



Newsletter Extension

Fruit ICM News

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Calendar

March 27, 2002: Spring Fruit Crops Breakfast, Vanson's Restaurant, U.S. Rte. 20 and St. Rte. 99, Monroeville, OH, 8:00 a.m. Guest presenter will be Dr. Richard Funt, Ohio State University Plant Pathologist, OARDC, who will discuss cultural practices that enhance fruit IPM.

March 27, 2002: North-Central Ohio Pruning Clinic, Skitter Brae, 3222 Laylin Road, Norwalk, OH, 1:00 p.m. This session begins with a potluck lunch at noon. Bring a dish to share; tableware and beverage provided. Pruning demonstration on new and abandoned fruit trees presented by Dr. Dick Funt. Two dollar fee is payable at the door. Bring a pair of pruning shears and loppers. Dress appropriately; workshop will be conducted regardless of the weather. For more information, contact Ohio State University Extension, Huron County at 419-668-8219.

Apogee Update 2002, Part I

Source: Jim Schupp, Horticultural Sciences, Highland, Scaffolds Fruit Journal, Volume 11, No. 1

Many growers used the new plant growth regulator Apogee on a trial basis last year, its first season of being registered for use on apples in NY. Most growers had positive results, and most of those who used Apogee last year report that they are planning on using it again this year. The following information is

provided to help growers fine-tune the use of Apogee in 2002.

Apogee and Pruning

The big incentive for using Apogee is saving on labor for summer and dormant pruning. In several research studies on commercial orchards, Apogee has reduced pruning time by 25-45%. However, Apogee has worked best when applied to well-pruned trees. It is better to prune dense trees hard during winter and use Apogee to help control the regrowth than it is to apply Apogee to overgrown trees without corrective pruning.

Apogee provides poor control of one kind of shoot: water sprouts. Apogee must be applied prior to the first flush of terminal shoot growth in order to be effective, but that timing of Apogee is too early to reduce the growth of water sprouts, which have not yet formed at the start of the season. Heading or stubbing back cuts (i.e., bench cuts) should be avoided when pruning to limit the number of water sprouts that are often stimulated by such cuts.

Apogee is best used as a tool to supplement good pruning practices. It will not erase excessive limbs that are already in place or make up for poor pruning practices. Thus, the importance of good pruning prior to application of Apogee cannot be over-emphasized.

Apogee and Thinning The effect of Apogee on fruit set and fruit size is the biggest concern voiced by growers after its first season of use. While some growers saw no such effect, others reported that Apogee increased set, and reduced fruit size due to the increased crop load. Likewise, some research studies have shown that Apogee can increase fruit set, while others have shown no effect. Given the variability in fruit set and thinning difficulty from year to year, from farm to farm, and across varieties, this is perhaps no surprise. Still, there is solid evidence that Apogee can increase fruit set. There is also research data to suggest how chemical thinning should be adjusted to account for the Apogee effect.

Apogee rate affects the fruit thinning response. The rate of Apogee (dilute basis) at which this effect of increased set usually becomes apparent is 12 oz per 100 gal. Dr. Duane Greene at the University of Massachusetts showed that McIntosh fruit set increased linearly with increasing Apogee concentration. Stated another way, the lower the Apogee rate, the less effect it had on fruit set. To minimize potential adverse effects on thinning and fruit size, use the lowest rate of Apogee necessary to get good growth control. Increasing the rate from 6 oz per 100 gal to 12 oz per 100 gal is more likely to affect the duration of the growth control than the degree of growth control. If a grower has had problems thinning Apogee-treated trees, it may be better to make three applications of 6-8 oz per 100 gal than to apply 12 oz per 100 gal twice.

Be assertive when thinning. It has always made good sense to evaluate initial fruit set, and it is even more important to do so on Apogee blocks. If the initial set is heavy, thin early and thin often! The growth inhibition from Apogee takes a week or longer to become apparent, which suggests that thinning early, before the Apogee kicks in, may be a good way to reduce crop load on Apogee-treated trees. Petal fall thinner applications may have an important role in combating excessive set on Apogee-treated trees. Starting the thinning program at petal fall also gives the grower a longer window of opportunity to adjust the crop. This strategy is a good one without Apogee. With Apogee, it is the only way to go.

Another way to remove more fruit is to increase the dosage of a chemical thinner, or to use two or more chemical thinners in combination. Our initial recommendation to adjust for Apogee was to increase the strength of the thinner by 30-50%. For example, if you determined that untreated trees in a given block would require a thinning spray of 5 ppm NAA, then Apogee-treated trees in that block may require 7.5

ppm NAA or 5 ppm NAA plus Sevin to get the same degree of thinning. Beware the laws of diminishing returns when considering rates of NAA in excess of 10 ppm. The increase in thinning diminishes as the rate of NAA is increased. Dosages of NAA higher than 10 ppm can stunt the growth of the fruit that remain, resulting in little improvement in fruit size.

Another way to remove more fruit from heavy fruit sets is to add a penetrant such as oil to the thinning spray. Duane Greene showed that adding a quart of spray oil per 100 gal to a tank mix of Accel plus Sevin XLR increased the amount of thinning to an acceptable level on Apogee-treated trees. If you try this method, remember that one should NOT concentrate the oil when using it as a surfactant in a concentrate spray mix. Also remember that oil and captan can't be applied together or within a few days of one another, due to the possibility of spray damage.

Leave check trees! Many factors affect fruit set, and it is nearly impossible to assess the effects of Apogee or chemical thinners without leaving some untreated trees. Some growers might find that their thinning program was inadequate even before they applied Apogee! A few check trees would answer this question.

Different varieties may respond differently to Apogee. McIntosh and Gala were the varieties that growers most often mentioned as problems following Apogee applications. In a two-year study on Golden Delicious in the Hudson Valley, I have found no difference in fruit set due to Apogee, and Apogee-treated Golden responded to NAA no differently than did untreated trees.

Don't use Apogee on Empire

Apogee can cause fruit corking and cracking when applied to Empire. The occurrence of this injury is sporadic, and the circumstances that lead to expression of the injury are not known. However, it has occurred across several years in Michigan, New York, Ohio, and Pennsylvania. Apogee has been applied to many commercially important varieties, but Empire is the only variety identified as being sensitive to Apogee thus far. The sporadic nature of the fruit damage to Empire suggests that one or more environmental or application factors contribute to this problem. Apogee is applied as a foliar spray, so other agricultural chemicals applied with Apogee, or near the time of the Apogee application (s) may contribute to the problem.

One category of chemicals that we have investigated is water conditioners. Applicators are advised to add a water conditioner such as ammonium sulfate (AMS) when mixing spray solutions from a hard water source. Foliar applications of nitrogen fertilizer salts can cause plant damage when applied at excessive concentration, under poor drying conditions, or when applied with surfactants. Butch Palmer, ACDS Research, has reported that adding AMS to the spray mixture worsened Empire cracking. Studies were conducted at the Hudson Valley Lab in 2001 to evaluate the effect of Apogee and water conditioners on fruit damage of Empire. Fruit damage was severe in these studies, despite the use of the lowest labeled rate of Apogee (3 oz per 100 gal). The damage was worsened by the addition of a water conditioner. However, AMS applied with Regulaid but without Apogee had no effect on either the severity or extent of fruit injury. We conclude that the fruit injury is directly caused by the formulated product Apogee itself, and that this product should not be used on Empire.

Early Season Pear Psylla Control

Source: Fruit Times Newsletter, Volume 21, No. 3, March 5, 2002

A single pear psylla female can produce during a lifespan over 600 eggs, so an effective early spring psylla control program may be crucial for the entire season. In orchards with the history of pear psylla problems the first sprays should include oil in order to suppress egg deposition and some adulticide to eliminate overwintering adults. Depending on when you start, use the following oil rates: 3% oil at dormant bud, 2% oil at budburst, and 1% up to white bud. You can make two applications of oil, one at dormant to bud swell (2%) and one at bud burst (2%). Thorough coverage is required for good control of psylla during each application.

The main reason for applying oil is to "buy" some time. The oil schedule has provided excellent egg laying suppression. Pear psylla females do not like to lay eggs on oily surfaces. The oil spray at budburst should be combined with an adulticide insecticide to kill the adults. The pyrethroids (Asana or permethrin) are still fairly effective for this spray. From the resistance standpoint it is good to note that, two new insecticides (Esteem and Actara) are also recommended for psylla control during early season. Esteem (pyriproxyfen) is registered for use against pear psylla between swollen bud and petal fall; Actara (thiamethoxam) will provide excellent control of adults and nymphs if applied at white bud pear stage. Both these compounds might be an important element of psylla program, especially in orchards where psylla resistance is a problem. Please remember that the best options for the multi-season pear psylla control have to include the "three R" recommendation: rotate rotate - rotate.

Pear Psylla

Source: 2000-2001 Pennsylvania Tree Fruit Production Guide, Penn State Cooperative Extension

Pear psylla adults look like dark reddish brown, 1/10-inch-long cicadas. Eggs, just visible to the naked eye, are pear-shaped, yellowish, and are laid in cracks in the bark and around the buds. They become dark yellow before hatching. Nymphs have sucking mouthparts and feed on plant sap. As they mature they become dark brown and more oval in shape. These late-instar nymphs are commonly referred to as "hard shells."

There are generally four generations per year. The adults, which overwinter on trees or other sheltered places, become active anytime the temperature is above 40° F. Females begin laying eggs in late March and continue through the white bud stage. The peak of egg laying is green tip to green cluster bud. Egg hatch occurs from the green cluster bud stage to petal fall. Nymphs move to succulent stems and developing leaves to feed, with the heaviest concentration along the midveins of leaves and at the calyx end of fruit. The early nymphal stages produce more honeydew than the later, larger stages. The first summer adults mature about 20 to 25 days past full bloom. They begin laying eggs on growing shoots as the population shifts from spur leaves to the more succulent shoot leaves. Late-season infestations are typically found on water sprouts.

The pear psylla secretes large amounts of honeydew, which runs down over foliage and fruit and in which a sooty fungus grows. This causes the skin of the fruit to become blackened and scarred and the foliage to develop brown spots. Heavy infestations may cause partial to complete defoliation of trees. Overall tree growth can be stopped or stunted with heavy psylla injury. These combined effects are often termed "psylla shock." There is also limited evidence that psylla inject some type of toxin into the tree, causing a disease known as pear decline. In addition, pear psylla have been implicated in the transmission of fire blight.

Growers should monitor for the presence of pear psylla using their most sensitive pear variety (i.e.,

'Bartlett'). To sample for pear psylla nymphs in the early season, examine at least 10 leaves (five spur and five recently expanded shoot leaves) per tree on a minimum of five trees per block. The action threshold at this time is 0.5 nymphs per leaf. For the summer generations again examine at least 10 leaves (recently expanded shoot leaves) per tree on a minimum of five trees per block. The action threshold now is 1.5 nymphs per leaf. When the psylla population is primarily in the adult stage, examine the leaves for the presence of adult activity and egg laying.

Several cultural control practices will reduce psylla populations and dependence on insecticidal control. First minimize heavy pruning, which encourages the proliferation of terminal shoot growth. An overabundance of terminals provides more feeding sites for the psylla. Second, pear trees should receive the minimum amount of nitrogen fertilization necessary for proper tree and fruit growth. Third, and most important, is to remove water sprouts during late June and early July. Because water sprouts provide one of the only sources of succulent leaves at this time of the year, this technique can eliminate a large portion of the psylla population.

Control of Spider Mites on Apples

Source: Dr. Celeste Welty, OSU Extension Entomologist

Here is a summary of mite control options for 2002, including the new product Acramite. Registration details on Acramite were given in the internet version of this newsletter on February 28th, available at <http://www.ag.ohio-state.edu/~ipm/fruit/index.html>. When planning mite management, it helps to think of each orchard block as falling into one of two categories: blocks where mite control is usually needed every year, and blocks where mite control is usually not needed every year, but is needed some years. Blocks that usually need mite control every year are often Red Delicious blocks, but they can be any cultivar if mite predators are not present. Blocks where mite control is usually not needed every year are often cultivars other than Red Delicious, but this category can include Red Delicious if mite predators are abundant. Keep in mind that each of our current miticides has a time of year when it works best. Superior oil works best at half-inch green to tight cluster. Agri-Mek, Savey, and Apollo work best at first cover. Pyramite and Carzol work best at petalfall. The new miticide Acramite should be used in summer when mites are approaching threshold. In blocks where control is needed every year, miticides should be used at the time they work best, whether or not a threshold has been exceeded, and products should be rotated so that resistance to any one is avoided or delayed. In blocks where control is not needed every year, miticide should be applied only if a threshold is exceeded, which often occurs later in the year than when a product is at its best timing.

In all blocks, it is always helpful to start the season with oil during the pre-pink season because it helps manage mite resistance and it helps control San Jose scale. Oil is most effective for mite control if used in a dilute, high-volume spray, of 200-400 gallons of water per acre. Use 2% oil (2 gallons of oil per 100 gallons of water) at half-inch green or 1% oil at tight cluster. Note that for best control of San Jose scale, oil should be applied earlier, at bud swell, and mixed with Lorsban.

For blocks that usually do NOT need mite control every year, the recommended management plan is to scout for mites every 1-2 weeks (see details in Midwest Tree Fruit Pest Management Handbook), and apply Savey or Apollo if mites exceed the threshold any time until the 28 or 45-day PHI is reached. This is most effective if preceded by an application of superior oil at half inch green to tight cluster. If a miticide is needed more than once every 2 years, then a miticide rotation should be used as described in the following paragraphs.

For blocks that usually need mite control every year, the following 3 year rotation of miticides is recommended to avoid resistance.

In one year, use Agri-Mek at first cover. It is likely that this will give season-long control of mites, but if it does not, then Savey (28 day PHI) or Apollo (45 day PHI) can be applied once the threshold is exceeded. Remember that Agri-Mek also controls spotted tentiform leafminer and white apple leafhopper.

In another year, use Savey or Apollo at first cover. It is likely that this will give season-long control of mites, but if it does not, then Caramite or Pyramite or Vendex or Kelthane can be applied once the threshold is exceeded.

In the third year, use superior oil at half-inch green to tight cluster followed by Pyramite or Carzol at petalfall. It is likely that this will give season-long control of mites, but if it does not, then Acramite or Savey or Apollo can be applied once the threshold is exceeded. Remember that Pyramite also suppresses white apple leafhopper and aphids.

New Summer Acramite Registered

Source: Greg Krawczyk and Larry A. Hull, PSU-FREC, Fruit Times Newsletter, Volume 21, No. 3, March 5, 2002 (also see Ohio Fruit ICM News, Volume 6, Issue 4 for comments from Dr. Celeste Welty).

In early February the Crompton Corp. (Uniroyal Chemical) announced registration of Acramite 50WS miticide with bifenthrin as an active ingredient. Acramite will be sold as a wettable powder in water-soluble bags. This new summer acaricide is registered for the control of mobile forms of mites on apples, pears, peaches, nectarines, plums, prunes, grapes, hops and strawberries. Acramite is very active against all stages of two-spotted mites and motile stages of European red mite, but will not control rust mites. Acramite can be used up to 7 days before harvest (PHI) on apples and pears; 14 days on grapes and hops; 3 days on peaches, nectarines, plums and prunes, and 1 day on strawberries. On all registered crops the restricted entry interval (REI) is 12 hours, except for some activities on grapes where the REI is extended to 5 days. The compound provides quick mite knockdown through contact activity and long residual control. Acramite is not systemic in action; therefore, complete coverage is essential for product activity. The recommended rate is 0.75-1.0 lb per acre in minimum of 50 gallons per acre. Only one application per season is permitted. With its new mode of action, Acramite provides a valuable addition to summer mite control and mite resistance management programs.

Ohio Migrant Housing Labor Camp Improvements Program

Source: Tom Sachs, Executive Director, Ohio Fruit Growers Society (OFGS)

Ohio has released their draft fiscal 2002 "Ohio Consolidated Plan," in which the migrant housing labor camp improvements program is addressed as follows: "This program is proposed to be eliminated in FY 2002." There is an opportunity to voice support for continuing the program. Written comments may be submitted until April 5, 2002. If you feel the program has value to growers, producers, and migrant

workers, your written comment could help sustain this program, which received \$300,000 in funding this past year.

Comments should be submitted to:

Lisa Patt-McDaniel, Office Chief
Ohio Department of Development
Office of Housing and Community Partnerships
77 S. High St, P.O. Box 1001
Columbus, OH 43216-1001

Contact me if you have any other questions or comments. Tom Sachs, Executive Director, Ohio Vegetable and Potato Growers Association (OVPGA), Ohio Fruit Growers Society (OFGS); Director, Specialty Crops, Ohio Farm Bureau Federation, Ph: 614-249-3056, Fx: 614-249-2200, Cell: 614-203-9524, Email: tsachs@ofbf.org Internet: <http://www.ohiofruit.org>
<http://www.ohiovegetables.org>
<http://www.ofbf.org>

EPA Drift Proposal

Source: Facts for Fancy Fruit, 2002-01 March 13, 2002

The EPA has proposed new labeling requirements for all pesticides to reduce problems associated with drift. Implementation of the proposed guidelines will certainly reduce drift; however, they will also have a direct effect on how pesticide applications are made to fruit and vegetable crops. This is an issue important to all fruit growers. We suggest you read more on this topic and submit comments to EPA. The deadline for comments has been extended to March 31, 2002.

The proposal is available online at: http://www.epa.gov/oppmsd1/PR_Notices/prdraft-spraydrift801.htm and the Federal Register information about the comment period is available at: <http://www.epa.gov/fedrgstr/EPA-PEST/2002/January/Day-23/p1758.htm>

Following are bits of the proposal:

Products Applied as Sprays--All Affected Products, Except Home and Garden Products: "Do not allow spray to drift from the application site and contact people, structures people occupy at any time and the associated property, parks and recreation areas, non-target crops, aquatic and wetland areas, woodlands, pastures, rangelands, or animals.

For orchard/vineyard airblast applications, do not direct spray above trees/vines and turn off outward pointing nozzles at row ends and outer rows. Apply only when wind speed is 3-10 mph at the application site as measured by an anemometer outside of the orchard/vineyard on the upwind side.

Other labeling statements may be appropriate for certain products depending on the potential risks from the labeled uses. EPA will consider the available information on a pesticide's incident history, current uses, and estimated exposures and risks, including estimates of deposition from available models, to determine the need for additional drift mitigation measures. Examples of such measures include limiting application height, spray quality (droplet size), use of no-spray zones, and prohibition of an application

method.

EPA will begin immediately evaluating the use of these label statements in reviewing applications for registration, amendments, and re-registration of existing products subject to this notice. The Agency's goal is to have the process of approving drift statements substantially complete by October 1, 2003.

Dates: Comments, identified by the docket control number OPP-00730B, must be received on or before March 31, 2002.

Addresses: Comments may be submitted by mail, electronically, or in person. To ensure proper receipt by EPA, it is imperative that you identify **docket control number OPP- 00730B** in the subject line on the first page of your response.

1. By mail. Submit your comments to: Public Information and Records Integrity Branch (PIRIB), Information Resources and Services Division (7502C), Office of Pesticide Programs (OPP), Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460.
2. In person or by courier. Deliver your comments to: Public Information and Records Integrity Branch (PIRIB), Information Resources and Services Division (7502C), Office of Pesticide Programs (OPP), Environmental Protection Agency, Rm. 119, Crystal Mall #2, 1921 Jefferson Davis Highway, Arlington, VA. The PIRIB is open from 8:30 a.m. to 4 p.m., Monday through Friday, excluding legal holidays. The PIRIB telephone number is (703) 305-5805.
3. Electronically. You may submit your comments electronically by e-mail to: opp-docket@epa.gov, or you can submit a computer disk as described above. Do not submit any information electronically that you consider to be CBI. Avoid the use of special characters and any form of encryption. Electronic submissions will be accepted in Wordperfect 6.1/8.0 or ASCII file format. All comments in electronic form must be identified by docket control number OPP-00730. Electronic comments may also be filed online at many Federal Depository Libraries. **For further information contact:**

Jay Ellenberger, Field and External Affairs Division (7506C), Office of Pesticide Programs, Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460; phone: (703) 305- 7099, fax: (703) 305-6244; and e-mail address:ellenberger.jay@epa.gov.

Codling Moth Populations

Source: Ron Becker, Wayne County Program Assistant for Agriculture and IPM, OSU Extension

Ron Becker recently had a conversation with Bruce Barrett, University of Missouri Entomologist, concerning the sudden increase in codling moth trap counts three years ago. Along with the high trap counts in some Ohio apple blocks, the expected fruit damage did not materialize. In some cases, the blocks were located near woods containing walnut and hickory trees.

Bruce said that he has seen similar situations in his area. It appears that for the first 2-3 years there is not much damage to the fruit, but injury escalates in the 3rd or 4th year. He theorizes that the high codling moth population is not resident, but is moving in from outside the area. Because of the pest's variety of hosts, damage may not be apparent until it adapts to the apple as its primary food source (vs. walnut or

some other host) - kind of a sub-species type of situation.

Another possibility, especially since the flight is heaviest in the older blocks, is that there are more nesting sites available to protect them from insecticide applications. If this is the case, tree removal and an increase in pruning may help to alleviate the situation.

Still a third possibility is a codling moth population that is building up resistance to insecticides (OP's) being used. Ron suggests the use of bioassay to determine if resistance is the problem. If it is, he recommends the use of Confirm or Intrepid, with Intrepid being the preferable of the two. He also notes that by staying away from OP's for two years, it is possible to overcome the population's resistance to the insecticides.

What Bruce suggested for monitoring was to set up a grid throughout one of the blocks (every 4-5 trees) to determine whether or not the heavy number are throughout the block or just along the edges and also which direction the flight may be coming from if it is a migratory population rather than resident. Even setting a few traps in the walnut and hickory groves in the woods may be beneficial to determine the density of the population as compared to what we are finding in Ohio apple orchards.

Bruce was asked about the possibility of using mating disruption in small blocks. He said he has had good results in blocks as small as three acres. To protect against mated females coming in, he suggested using a border spray along with mating disruption. Bruce suggested the use of ties or long term dispensers over the use of the sprayable form, which would need to be applied every two weeks.

Ron has received a grant from Ohio Fruit Growers Society to help determine the gender ratio within the orchard by way of using molasses-based feeding traps as a way of determining the validity of the Michigan spray model (whether or not we can rely on the population being 50/50). Additionally, he has submitted a proposal to the state IPM program to help with this project. He also proposes to put traps in outlying areas around the orchard as a way to determine whether the population is resident or migratory.

Ron can be reached at becker.4@osu.edu if you have questions or comments. His phone number is (330) 264-8722.

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Information presented above and where trade names are used, they are supplied with the understanding that no discrimination is intended and no endorsement by Ohio State University Extension is implied. Although every attempt is made to produce information that is complete, timely, and accurate, the pesticide user bears responsibility of consulting the pesticide label and adhering to those directions.

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Keith L. Smith, Associate Vice President for Ag. Adm. and Director, OSU Extension.

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