

scaffolds

Update on Pest Management
and Crop Development

F R U I T J O U R N A L

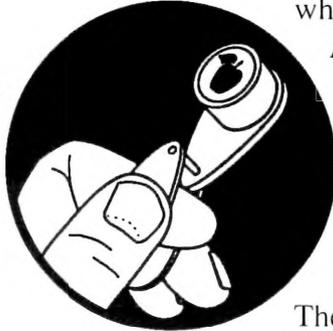
March 25, 2002

VOLUME 11, No. 2

Geneva, NY

DON'T
LEARN
THE HARD
WAY

APOGEE
UPDATE
2002, PART II
(Jim Schupp,
Horticultural
Sciences,
Highland)



why it improved the performance of Apogee in our study. In either case, our results suggest growers will get a better result by adding a water conditioner to the spray tank before mixing Apogee, even if the water source is soft.

Use a Water Conditioner

❖❖ Mixing Apogee in hard water reduces its effectiveness. Last year at the Hudson Valley Lab, we tested the effects of adding water conditioners to a very low rate of Apogee (3 oz/100 gal), with both soft water from the pond (58 ppm hardness), and moderately hard water from the well (222 ppm). Hard water reduced the effectiveness of the Apogee slightly (see Table 1). Adding either ammonium sulfate (AMS) or Choice as a water conditioner to hard water before mixing the Apogee resulted in better growth control than when Apogee was mixed with soft water. This result is important to growers who wish to use lower rates of Apogee to reduce undesirable effects on fruit set, or simply to save money.

The loss of effectiveness caused by hard water is due to the calcium it contains. It follows that one should not add calcium fertilizer to the spray tank when applying Apogee. Research conducted by Ross Byers in Virginia shows that tank-mixing boron with Apogee causes a similar loss of effectiveness. To clear up any confusion, hard water does not mean the same thing as high-pH water. Dr. Byers' research shows no benefit from adjusting the pH of the spray tank before applying Apogee. It's the calcium in the calcium carbonate that creates a problem with Apogee, not the carbonate.

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Table 1. Effect of water hardness and water conditioners on Apogee efficacy, 2001.

Apogee (oz /100)	Water hardness	Water conditioner	Growth (% of Control)
0 (Control)	—	—	100
3	soft	none	74
3	hard	none	80
3	hard	AMS	64
3	hard	Choice	64

In addition to conditioning hard water, AMS previously has been shown to increase the uptake of some chemicals, and this may explain

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PHENOLOGIES

UPCOMING PEST EVENTS

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Two sprays of 3 oz/100 gal gave season-long growth control in this study because the vegetative vigor of these trees was not excessive. This low rate probably wouldn't provide season-long control on vigorous trees; however, some growers may wish to try two or three applications of Apogee at 5 or 6 oz/100 gal (10–12 oz/acre).

Directed Sprays Work

Directed sprays can be used to reduce the Apogee rate per acre without loss of growth control, especially in blocks with crowded canopies. A study was conducted on a block of closely spaced McIntosh/M.26 trees in a commercial orchard in the Hudson Valley. Apogee (10 oz/100 gal) was applied twice, at petal fall and at petal fall + 4 weeks, with a PTO-powered airblast sprayer. One set of trees was sprayed with 7 nozzles per side, operating

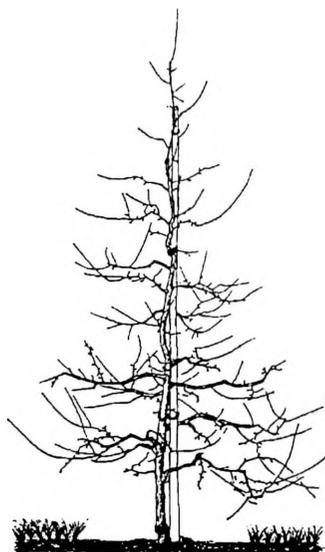
to generate an output of 155 gal/acre. A second set was sprayed with the same tank mix, but the bottom two nozzles per side were turned off, thereby reducing output to 121 gal/acre.

Growth control with Apogee was equivalent throughout the canopy regardless of nozzle number (see Table 2). Vigor was greatest in the top of the canopy, and was low in the rest of the canopy. By directing the spray to the top of the canopy, we were able to reduce the amount of Apogee per acre by 22% without loss of benefits. Red fruit color was increased approximately 50% in both treatments.

These results indicate that in trees where the need for growth control is largely limited to the upper portions of the canopy, significant savings can be achieved by directing Apogee sprays to that portion of the canopy.❖❖

Table 2. Effect on shoot growth (in) and red fruit color by applying Apogee with bottom nozzles off, 2001.

Treatment	Shoot growth (in)			% Red Color
	Canopy Top	Mid-Canopy	Bottom Canopy	
Control	23	13	11	24
All nozzles on	8	7	6	50
Low nozzles off	7	7	6	47



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is published weekly from March to September by Cornell University—NYS Agricultural Experiment Station (Geneva) and Ithaca—with the assistance of Cornell Cooperative Extension. New York field reports welcomed. Send submissions by 3 pm Monday to:

scaffolds FRUIT JOURNAL

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This newsletter available on CENET at: news://newsstand.cce.cornell.edu/cce.ag.tree-fruit
and on the World Wide Web at:
<http://www.nysaes.cornell.edu/ent/scaffolds/>

AN
OUNCE
OF
PREVENTION

DEPENDENCE ON
PETROLEUM
IMPORTS
(Art Agnello,
Entomology,
Geneva)

❖❖ As predictable as the gasoline price increases each spring are our annual recommendations for relying on one of the less volatile distillation by-products, horticultural mineral oil, in your early season spray program. The use of oil as a delayed dormant application for mite and insect control in fruit trees continues to be a wise tactic, despite the fact that a number of newer and capable contact miticides are available for early season use. For as many of the blocks as you can find the time and application window to devote to a thorough treatment, oil retains a justifiably preferred position because of its effectiveness, affordability, and relative safety from a biological and resistance perspective. Exploiting the most acceptable spraying conditions to maximize tree and block coverage can be a challenge in our area, but few pest management efforts have such potentially high returns when everything falls properly into place.

Pear Psylla

It's nearly impossible to be sure your pear trees are all protected by the time the very first psylla adults start flying and (presumably) laying eggs during the first warm temperatures of the spring. However, even a few nice warm days in a row don't waken more than a small percentage of the total population, so you'll be more than adequately psylla-ready if you prepare a little ahead of time, provided your orchard floors aren't too soggy from spring snows.

Early oil applications can be useful against pear psylla all throughout the swollen bud stage; although it's capable of killing adults and nymphs that are contacted directly, oil is recommended mainly because the residue has a repellent effect

on female psylla looking to deposit their eggs, and this lasts for an extended period after treatment. The strategy behind the use of oil is to delay the timing of any needed insecticide spray until as late as possible before (or after) bloom. Oil rates depend on when you start: If your buds are at the dormant stage, one spray of 3% oil, or two of 2% through green cluster are recommended; if you start at swollen bud, one spray at 2% or two at 1% up to white bud should be adequate for this purpose, especially if applied as soon as the psylla become active (50°F or above). This will also give some red mite control at the same time.

European Red Mite

A delayed-dormant spray of petroleum oil from green tip through tight cluster can be a favored approach for early season mite control, both to conserve the efficacy of and to help slow the development of resistance to our contact miticides. Our standard advice has been to try for control of overwintered eggs using 2 gal/100 at the green tip through half-inch green stage, or 1 gal/100 at tight cluster; this assumes ideal spraying conditions and thorough coverage. Naturally, real life doesn't always measure up, mainly because of weather and coverage challenges, coupled with the difficulty of getting to a number of blocks during this transient window. It is possible for mites to start hatching when the trees are at solid tight cluster, so the suffocating mode of action tends to be compromised if the nymphs are able to wade through or avoid the droplets. Let practicality determine how best to use the following guidelines.

First, to be sure that mites are in the egg stage, start on your blocks as soon as the weather and ground conditions permit, even if this means using a higher rate. This winter has been dryer than normal, but snows and rains have been variously heavy in certain locations, so local conditions will be a prime determinant of how easily you can get through the rows early on. Also, tend toward the high end of the dosage range, especially if there's

continued...

been no frost during the 48-hour period before your intended spray, and no danger of one for 24–48 hours afterwards. For example, use 1.5 gal/100 if the buds linger somewhere between half-inch green and full tight cluster during your chosen spray period.

Good coverage of the trees naturally is critical if you're to take advantage of oil's potential efficiency; this in turn requires adequate spray volume delivered at an appropriate speed. Experience and research have shown that a 1X concentration (300 gal/A) in larger trees is clearly preferable; however, if all other conditions are optimal (weather, speed, calibration), then 3X, or 100 gal/A, is the highest concentration that should be expected to give acceptable control at any given time. Growers like to concentrate more than this to save time and the hauling of extra water, but reducing coverage too much can wipe out your efforts if you end up getting only a small fraction of the egg population under the residue.

Don't limit this mite-control tactic just to apples and pears. Talks with stone fruit growers over the winter have reminded us that many cherry, peach and plum plantings can suffer equally seriously from European red mite infestations that weren't given the early season attention they might need. We don't have hard and fast threshold guidelines for these crops, but stone fruit plantings with a history of past ERM problems should be examined for presence of the red overwintered eggs, and if they're numerous enough to see without a hand lens, then a prebloom application of 2% oil would be a prudent measure to help stave off this damage.

The Way to San Jose

We've been discussing how some of the recent insecticide withdrawals and restrictions may induce a return to the pest profiles of the past, with direct fruit pests taking precedence over the indirect foliar feeders. San Jose scale is one of those old standbys that already has been responding to some of the regulatory actions of the last few years. The recent disappearance (or restriction) of products like

PennCap-M and Lorsban from our list of spray materials has been at least partly responsible for the fact that SJS still presents a challenge in a number of orchards. It's therefore worth pointing out that a 2% oil treatment at half-inch green will control the nymphs, and this is a preferred treatment if no other problem insects need to be controlled. Combining the oil with an insecticide has not been shown to be more effective than using the oil (or insecticide) alone, except in the case of one new alternative, Esteem, which has shown good efficacy when mixed with 2% oil at the pre-pink timing.

If you choose not to use oil against the scale nymphs, or if you have Rosy Apple Aphid or other early season insects to be controlled, an insecticide would be more appropriate. For both of these pests, Lorsban 4EC or Supracide have proven very effective during the green tip to tight cluster stage. Check the opening buds for infestations of Rosy Apple Aphid; treatment would be advisable upon finding one colony per 100 clusters. ❖❖

PHENOLOGIES

Geneva:
All dormant

Highland:
Apple (McIntosh, GingenGold): early green tip



DIGITAL
FORMULA

VIRTUALLY
DISEASE-FREE!
(Bill Turechek and Tyrone
Hall, Plant Pathology,
Geneva)

❖❖ The Tree Fruit and Berry Pathology website is a new online source of information for diseases affecting tree fruit and berry crops in New York. The address of the page is: www.nysaes.cornell.edu/pp/extension/tfabp/. Once at the website, the very first thing you may notice is a set of quick links to some of Cornell's most important online sources of information. For example, quick links have been established to Scaffolds, the Cornell Fruit Information Page, and to Cornell's Pest Management Guidelines to Tree Fruit Production (a.k.a. The Cornell Recommends). A link to the Pest Management Guidelines for Small Fruit Production has been created. The online version is not yet finished, but we are expecting it to be completed shortly. There is also a link to what we simply call Pesticide Updates. Here we will attempt to keep you updated on the most recent label changes, registrations, cancellations, and legislation affecting fungicides, insecticides, and herbicides labeled for tree fruit and berry crops in NY.

The website is also home to the new online newsletter "The New York Berry News" (<http://www.nysaes.cornell.edu/pp/extension/tfabp/newslett.shtml>) a newsletter that aspires to provide a statewide perspective on the production of berry crops in New York. Currently, the newsletter will be published every month. The New York Berry News is not necessarily intended to provide detailed, or step-by-step, information on the management of small fruit crops in New York. We will, however, attempt to provide pertinent and new information, as developed from Cornell's researchers and extension personnel, on a timely basis. We will also scour regional sources for articles that we think will be of interest to New York growers.

Another excellent feature on this website is the interactive Message Board (<http://pub18.ezboard.com/bnewyorktreefruitandberryboard>)! A message board differs from an email LISTSERV in that you are NOT bombarded with daily email messages on topics that you are not of interest to you. With a message board, all communications stay on the message board, and you read only what is of interest to you. Now, because the website is brand new, there are only a few messages on the message board. It is up to all of us to get it going and establish a community among New York and regional growers. Once you are there, ask the community a question or make comments by starting a new topic, or reply to an already posted topic. You do not need to register to use the message board; i.e., the requirement for a password has been removed. Simply type in your name (or be anonymous) in the space provided and ignore the section requesting a password.

The website offers a comprehensive listing and links to Disease Fact Sheets (<http://www.nysaes.cornell.edu/pp/extension/tfabp/disindx.shtml>). Some of these have been reproduced and/or revised from earlier fact sheets published by the New York State IPM program (<http://www.nysipm.cornell.edu/>). Some are links to fact sheets developed by colleagues at West Virginia University, the Ohio State University, and Pennsylvania State University. Other fact sheets are brand new, developed by the Tree Fruit and Berry Pathology Program. Eventually, we expect to develop a comprehensive set of our own fact sheets, but in the meantime we can rely on other resources. In addition to fact sheets, we have begun to develop an extensive set of Links (<http://www.nysaes.cornell.edu/pp/extension/tfabp/links.shtml>) to relevant internet sources of tree fruit and berry crops information.

In addition to what was just described, the website will also house digital (Power Point) Extension Presentations: <http://www.nysaes.cornell.edu/pp/extension/tfabp/extpres.shtml>) that were originally presented at the various fruit schools and fruit-based

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meetings. And, in the near future, this will be a source for online forecasts of a variety of diseases. The website has started nearly from scratch, so that means there is plenty of opportunity for your input in the direction that it develops. There is also plenty of opportunity for individual contributions, particularly by the Cornell community. If you have any questions or comments about the content of the website, please email Bill at wwt3@cornell.edu. If you have any questions or comments about the design of the website please email Tyrone at twh22@cornell.edu. ❖❖

UPCOMING PEST EVENTS

	<u>43°F</u>	<u>50°F</u>
Current DD accumulations (Geneva 1/1-3/25):	73	23
(Geneva 1/1-3/25/2001):	8.9	1.4
(Geneva "Normal"):	40	16
(Highland 1/1-3/25):	136	49
<u>Coming Events:</u>	<u>Ranges:</u>	
Green fruitworm 1st catch	41-173	9-101
Pear psylla adults active	2-121	0-49
Pear psylla 1st oviposition	25-147	1-72
McIntosh at silver tip	56-137	17-58

NOTE: Every effort has been made to provide correct, complete and up-to-date pesticide recommendations. Nevertheless, changes in pesticide regulations occur constantly, and human errors are possible. These recommendations are not a substitute for pesticide labelling. Please read the label before applying any pesticide.

This material is based upon work supported by Smith Lever funds from the Cooperative State Research, Education, and Extension Service, U.S. Department of Agriculture. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.

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