_3).

The combination of calcium flocculation and organic matter decomposition can lead to the formation of relatively stable soil aggregates, improved soil structure and better water infiltration.

Wet spots are widespread on New Jersey farm fields. They typically occur in basins where there is no outlet for surface drainage. Because these low-lying positions often receive runoff from upland areas, the amount of water that needs to drain is far in excess of normal rainfall. Fine soil particles also tend to collect and settle in these wet spots, which further increases their tendency to puddle.

During dry years crops may grow fine but in wet years these ponded areas may result in reduced yield or in complete crop failure. Even a short period of ponding can cause stress to seeded or transplanted crops. Root development is curtailed due to lack oxygen and due to the formation of toxic compounds in soil (reduced iron and manganese). Also, the crops may become starved for nitrogen because soil nitrate will be converted to gaseous forms of nitrogen that will be lost to the atmosphere.

Growers can still benefit from the research findings based on experiments conducted during the 1940's and 50's with the use of gypsum on New Jersey soils. The important findings and recommendations follow:

- Calcium sulfate applied in the form of the anhydrite (CaSO_4) or the hydrated form known as gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) were equally effective.
- Limestone (CaCO_3) also adds calcium to soil and improves flocculation, but gypsum is faster acting and more effective because gypsum has a much higher solubility.
- Applying organic amendments such as manure or compost in combination

SEE IMPROVING DRAINAGE ON NEXT PAGE

with gypsum is more effective for improving soil structure and water infiltration than either amendment applied alone.

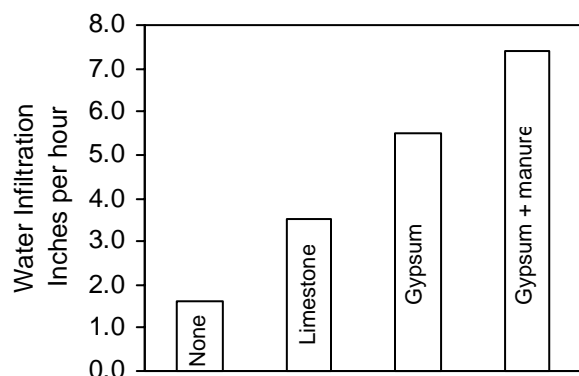


Figure 1. Effect of limestone, gypsum, and gypsum-plus-manure on water infiltration into a Sassafras soil. Limestone and gypsum were each applied at the rate of 4 tons/acre. Manure was applied at 10 dry tons/acre. Measurements were taken at 23 days after treatment.

- Gypsum is especially valuable for overcoming surface crusting. The recommended application rate of gypsum is 2 tons/acre. The gypsum should be applied to the soil surface with a lime spreader and disked in, followed by deep plowing, to achieve a through mixing with the plow layer. Plowing should be deeper than usual for the greatest benefit. Deeper tillage and subsoiling may increase the effectiveness of the gypsum application.
- Some poorly drained soils cannot be helped with gypsum. On soils that are poorly drained because of a clay bed below the plow layer the use of gypsum may do little to improve water infiltration. Digging a hole to explore the soil profile for deeper impenetrable layers can help to identify sites where gypsum may not be effective.
- The application of gypsum at the rate of 2 ton/acre is slightly acidifying. On loam soils the pH may decrease by about 0.3 units.

- Gypsum is also an excellent source of plant available sulfur and calcium. The need for sulfur by New Jersey soils and crops is increasing as coal burning power plants reduce emissions of sulfur dioxide to curb acid rain. Calcium can compete with magnesium and potassium for plant uptake. Thus, be careful to monitor and maintain a good balance of calcium to magnesium to potassium on soils that may have low soil test levels.
- Studies conducted on New Jersey soils with gypsum applied to poorly drained sites in the 1950's demonstrated that timothy, rye, and corn yields were increased by 27 to 75%. It is reasonable to assume that when gypsum improves drainage of wet spots, comparable benefits are likely to occur with today's crops.
- In addition to improving drainage, gypsum can provide other agronomic benefits. Improved seedling emergence on crusting soils has been documented. Gypsum can also improve water acceptance into the soil, decrease runoff, and conserve water for use by crops. Although wet spots will benefit most from the application of gypsum, a blanket application to fields prone to surface crusting may also be beneficial.
- Avoid the use of some by-product gypsums such as phosphogypsum which are known to contain radium.
- Mined gypsum may cost \$50 to \$100/ton or \$6.50/50 lb bag. Pelletized gypsum may cost \$260/ton. Recycled wallboard gypsum costs about \$65/ton.
- Considering that the beneficial effects of gypsum may last about three years, significant yield increases are required to make the outlay for gypsum economically viable.

References

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- Shainberg, I.; Sumner, M.E.; Miller, W.P.; Farina, M.P.W.; Pavan, M.A.; Fey, M.V. Use of Gypsum on Soils: A Review. *Advances in Soil Science*, Volume 9, 1989. Springer-Verlag New York Inc. □

Fruit IPM 08/26/03

Dean Polk, Fruit IPM Agent

Peach

✓ **Oriental Fruit Moth (OFM):** OFM trap captures are increasing in many blocks, especially in those blocks that were recently harvested. However the moth flight is also increasing in unharvested late variety blocks. While trap counts averaged 22 moths per trap (southern peaches), and 17 per trap (northern peaches), some counts as high as 122 moths per trap were also seen. Growers should maintain a weekly insecticide program for the remainder of the season.

✓ **Tufted Apple Budmoth (TABM):** Although the model indicates that TABM is over 80% hatched in southern counties, with the last sprays to be applied this week, we continue to see high trap captures and young larvae. Treatments should be maintained in problem areas up to the minimum preharvest interval allowed by the products being used.

✓ **San Jose Scale (SJS):** Recent post harvest analyses have shown the presence of fresh scale on a number of fruit. Crawler activity is still going on, and should be treated in problem blocks as soon as possible. Any blocks that showed scale on the fruit should receive a treatment. In blocks where 2 lb Diazinon was used during the season, growers may wish to increase the rate to 3-4 lb/Ac if problems still exist.

✓ **Catfacing Insects:** For the most part, this includes **tarnished plant bug (TPB)**, but also several species of **stink bugs**. Growers with overgrown weedy ground cover should be aware that populations can build up at this time of year. One weedy planting in northern counties was seen with about 100 TPB nymphs and adults sampled in the ground cover.

Apple

✓ **Codling Moth (CM):** CM should be treated in only those blocks where trap counts exceed 5 moths per trap, which is the case on a number of farms. Treatments are done for the season on most farms for this pest.

✓ **Oriental Fruit Moth (OFM) and Tufted Apple Budmoth (TABM):** Since both of these insects are key apple pests, treatments should be maintained in problem areas as outlined under peach above.

✓ **Dogwood Borer (DWB):** Increased adult activity was seen this past week in southern counties, and may be seen next week in northern counties. DWB has been found to be a pest mostly on dwarfing rootstocks such as Mark, M-9, and some M-26. Borers have been trapped since mid-June, and should be treated in problem blocks. The actual timing can be somewhat flexible (see article by Kain and Agnello from Scaffolds). Lorsban is the best material to use for this pest, and should be applied with a handgun directed to the base of the tree. Do not contact the fruit with spray material.

✓ **Bitter Rot:** This is like anthracnose mentioned on peaches last week. Most infections probably came in at the same time as those seen on peaches, but like peaches, infections are still occurring. Recent infections were noted in a number of blocks. Because of residue issues, growers may find it difficult to use the most effective material at this time of year – Ferbam. Continued applications of Captan or Ziram would be the next best options.

Blueberry

✓ **Sharpnosed Leafhopper (SNLH):** Growers should be aware that SNLH showed increased activity over the past week. This indicates an increased emergence of the second generation of adult leafhoppers. Since it is the adult that is the motile form, it is responsible for moving from infected to non-infected bushes when transmitting stunt disease. □

Insect Trap Captures

Tree Fruit – Southern Counties

Week End	LPTB	PTB	OFM	TABM-PAM	CM	DWB	OFM-A	STLM	TABM	
8/8	19	8	20	17	0	3	15	20	2588	17
8/15	31	18	23	19	0	3	0	35	2342	19
8/22	42	10	30	26	0.2	6	47	22	2034	8

Tree Fruit – Northern Counties

Week End	LPTB	PTB	OFM	TABM-PAM	CM	DWB	OFM-A	STLM	TABM	
8/8	0	0	10.5	1.2	0	5.1	3.5	—	1112	0.7
8/15	1.2	0.7	11.2	2.3	0	3.1	2.0	—	1200	1.1
8/22	0.5	0.2	17	3.1	0.1	1.6	2.0	—	1350	2.4

Blueberry – Atlantic County

Week End	CBFW	RBLR	SNLH	OB	BBM
8/8	0	2105	0.1	158	0.1
8/15	0	37	.01	20	0.1
8/22	—	—	.37	—	—

Blueberry – Burlington County

Week End	CBFW	RBLR	SNLH	OB	BBM
8/8	0	0.2	0.1	99	0.1
8/15	0	2.1	0.2	19	0.2

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