

PLANT & PEST ADVISORY

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Apple Thinning for 2006

Win Cowgill, Agricultural Agent

In Northern New Jersey, apple bloom began 12 plus days early. At the Rutgers Snyder Farm I called first bloom on Macintosh April 21 with full bloom on April 27. Continued cool weather is slowing continued development. Our warmest days during bloom were just 70°F.

My observations and those of several other growers is that certain varieties have light bloom this spring. Some can be attributed to biennial bearing but not all. Some drought stress last summer and some winter injury cannot be ruled out.

It is time to begin our chemical apple thinning strategies for 2006. No single practice in apple production will have a greater impact on the bottom line than the utilization of plant growth regulators (PGR's) for chemical thinning and return bloom.

Bloom and petal fall thinning are becoming increasingly popular with apple growers. Thinning at these early stages allows us to make one or two additional applications if needed.

Chemical thinning stabilizes annual crop production and improves size, color and quality of fruit. Research has shown that fruit size is directly related to how early fruits are thinned. Thinning that reduces the clustering of fruit will improve fruit color and quality. Adequate chemical thinning will promote or guarantee return bloom, and promote consistent annual production of crops.

No single thinning program is applicable to all orchards because of the many variables. Past experience combined with detailed records of materials, rates, crop performance, crop management practices, yield and weather conditions are your best guide.

It is essential to understand what thinning materials are available, how they work, and the different windows of opportunity that are available for their application. Knowing the cultivar response to these different materials will greatly increase the success of your thinning program. Many factors can influence the effectiveness of plant growth regulators used for chemical thinning of apples. Below are some of the factors followed by a discussion of timing windows for application, the materials available and some general recommendations.

• **Climatic conditions** cannot be controlled but can greatly affect the strength of fruit set and the effectiveness of chemical thinning materials. A combination of temperature, humidity, wind and elevation will all affect chemical activity. Thinners, when applied during poor drying

SEE APPLE THINNING ON PAGE 2

conditions, will generally increase activity. Dew or light rain following treatment may re-suspend the chemical and cause additional uptake.

Cloudy conditions cause shading and reduce the carbohydrate levels in young fruits, causing poor fruit retention. Applying thinners just before, during, or just after a three-day cloudy period, especially when temperatures are above 65oF would likely increase the thinning response.

Warming Trend - Michigan information indicates that thinning activity is related to temperature, *with more thinning activity when materials are applied in a warming trend*. This approach is gaining momentum around the country. That is, targeting our pgr thinning activity when we have warmer weather trend predicted to follow application and the two days following.

What does the above mean to you the grower? It means rates; materials and timing must be adjusted based on the season's current weather conditions.

Windows of Application for Thinning Apples

Bloom Thinning Apple – Across North America apple growers are thinning earlier and earlier to maximize fruit size. Bloom thinning enhances fruit size. The earlier we thin the larger the fruit size that can be obtained. NAA. Additional thinning applications will be needed in most years. NAA does not have a memory and therefore repeat applications are not cumulative and can be made.

Petal Fall Window (PF up to 6MM size) - All labeled thinning materials are effective at this time including NAA, NAD, ACCELL™ Vydate, and Sevin. Thinning early gives us greater fruit size, but usually at PF we do not take enough fruit off and must come back again with another application.

Early Fruit Set Window (8mm up to 12mm) -This is the traditional time for chemically thinning apples. All labeled thinning materials are effective at this time including NAA, NAD, Maxcel, Vydate, Sevin, ethephon.

Some Notes and Suggestions for Apple Thinning in 2006

- In general, early applications of good rates thin aggressively. Moderate and mild thinning occurs at lower rates and/or at later timings.

- Rates of individual thinners and/or combinations should be based on past grower experience with individual cultivars in each fruit block or use variety and rate guidelines as outlined in our *2006 New Jersey Commercial Tree Fruit Manual* (E-002Q).

New Thoughts on NAA: many researchers have been indicating that NAA thins fruit and helps with return bloom, but have found NAA *does not* increase fruit size. In addition, in up to a third of the cases, NAA *may reduce fruit size* if applied after 8MM in size. Hence the move toward Sevin XLR or Sevin and NAA combinations applied early.

The NAA base rate depends on the variety; the harder to thin cultivars require the higher NAA concentration. The exception would be Spur Delicious and Fuji. I would not use more than 5 ppm NAA on Reds or Fujis and I would use it only in combination with Sevin or Vydate at Petal Fall.

You can also use 3-5 ppm NAA at petal fall and follow up at 8mm with 1qt of Sevin/A if needed.

All the above petal fall treatments allow for you to come back with a second application of the appropriate material at 8-12MM. Also a third application is possible with the use of Ethephon in the late fruit set window of 12-18 mm. Ethephon can be used up to 25mm as a last resort.

A second approach might be to try using Sevin XLR at petal fall at 1 qt/A. It can be used alone or combined with NAA. Combined with NAA it is more aggressive. Varieties like Gala and Fuji are hard to thin and will benefit from the multiple application approach. Since Gala, Fuji, Golden Delicious and others are hard to size and thin, be aggressive if bloom warrants at petal fall.

For Gala, time sprays based on bloom on the older wood, not one-year-old wood. Time the rate by sizing the fruit on the older wood, i.e. 5-8 mm for sprays later than petal fall. The goal is to thin off the bloom on the one year wood; the fruit is always smaller on one year wood on Gala.

Promalin™ - many growers in British Colombia, Washington State, Chile and New Zealand use Promalin™.

Golden Delicious: consider the use of Ethephon 2 (21.7%) at 1/2 pint per 100 gallons plus 10 ppm of NAA. Ethephon is labeled for Goldens. The label calls for an increased rate for spur Goldens. One North Jersey grower has used this combination on Goldens for over 15 years with good success.

Fuji can be thinned successfully at 8-12 MM in NJ with Sevin XLR @1QT acre + Maxcel at 100 PPM. However this combination alone will not ensure return bloom.

Note: Do not use NAA on Fuji in the normal thinning window of 8-12 MM, it can cause mummies.

For Jersey Reds try 5ppm NAA plus Sevin XLR at 1 quart/A, again this combination has been successful in North Jersey consistently.

As you can see there are a lot of ways to go. *Try some bloom and petal fall sprays, use multiple applications.* Keep detailed records including weather two days before and two days after application. *Always be sure to leave some check trees.* Experiment slowly on portions of your acreage cultivar by cultivar.

If you still have too much fruit after petal fall and 8-10 MM applications, consider the use of Ethephon or Ethephon combinations when fruit size is greater than 18 MM.

SEE CHEMICAL CHOICE ON PAGE 3

A Review of Chemical Choice for Apple Thinning

NAA- is one of our oldest and most reliable thinners. It can be applied from petal fall to 20 MM fruit size at rates of 5 ppm to 20 ppm per 100 gallons. It is especially effective in helping to return bloom.

Caution Notes: *on red delicious do not apply concentrations more than 5 ppm to avoid pygmy fruits. Do not use NAA or NAD on any trees that are to be treated with Maxcell, Promalin or Provide this year! Pygmy fruits may result. Do not use NAA on Fuji for the same reason.*

NAD- is a mild form of NAA and is used at PF and early fruit set only! It is very effective on summer varieties such as Paulared, Jersey mac, Macintosh cultivars and Macoun. It is usually applied at 40-50 ppm per 100 gallons at PF-5 MM. (See above caution).

6-BA-Maxcell or Excellis- is best used in combination with Sevin at 50 to 100 ppm. It also works best in a warming trend over 65°F and works best between 8-12 MM.

Caution Notes: 6-BA and Sevin can be a very aggressive combination on Gala especially under the right weather conditions (cloudy days following application).

Sevin is a carbamate insecticide that is a standard thinner for apples. *Only Sevin XLR-Plus should be used.* It has been reported to be safer on bees and to have less toxicity to mite predators. It has the same concentration of active ingredient as Sevin 50W and thins the same way. Sevin is a mild thinner at the full rate of 1 quart/acre. It can be used at PF till 20 mm and is best used in combination with other thinners (NAA or 6-BA) with most varieties. When used alone it may underthin some cultivars in New Jersey. (Do not use Vydate in combination with Sevin).

Vydate L is a carbamate insecticide that works the same way as Sevin. Vydate has had a state label in New Jersey since 1996 based on our research trials in North Jersey. It too is a mild thinner like Sevin and should be used in combination with another thinner for best results (NAA or Accell). At 1-2 pints per 100 gallons it should be applied dilute between PF/5 MM and 20 MM. Up to two applications can be made per season. Vydate may be less toxic to mite predators than Sevin and at the 1-2 pint/100 rate has activity on spotted tentiform leafminers if present and white apple leafhopper at the thinning timing.

Ethephon 2 or Ethrel are both labeled for apple thinning. Manufactured by Microflow and Bayer respectively, their labels are slightly different. Ethephon is used extensively throughout Europe to help bring non bearing apples into production as well. This use is outlined on both labels as well. More on the use of Ethrel in future newsletters.

Refer to the *2006 New Jersey Commercial Tree Fruit Production Guide* for additional information. □

Wine Grapes: Spray Season is Here...

Mark Chien, Wine Grape Agent, Pennsylvania State University Cooperative Extension

Source: May 1, 2006 Electronic Newsletter, Penn State Cooperative Extension

Many of you have heard Dr. Andrew Landers from Cornell talk about the nuts and bolts of spraying and sprayer maintenance. Here are some fact sheets that will help you to optimize your spray delivery and efficiency and maintain your equipment and safety. My gratitude to Andrew for always sharing his work with us.

Pest management: With the growing season just around the corner, now is the time to make sure your sprayers are calibrated, serviced, and ready to go. Andrew Landers has several excellent publications posted at his web site, specifically aimed at vineyard application:

<http://www.nysaes.cornell.edu/ent/faculty/landers/pestapp/grape.htm>

Operator checklist: This check sheet goes through suggested maintenance checks that should be performed to make sure your sprayer is operating properly:

<http://www.nysaes.cornell.edu/ent/faculty/landers/pestapp/publications/Operator%20Check%20Sheet%20for%20airblast%20revised%20edition.doc>

Airblast Sprayer Calibration: Provides a worksheet for calculating your sprayer's output:

<http://www.nysaes.cornell.edu/ent/faculty/landers/pestapp/publications/Calibration%20airblast%201.doc>

Sprayer Calibration: Describes how to get an accurate measure of tractor speed for calibration calculations.

<http://www.nysaes.cornell.edu/ent/faculty/landers/pestapp/publications/Calibration%20speed.doc>

Improve sprayer deposition with adjustments in airflow: Early-season pesticide applications are more prone to drift and losses because the canopy is so sparse. Reducing and directing airflow early in the season can improve deposition and reduce drift.

<http://www.nysaes.cornell.edu/ent/faculty/landers/pestapp/publications/ADJUSTMENTS%20IN%20AIRFLOW.doc>

Submitted by Jerome L. Frecon, Agricultural Agent. □

Fruit IPM

Dean Polk, Fruit IPM Agent and David Schmitt and Eugene Rizio, Program Associates, Tree Fruit IPM

Peach

✓ **Oriental Fruit Moth (OFM)** The 1st generation spray dates for the southern, central, and northern counties are as follows:

County/Region	1 st Spray Date	2 nd Spray Date
Gloucester – Southern	4/17-4/19	5/5-5/7
Monmouth – Central	4/20-4/21	5/7-5/9
Hunterdon - Northern	5/-5/5	5/21-5/23

✓ **Green Peach Aphids (GPA):** At this time of year, growers should not tolerate more than 2 colonies per tree on peach or 1 colony per tree on nectarines. While this is a very conservative estimate for peaches, aphid populations should definitely not be tolerated on nectarines, since they will directly damage and deform the fruit. Lannate, Thiodan, and Provado/Actara (neonicotinoids) are labeled for control, with Provado and Actara giving the best (and most expensive) control. Keep in mind that of all the spray targets at this time of the season, Provado only controls aphids and tarnished plant bug, and suppresses stink bugs and plum curculio. Actara will control plum curculio, tarnished plant bug, and stink bugs (at a higher rate of 4.5 to 5.5 oz/A as opposed to 3-4 oz/A for aphids). Neither of these two products will control OFM. The OP's, Lannate, and the pyrethroids will control OFM. In order to minimize costs, growers may wish to delay aphid treatments if possible, use a pyrethroid only, or if needed, use a pyrethroid plus a low rate of a neonicotinoid compound. Black peach aphids have been found in a nectarine block in the southern region. If black aphids are found,

use the same thresholds and treatments as for green aphids.

✓ **Tarnished Plant Bugs and Stink Bugs (TPB and SB):** This is the time of the season when treatments are also targeted to these two pests. Growers who have experienced past problems have either had weedy ground covers and/or had plantings with considerable woods borders. Our early sampling has shown that the first stinkbugs seen were in border rows next to woody areas. Where hedgerows, weeds, and woods are near peach trees, growers should be particularly mindful of catfacing insect control.

✓ **Rusty Spot:** Effective rusty spot materials should have been included at petal fall, however it is not too late to begin a control program. Effective materials include Nova (standard recommendation), and the stobilurins, or an integrated program with Serenade or Kaligreen. This program alternates Nova with either Serenade or Kaligreen. Please see Norm Lalancette's earlier articles and Hort News (86)2, Spring 2006 for a more detailed discussion.

Apple

✓ **European Red Mite (ERM):** By late May to early June we generally don't like to see more than 2 motile forms per leaf. Cornell suggests a limit of 2.5 motile forms per leaf in New York during June. If a delayed-dormant oil program was not employed, and mites are normally a problem, or a pyrethroid based program is being relied on, apply one of the ovicidal acaricides (Apollo, Savey). A rescue-type product (Nexter, Acramite, Kelthane, Carzol) can reduce mite levels later on if they should begin to exceed threshold; Agri-Mek may also be employed. Like Apollo and Savey, Agri-Mek should also be considered a preventive spray, since it needs to be applied early to be most effective, generally within the first 2 weeks after petal fall.

SEE IPM ON PAGE 5

Scouting Calendar

The following table is intended as an aid for orchard scouting. It should *not* be used to time pesticide applications. Median dates for pest events and crop phenology are displayed. These dates are compiled from observations made since 1995 in Gloucester County. Events in northern New Jersey should occur 7-10 days later.

Pest Event or Growth Stage	Approximate Date	2005 Observed Date
1/4" Green Tip Red Delicious	March 27 +/- 10 Days	March 28
First Apple Scab Infection Period	April 5 +/- 18 Days	April 22
Pink Peach	April 6 +/- 13 Days	April 3
Tight Cluster Red Delicious	April 8 +/- 10 Days	April 10
Oriental Fruit Moth Biofix	April 8 +/- 10 Days	April 2
First Blossom Blight Infection (Brown Rot)	April 10 +/- 5 Days	Not yet observed
Full Bloom Peach	April 16 +/- 7 Days	April 10
Pink Red Delicious	April 13 +/- 11 Days	April 16
Green Peach Aphid in Beating Trays	April 15 +/- 14 Days	April 20
Petal Fall Peach	April 16 +/- 14 Days	April 22
Oriental Fruit Moth - 175 DD	April 19 +/- 12 Days	April 20
Plum Curculio Injury	May 10 +/- 11 days	April 20
Oriental Fruit Moth - 375 DD	May 10 +/- 8 Days	May 6

✓ **Plum Curculio (PC):** PC adults are active. This is a key insect target through May and into early June. Any applications made on apples should include control for PC.

✓ **Apple Scab, Fire Blight:** Skybit predicts a possible Apple Scab infection period from 5/5 through 5/8 in southern and central counties. A possible fireblight infection period is predicted for 5/6 in southern counties, and 5/5 and 5/6 in central counties.

Blueberry

✓ **Leafrollers and Other Leps:** Beating tray samples have shown larvae present in 10% of our samples. Most of these have been green fruitworm and spanworms. Some occasional obliquebanded larvae are also present. The highest level seen is .2 larvae per 100 flower clusters. This is far below the treatment level of 1 larva per 100 clusters.

✓ **Gypsy Moth Larvae (GM):** About 30% of our samples are positive for GM larvae, with the highest level being .7 larvae per 100 flower clusters. Most GM are being found near wooded areas in Burlington County.

✓ **Plum Curculio (PC):** Adult activity has increased over the last week. Adults are being found in about 10% of our samples, with hot spots showing up to 7 adults per bush. On average, adults are being found at levels from 1-3 per bush where present.

New Fruit IPM Program Associate for North Jersey

We are in the process of hiring Dr. Atanas Atanassov as our new Fruit IPM Program Associate in North Jersey. Atanas should start work sometime next week and will be around to see growers in the near future. □

✓ **Cranberry Weevil (CBW):** Adults are still being found in traditional “hot areas” near woods. Levels have decreased over the past couple of weeks, but weevils are still present at up to 3-4 adults per bush. While there is less feeding injury that occurs now, any female weevils that are present will be ovipositing inside flower parts, causing those flowers to abort.

✓ **Thrips:** Populations are very low. No thrips have been found in beating trays as of this writing.

Insect Trap Counts

Tree Fruit Trap Counts – Southern Counties

Week Ending	STLM	TABM-A	CM	AM	OFM-A	DWB	OFM-P	TABM-P	LPTB	PTB
4/16/06	40	0			4		29	0	0	
4/23/06	50	0			59		67	0	0	
5/1/06	58	0	1		34		32	0	2	

Tree Fruit Trap Counts – Northern Counties

Week Ending	STLM	TABM-A	CM	AM	OFM-A	DWB	OFM-P	TABM-P	LPTB	PTB
4/9	630									
4/16	815				4		5			
4/23	1250				—		23.2			
5/1										

Blueberry Trap Counts – Atlantic County

Week Ending	CBFW	RBLR	OBLR	SNLH	OB	BBM
4/9		184				
4/16		209				
4/24		179				
4/29		64				

Blueberry Trap Counts – Burlington County

Week Ending	CBFW	RBLR	OBLR	SNLH	OB	BBM
4/9		54				
4/15		77				
4/24		110				
4/29		32				

Key: CBFW = Cranberry Fruitworm, RBLR = Redbanded Leafroller, OBLR = Obliquebanded Leafroller, SNLH = Sharpnosed Leafhopper, OB = Oriental Beetle, BBM = Blueberry Maggot

Tree and Small Fruit Twilight Meeting

Wednesday, May 17, 6:00 P.M.
Robson Farm and Greenhouse
505 Monmouth Rd.(Route 537)
Wrightstown, NJ
(609) 758 2068 - 758 2566

Meeting will convene near Robson Farm Market and Building along Route 537. A walking tour of tree and small fruit plantings will be conducted with the following program:

- 6:00 P.M. Welcome and Overview of Robson Farms by Neil Robson, and Jerry Frecon, Agricultural Agent, Rutgers Cooperative Research and Extension of Gloucester County.
- 6:15 P.M. How To Monitor for Tree Fruit Pests by Dean Polk, IPM Agent- Fruit, Rutgers Cooperative Research and Extension
- 6:35 P.M. Management of Current Fruit Insects by Dr. Peter Shearer, Specialist in Fruit Entomology, Rutgers Cooperative Research and Extension
- 6:55 P.M. Vegetation Management on Brambles, Strawberries, and other Small Fruit by Dr. Brad Majek, Specialist in Weed Science Rutgers Cooperative Research and Extension
- 7:15 P.M. Health Issues and Pesticides by Dr. Mark Robson, Director of Environmental and Occupational Health, Environmental and Occupational Health Sciences Institute, UMDNJ
- 7:30 P.M. New Bramble Varieties in New Jersey and Nutrition by Dr. Warren Stiles, Professor Emeritus, Cornell University
- 7:50 P.M. Summer Fruit Rot Management by Dr. Norman Lalancette, Specialist in Tree Fruit Pathology, Rutgers Cooperative Research and Extension
- 8:10 P. M. Farm Safety and Pesticides by Ray Samulis, Agricultural Agent Rutgers Cooperative Research and Extension of Burlington County

8:35 P.M Adjourn

NJ PESTICIDE APPLICATOR CATEGORY AND CORE UNITS WILL BE PROVIDED.

For further information contact Jerry Frecon at Rutgers Cooperative Research & Extension of Gloucester County at 856-307-6450, ext. 1. ☐

Recycle Those Plastic Pesticide Containers

Correction Notice - The last 3 dates of the Plastic Pesticide Container Recycling Schedule were left out of last week's announcement. All the dates are listed below.

The NJ Department of Agriculture announces its 2006 schedule for a free program to recycle empty plastic pesticide containers at the Cumberland County Solid Waste Complex.

Non-refillable, high-density polyethylene # 2 (HDPE #2) containers used by agricultural, professional and commercial pesticide applicators will be accepted at the collection sites. In addition, HDPE #2 plastic pales, bulb crates, and similar items will be accepted.

Pesticide containers must be no larger than 55 gallons and triple rinsed. The MSDS booklet and the lid must be removed. The metal handles must be removed from the plastic pales.

The program is open to anyone who holds a New Jersey Department of Environmental Protection pesticide license including state, county and municipal government agencies. Participants must follow the processing guide or the material will be rejected. You do not need a pesticide license to participate in the program if non-pesticide containers are recycled.

One core credit will be issued to NJDEP pesticide license holders who bring in properly rinsed pesticide containers. To receive credit, participants must bring their pesticide license to the collection site and must follow the processing steps. Pesticide credits will not be issued for recycling items other than pesticide containers.

Contact Karen Kritz, Recycling Program Manager, at (609) 984-2506 or karen.kritz@ag.state.nj.us with questions about this recycling program or other recycling questions.

2006 Pesticide Container Collection Program Schedule


Location: Cumberland County Solid Waste Complex, 169 Jesse Bridge Road (located off Route 55 Exit 29), Deerfield, New Jersey

Time: 9 a.m. to Noon

Dates: Friday, May 19
Friday, June 23
Friday, July 28
Friday, August 25
Friday, September 22
Friday, October 13
Friday, November 17

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PLANT & PEST ADVISORY

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For back issues, visit our web site at: www.rce.rutgers.edu/pubs/plantandpestadvisory.

Pesticide User Responsibility: Use pesticides safely and follow instructions on labels. The pesticide user is responsible for proper use, storage and disposal, residues on crops, and damage caused by drift. For specific labels, special local-needs label 24(c) registration, or section 18 exemption, contact RCRE in your County.

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