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Update on Pest Management
and Crop Development

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

August 18, 2003

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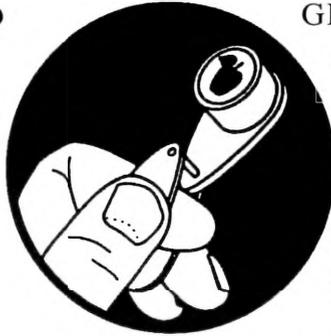
Geneva, NY

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WINDING
DOWN

ORCHARD
RADAR
DIGEST



GETTING THE
MOST FROM
THE "OLD"
STOP-DROP:
NAA
(Jim Schupp,
Horticultural
Sciences, Highland)

HANG IN
THERE,
BABY

Geneva Predictions:

Dogwood Borer

Peak hatch roughly: August 8.

Codling Moth

2nd generation 30% CM egg hatch: August 17
(= single spray date where one spray needed to control 2nd generation codling moth).

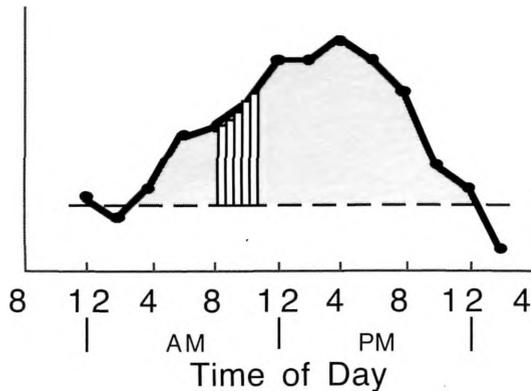
Highland Predictions:

Codling Moth

2nd generation 30% CM egg hatch: August 12
(= single spray date where one spray needed to control 2nd generation codling moth).

❖❖ The use of NAA (Fruitone N, K-Salt Fruit Fix) for control of preharvest drop has been overshadowed in recent years by that of ReTain; however, ReTain use must be planned weeks prior to harvest. With the effective application time so close to the onset of drop, NAA offers a "rescue" treatment, should the threat of preharvest drop be increased due to unforeseen circumstances. Examples of such situations include unavoidable delays in harvest due to bad weather or labor issues, slow red color development, and overlapping harvest schedules of varieties with similar maturity windows, such as McIntosh with Macoun, or Empire with Delicious. While

continued...



IN THIS ISSUE...

INSECTS

❖ Orchard Radar Digest

HORTICULTURE

❖ NAA for stop-drop

GENERAL INFO

❖ Pest Control Field Day

UPCOMING PEST EVENTS

PEST FOCUS

INSECT TRAP CATCHES

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it is not the purpose of this article either to promote or condemn the use of ethephon (Ethrel, Ethephon II) to promote fruit coloring, those growers using one of these products also need to use NAA to prevent excessive fruit drop resulting from accelerated fruit maturation. The following tips and reminders are offered to help growers brush up on using NAA to best effect.

Timing NAA stop-drop sprays is a little like a game of chicken, requiring both steely nerves and a good understanding of your opponent. The label says to apply NAA when the first sound fruit begin to drop. A single spray of 10–20 ppm NAA offers drop control for about seven days from the date of application, but it takes two or three days to “kick in”. Apply NAA three days too early and the window of effective drop control is about halved. Apply three days too late and perhaps a quarter of the crop will be on the ground before the NAA takes effect!

Stem loosening coincides with the climacteric rise in ethylene that signals fruit ripening. Unlike ReTain, which delays drop by delaying fruit maturation, NAA stops drop by delaying stem loosening. Predictive degree-day models and the pattern of starch disappearance measured by the starch index test do not provide a precise guide to timing NAA stop-drop sprays. These techniques can indicate whether the threat of drop is earlier or later than normal, but more direct monitoring is required for the actual timing of the sprays.

Varieties such as McIntosh that are highly susceptible to preharvest drop require careful monitoring to determine when fruit drop is beginning. Limb tapping should be used to determine the onset of drop as fruit near maturity. Bump several scaffold limbs of three or four inches in diameter throughout the block on a daily basis. Use the palm of your hand with a short firm stroke, striking the limb at its midpoint (just like golf, this skill improves with practice and experience). If zero to one apples per limb drop on average, it's too soon to apply NAA. If the average is about two, check again later the same day

or the next morning. When several apples drop in response to limb bumping, its time to harvest within two days or apply NAA.

When NAA is used to control drop on ethephon-treated trees, the two may be tank-mixed if the fruit is to be harvested within seven days. If the fruit is to be left on the tree longer than seven days after the ethephon, then NAA should be applied three days after the ethephon.

Rates of 10–20 ppm NAA are usually needed to be an effective stop-drop. To obtain the maximum drop control, use a split application of 10 ppm in the first spray, followed by a second spray of 10 ppm five days after the first. Split applications can provide drop control for about 12 days from the date of the first application.

Research in Virginia showed that the deleterious effects of NAA sprays on fruit maturity and fruit softening were minimized in Red Delicious by making repeated applications of 5 ppm NAA at four weekly intervals prior to harvest. This “pre-loading” technique has recently been included as an application option in

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scaffolds

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the Fruitone N label. I have not repeated this research on Delicious, but using this technique on McIntosh resulted in more advanced ripening and softening, not less! I do not recommend NAA pre-loading for McIntosh and other early season, high-ethylene varieties. I suggest that growers use caution when trying pre-loading on later varieties. Use it only on a trial basis until more is known about how varieties other than Delicious grown in different climates will respond.

As with thinning sprays, stop-drop sprays of NAA work best when applied with good coverage and plenty of water. Concentrating beyond 4X (less than 75 gallons of water per acre for 300 gallon TRV trees) may diminish the effectiveness. Use a non-ionic or organosilicone surfactant to enhance uptake.

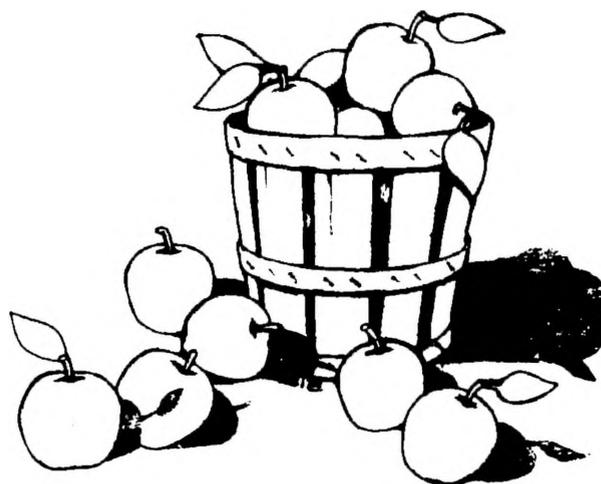
When used as a stop-drop, NAA may advance ripening, especially at the maximum label rate of 20 ppm. The primary impact of this advance in maturity is reduced storage potential of the fruit, particularly in the loss of firmness. This effect is not consistent from year to year or block to block. The question then arises whether NAA-treated fruit has potential for CA storage or treatment with SmartFresh (1-MCP).

Perhaps the simplest way to answer the question with regard to CA is to remember the adage “garbage in, garbage out”. If the fruit was left on the tree to the bitter end of the drop control, is measurably softer than previously harvested fruit, and has elevated starch index values, then it should be marketed in the short term. On the other hand, if the fruit was harvested *within* a week after treatment and has good firmness and starch values for CA storage for the variety (e.g., McIntosh with 14 lb pressure and a Cornell chart starch index rating of 6 or lower), there is little reason to expect it to perform differently than similar fruit that received no NAA.

The question of whether NAA stop-drop sprays have advanced fruit maturity may be most critical when using SmartFresh on McIntosh, where the

maturity of the fruit is an overwhelming influence on whether the fruit will respond to 1-MCP. Quoting Dr. Chris Watkins in the Proceedings of the 2003 Apple Storage Workshop: “We do not have any data yet, but we assume that induced ethylene production that results from use of NAA will deleterious[ly] affect fruit responses to 1-MCP. If you use stickers [NAA stop-drop], your storage operator should be informed.”

Finally, a comment about use of NAA on trees previously treated with ReTain. The use of both stop-drops at the respective correct times results in drop control that is superior to that obtained by using either one alone. Fruit treated in this manner, then left for an extended time on the tree, often have limited storage potential (see above); however, this combination can be an effective way of getting the ultimate in drop control. This drop control comes at a high price and should therefore only be used on high value fruit with little or no storage period, such as for a few rows of trees held for late picking in PYO blocks.❖❖



WE
REPEAT

N.Y. FRUIT PEST
CONTROL FIELD DAY
— 2nd NOTICE

❖❖ Don't forget this annual event, sponsored by the Departments of Plant Pathology and Entomology, which has been scheduled for September 4–5 this year. All those interested are invited to attend this preliminary presentation of results of field trials on the control of diseases and insects attacking N.Y. fruit crops. Results will be discussed from experiments on tree fruits and grapes. Please note the change in scheduling and sequence from past years.

First in Geneva, the tour of research plots will take place on Thursday, September 4. On Friday, September 5, the activities shift to the Highland Lab, where there will be presentations on disease and arthropod control in tree fruits.

Registration begins at Barton Laboratory, NYSAES, Geneva at 8:30 (Thursday, September 4) and at the Hudson Valley Laboratory in Highland at 8:30 (Friday, September 5).

ALSO(!)

This year we would like to hold a steak cookout and end-of-season social gathering at the scenic Geneva Country Club, 6:00 pm on Wednesday, Sept. 3. The menu will include steak (obviously), corn on the cob, salt potatoes, and tossed salad, with brownies and fruit for dessert, plus a cash bar. Cost is \$21 per person. Payment in advance is not necessary, **BUT** we do need to know that a sufficient number will be attending in order to hold the reservation. To date, we have not received enough sign-ups to proceed with this event. If you think you would be interested in attending, contact Harvey Reissig (315-787-2336 or whr1@cornell.edu) to let him know. See you there. ❖❖



UPCOMING PEST EVENTS

	<u>43°F</u>	<u>50°F</u>
Current DD accumulations (Geneva 1/1-8/18):	2579	1725
(Geneva 1/1-8/18/2002):	2841	1990
(Geneva "Normal"):	2685	1889
(Geneva 8/25 Predicted):	2779	1876

<u>Coming Events:</u>	<u>Ranges:</u>	
Oriental fruit moth 2nd flight subsides	1806-2783	1164-1963
Oriental fruit moth 3rd flight begins	2172-2956	1448-2013
Redbanded leafroller 2nd flight subsides	1927-3045	1291-2160
American plum borer 2nd flight peak	1648-2688	1037-1840
Comstock mealybug crawlers subsiding	2740-2766	1818-1934
San Jose scale 2nd flight peak	1934-2591	1271-1874
Spotted tentiform leafminer 3rd flight begins	2208-2783	1498-2123
Apple maggot flight peak	2033-2843	1387-1953
Codling moth 2nd flight peak	1471-3103	931-2212

INSECT TRAP CATCHES (Number/Trap/Day)

	Geneva, NY			Highland, NY		
	<u>8/7</u>	<u>8/14</u>	<u>8/18</u>		<u>8/4</u>	<u>8/11</u>
Redbanded leafroller	0.5	0.1	0.3	Redbanded leafroller	0.5	0.0
Spotted tentiform leafminer	24.8	87.1	91.3	Spotted tentiform leafminer	44.4	41.9
Oriental fruit moth	0.8	0.2	0.5	Oriental fruit moth	0.3	0.9
Lesser appleworm	0.3	0.1	0.3	Lesser appleworm	2.0	2.4
San Jose scale	4.7	11.6	37.5	Codling moth	0.9	0.6
Codling moth	0.2	0.0	0.1	Obliquebanded leafroller	0.6	1.0
Obliquebanded leafroller	0.2	0.1	0.5	Fruittree leafroller	0.0	0.0
American plum borer	0.7	0.1	1.1	Sarganthis fruitworm	0.0	1.0
Lesser peachtree borer	0.0	0.1	0.3	Tufted apple budmoth	0.0	0.0
Peachtree borer	1.0	0.1	0.1	Variiegated leafroller	0.0	0.3
Dogwood borer (N. Huron)	1.4	0.1	-	Dogwood borer	0.4	0.0
Apple maggot	0.3	0.1	0.4	Apple maggot	0.7	0.8

* first catch

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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.

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