

scaffolds

Update on Pest Management
and Crop Development

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

April 14, 2014

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Geneva, NY

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ALERT!

APPLE SCAB
WARNING FOR
THE HUDSON
VALLEY
(Dave

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mature spores ready for discharge in the next rain, not percentage of morphologically mature spores as assessed in squash mounts, which would be much higher.

Of particular concern is the fact that daytime temperatures for Tuesday are predicted to be in the low 60s.

❖❖ Early-season apple cultivars at the Hudson Valley Lab reached the green tip bud stage (50% of fruiting buds showing green tip) on Sunday, April 13. Temperatures over the past three days were 5 to 8 degrees higher than last Friday's forecast had suggested, and the predicted high for today is 80°F. Forecast temperatures for the rainy period that will be arriving tomorrow (Tuesday) have also been increased slightly, with all indicators suggesting that we will sustain a moderate scab infection period with perhaps 20 hr of leaf wetting and a mean temperature of 53 to 56 degrees.

Research conducted in various locations has shown that spore release during the first three to five hours of a wetting period is roughly twice as great when temperatures are above 50°F as compared with temperatures in the low 40s. The total number of spores released at lower temperatures may eventually be the same as at warmer temperatures, but the more rapid release at warmer temperatures means that a lot of spores have more time to be blown around, find green tissue, and initiate infections before the temperatures drop and/or the wetting period ends.

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Apple leaves collected this morning from an abandoned orchard just north of the Hudson Valley Lab provided a mean discharge of 208 spores in our shooting tower, well above the 50–60 spores that we have traditionally considered an economic threshold for our spore tower discharge tests. Thus, our spore assessments suggest that apple scab ascospores will be discharged during the coming rain, and that orchards with carry-over inoculum will be at risk of infection if they are not covered with fungicide before the rain begins. The apple scab model in the NEWA system (<http://newa.cornell.edu/index.php?page=apple-diseases>) predicts that 3% of the total season's ascospores will be released on Tuesday. Note that the NEWA model is predicting physiologically

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Orchards that are not sprayed with fungicides before Tuesday's rain may benefit from post-infection fungicides applied on Wednesday or Thursday. Vanguard, Scala, and Syllit are the preferred post-infection fungicides for this stage of bud development, and all three of them will provide 48 to 72 hours of post-infection activity counting from the start of the wetting period. Post-infection activity may be limited to 48 hours if temperatures remain warm, but 72 hr of post-infection activity is possible with lower temperatures, such as those predicted for Tuesday evening, Wednesday, and Thursday.

The disadvantage of post-infection spraying is that windy weather often follows spring rains, thereby making it difficult to achieve good spray coverage. Also, one cannot depend on rains to redistribute fungicides applied in post-infection mode. Finally, whereas Syllit (dodine) at 1.5 pt/A applied in combination with mancozeb will provide good protection when applied ahead of rains, the original research on dodine conducted in the 1960s showed that the equivalent of 3 pt of Syllit/A is required for efficient post-infection activity. With Vanguard and Syllit, however, research trials at the Hudson Valley Lab showed the same level of post-infection activity against scab when we used the lower label rates as when we used the higher label rates for those two products. Thus, whereas Syllit must be used at higher rates when applied in post-infection timings, there is no need to use higher rates of Vanguard or Scala. All three of these products should always be applied in combination with mancozeb in early-season sprays. ❖❖

CONFUSED?

MIXING IT UP
(Art Agnello,
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[NOTE: The following is an updated version of last year's article on pre-mixes]

❖❖ With the increasing number of insecticide products available to growers comes increasing complexity in selecting the most effective and economical product to use for a given management decision. This has always involved weighing the traditional factors such as efficacy, chemical class, pest spectrum, impact on non-target species, and of course, cost. Added to this in recent years have been the more challenging considerations involving pesticide resistance, mode of action, seasonal maximums and, as companies have begun marketing pre-mixes that are combinations of two (for the time being) different active ingredients, the

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need to compare benefits vs. drawbacks of going with a pre-mix as opposed to a single-a.i. product for a given spray.

Like most university extension entomologists, I have expressed concern in the past over the proliferation of these pre-mixes in the marketplace, as I feel that growers are better off deciding for themselves what products should be mixed in their tanks, and when. Furthermore, I think that pre-mixed product combinations make it too easy to abuse the active ingredients by overusing them when both may not be strictly necessary. This not only promotes a higher risk of resistance development in the pest population, but adds to the complexity of juggling rates to achieve equivalent levels of pest control, since a spray of a pre-mix product containing A + B may not be the same as the amount of either A or B contained in their respective single-a.i. products. Moreover, the added challenge of having to observe different seasonal maximum uses for each product is enough to cause a grower to start seeing double and inadvertently making mistakes.

Naturally, agrichemical companies love pre-mixes because they seem to make sense from a sales point of view, and I have yet to see sound biological arguments ever win out against the forces of marketing, so it's a sure bet that there will continue to be more of these products introduced into the market as time goes on. Some university specialists have chosen to ignore the pre-mixes altogether in their crop guidelines, but this doesn't seem very realistic, as the products do exist and there are admittedly some management decisions when they may be the optimal choice, so growers do use them. For the time being, I have chosen to keep them in the NY "Recommends", although I've taken pains to segregate them from the single-a.i. products, and have preceded each of their listings with the following advisory: "For best effectiveness and insecticide resistance management, the use of pre-mixes should be reserved for situations when multiple pest species are present and are appropriately matched to the combination of ac-

tive ingredients and modes of action contained in the product." This is advice that I hope growers take seriously, because the long-term utility and effectiveness of these active ingredients depends on our responsible stewardship in using them, and the short-term convenience and economy of having them available will not compensate for burning them out prematurely if they are applied needlessly or overused. (Thus endeth today's sermon.)

All this being said, I am often as confused as anyone else when confronted with the choice between a pre-mix and the single-a.i. alternative. I'm waiting for someone who is a lot more clever than I to develop some sort of expert-system app that will take into account all of the factors one should keep in mind when making such a deliberation. For the moment, however, I've made up the following table (next page) of "A.I. Equivalences", which might be of use in comparing the levels of actual insect control you might expect to achieve from different formulations of a given a.i. More details might have been included, but I hesitated to make this any more complicated, because the main intent is to provide a basis of comparison for some of the more likely decisions that could be made in choosing a pesticide product. Just to give an idea of how this table might be used, note that the amount of chlorantraniliprole a.i. in a high-rate application of Voliam Xpress (0.078 lb) is lower than a comparable application of Altacor (0.099 lb); also, you can see the difference in thiamethoxam a.i. between the use rates of Endigo (0.046-0.055 lb) and Actara (0.070-0.086 lb). Additionally, note that thiamethoxam is limited to a maximum seasonal total of 0.172 lb/A, regardless of the formulation, which can complicate mixing & matching of products during the season. Many comparisons are possible, of course, and the information in this table is only a start, but it may help make things a bit simpler than trying to reference a bunch of individual labels. We'll see what we can do to improve on how this information is presented over time. ❖❖

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Active ingredient equivalents between pre-mix and single-a.i. insecticide products

Product	Labeled amt/Acre	a.i. #1	lb a.i./ applic	a.i. #2	lb a.i./ applic	Max seasonal use/A
Pre-mixes						
Voliam Xpress	6–12 fl oz	CTPL	0.039–0.078	LAMB	0.0195–0.039	31 fl oz (0.2 lb CTPL)
Voliam Flexi	4–7 oz	CTPL	0.063–0.109	TMX	0.063–0.109	11 oz (0.172 lb of each)
Leverage	2.4–2.8 fl oz	IMID	0.038–0.044	BETA	0.019–0.022	2.8 fl oz (0.044 lb IMID)
Endigo	5–6 fl oz	TMX	0.046–0.055	LAMB	0.034–0.041	19 fl oz (0.172 lb TMX)
Agriflex	5.5–8.5 fl oz	TMX	0.055–0.084	ABA	0.012–0.018	17 fl oz (0.169 lb TMX)
Gladiator	14–19 fl oz	CYP	0.019–0.026	ABA*	0.009–0.012	38 fl oz (0.024 lb ABA)
Single-a.i. products						
Altacor	2.5–4.5 oz	CTPL	0.055–0.099			9 oz (0.2 lb CTPL)
Actara	4.5–5.5 oz	TMX	0.070–0.086			11 oz (0.172 lb TMX)
Admire Pro	1.4–7.0 fl oz	IMID	0.05–0.25			14 fl oz (0.5 lb IMID)
Agri-Mek SC	2.25–4.25 fl oz	ABA	0.012–0.023			8.5 fl oz (0.047 lb ABA)

CTPL = chlorantraniliprole; IMID = imidacloprid; TMX = thiamethoxam; ABA = abamectin; LAMB = lambda-cyhalothrin; BETA = beta-cyfluthrin; CYP = zeta-cypermethrin; ABA* = label gives a.i. as "avermectin B1" (abamectin, the a.i. in Agri-Mek, is a mixture of >80% avermectin B1a and <20% avermectin B1b, so a strict comparison is not possible according to the information provided).

BEFORE & AFTER

MERIVON LABELED
(Kerik Cox, Plant
Pathology, Geneva)

❖❖ Merivon Xemium Brand Fungicide received a FIFRA Sec. 24(c) Special Local Need Label for pome and stone fruit in NY on April 2, 2014. The product is labeled for apple scab, powdery mildew, several summer diseases, and post-harvest diseases in apple. It is also labeled for brown rot and several pre & post-harvest rots of stone fruit, including sweet cherries. Merivon is a premix of pyraclostrobin (QoI, FRAC 11) and fluxapyroxad (SDHI, FRAC 7). In trials at the NYSAES, Merivon has provided exceptional control of QoI & DMI resistant apple scab, powdery mildew, flyspeck, sooty blotch, and botrytis fruit rot in apples. In NY-

SAES stone fruit trials, Merivon provided exceptional control of brown rot and post-harvest rots. Please note that the NYS DEC did not approve the full Federal label in NY. At this point, Merivon is a Restricted Use Pesticide, and not for use or sale on Long Island. Hence, in addition to the Section 3 label, there is a 24(c) label with the aforementioned restrictions.

The SLN label and Primary Label can be found on the PIMS site:

SLN label: <http://128.253.223.36/ppds/538173.pdf>

Primary NY label: <http://128.253.223.36/ppds/538203.pdf>

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SO LONG

EVENT ANNOUNCEMENTS

REISSIG RETIREMENT PARTY - MAY 17

❖❖ Harvey Reissig has recently retired after 40 years as a Fruit Entomologist at Cornell's NYS Agricultural Experiment Station in Geneva. Those of us who work with tree fruit insects have come to regard Harvey as one of the gurus of the field, someone who is not only aware of all of the complex interactions taking place in the orchard, but who can keep a handle on the practical aspects of what the insects are doing out there. During his time at Cornell, Harvey men-

tored and collaborated with a long line of colleagues, students, visiting scientists, fruit industry leaders & insiders and the general public. We cordially invite you to join us in celebrating his retirement, along with that of his wife, Nancy, who has been an Administrative Assistant in the Entomology Dept. for 23 years, by attending a dinner at Geneva Country Club on Saturday, May 17, 2014.

The buffet menu includes Pasta with Tomato Sauce, Mixed Vegetable Medley, Eggplant Parmesan, Rice Pilaf, Broiled Haddock with Butter Crumb Topping, and Baked Chicken; Finger Lakes wines will be donated by area wineries; cash bar available. Cost per person: \$30.00 (checks only, payable to "Cornell University"). For registration and payment, please respond to Kate VanHouter (kev35@cornell.edu; tel: 315-787-2331), NYSAES, Dept. of PPPMB, 630 W. North Street, Geneva, NY 14456. Registration & payment deadline: May 2. ❖❖



PHENOLOGIES

Geneva:	
Apple (McIntosh, Red Delicious , Empire): silver tip	<u>4/21, predicted</u>
Sweet cherry: bud burst	green tip
Peach: swollen bud	bud burst
Plum (early): swollen bud–early bud burst	bud burst
Plum (late): dormant–swollen bud	early bud burst
Highland:	
Apple(McIntosh, Red Delicious , Ginger Gold, Empire): green tip	
Pear (Bartlett, Bosc): bud burst	

PEST FOCUS

Geneva:

Green fruitworm 1st catch today, 4/14.

Highland:

Redbanded leafroller 1st catch today, 4/14. **Brown marmorated stinkbug** active. **Pear psylla** egg-laying greatly increasing.

UPCOMING PEST EVENTS

	43°F	50°F
Current DD accumulations (Geneva 1/1–4/14/14):	89	42
(Geneva 1/1–4/14/2013):	82	28
(Geneva "Normal"):	139	46
(Geneva 1/1–4/21/14, predicted):	137	66
(Highland 1/1–4/14/14):	147	61

<u>Coming Events:</u>	<u>Ranges (Normal ±StDev):</u>	
Green fruitworm flight peak	97–213	36–100
Pear psylla adults active	31–99	8–34
Pear psylla 1st oviposition	40–126	11–53
Redbanded leafroller 1st catch	110–178	40–82
Spotted tentiform leafminer 1st catch	113–213	41–101
Pear thrips in pear buds	118–214	50–98
Rosy apple aphid nymphs present	134–244	56–116
McIntosh green tip	97–145	36–62

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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