



The Community Orchardist

March 2010

Michael Phillips, Editor

What a pace that winter breaks! And yet it doesn't really matter, does it? We are in the midst of climate change, certainly influenced by humans, with a dominating El Nino curveball that moved deep snow far to the south this year. My orchard here in northern New Hampshire had a foot of white at most, and that fact along with this past week seeing temps in the 60s, finds me gazing out at a half-pruned orchard as the grass actually starts to green. Cooling is expected by the weekend... the pace will go down, the pace will go up... resulting in bloom slightly ahead of schedule but probably not all that much. Expect things to accelerate as much as two weeks ahead of whatever "normal" means to you. The point is all community orchardists are now *on notice* to get season plans in gear!

Spring Sanitation Revamp

The upshot from 2009 for most growers in eastern North America is a dangerously high loading of scab inoculum. All that rain in May and June last year—followed by more rain in late summer and the fall—made for fungal havoc. Even those of us who achieved a decent fruit finish (despite such intense pressure in the primary infection window) last season will experience an upping of disease potential this season. Secondary scab reaches more leaves after harvest than growers may realize, and things were truly bad in the wild trees. Overwintering leaves should be decomposed before serious ascospore discharge occurs, being the pink bud stage. We have many ways of "stirring the biological stew" in the fall but what about the ability to catch up now before substantial green tissue shows?

The **ground catalyst spray** I apply the week of quarter-inch green has multiple purposes. The fatty acids in both pure neem oil and liquid fish are good fungal foods for fueling mycorrhizal allies and saprophytic decomposers alike. Fish nitrogen plays another role... recent IPM research has confirmed that synthetic urea applied in spring causes direct toxicity to the scab fungus in leaf litter. Scab pseudothecia will fail to discharge ascospores upon maturity as a result.

The conventional mechanism has much to do with protein synthesis—which unpasteurized liquid fish offers as well—so it's fair to consider that the organic option is as nitrogen-rich as IPM urea. The holistic application is directed at the

branch structure of the tree and the trunk as well as the ground. Rates are 2–4 gallons of unpasteurized fish, 1 gallon of pure neem (to achieve a *this-time-only* concentration of 1%) per 100 gallons of water per acre. I take time to saturate any obvious leaf piles that I see. The reason I refer to this as a “catalyst spray” pertains to the biological response: Both the soil food web and the arboreal food web get a jump start from fungal foods applied to “pulse the system” when ground temperatures are still rather cool. Think of it as a decomposition boost. Only now we get to visualize a direct effect on pseudothecia viability as well.

Leaf shredding in fall with a flail mower makes sense to further increase decomposition, just as any mechanical mowing helps in *stirring the biological stew*. Similar benefits can be had in spring, noting one important twist. **Simply flipping a leaf over from its winter position changes everything.** Once re-oriented with respect to up, pseudothecia are no longer able to eject ascospores into the air. Flip-think on that one: Ascospores released onto the ground surface are not going to float up into the leaf canopy. Raking can achieve a similar effect for those not vested in heavy-duty mowing equipment. I would argue for raking organic matter inward (beneath the dripline) as requisite to building fungal duff in the tree row—that way at least half of the aisleway leaves will have been flipped. Getting this chore done prior to that first holistic spray of fish and pure neem is what makes for a virtuous start on the season.

Compost tea is yet another way to get the ball rolling in your favor. Research at Penn State related to **apple leaf degradation** indicates that compost tea can be as effective as urea in increasing the rate and amount of decomposition and thus reducing ascospore release. I know for some of you that *compost tea* implies a finicky brewing process—complete with good aeration and a proper temperature and provision for fungal foods—yet I’m going to make an argument for “releasing your inner slob” and thus less formal brewing. Making non-aerated compost tea for ground application is as easy as placing a few shovelfuls of loose compost in 5 gallons of water, stirring daily for a few days, then straining the brew with a 40 mesh screen prior to application.

Vole Guards... a tad too late!

Growers across Zone 6 are reporting a very bad vole year. Those deep snows apparently made for some incessant chewing in places where the tops of trunk guards rarely get buried in the winter. Dan Kelly in Missouri and others are now busy bridge grafting to save the worse-off trees. This bit of advice is a bit late (so sorry, mate!) but here in the North we anticipate this sort of thing. Tamping snow down by snowshoeing close to the trunk of each tree after the first big storms creates an

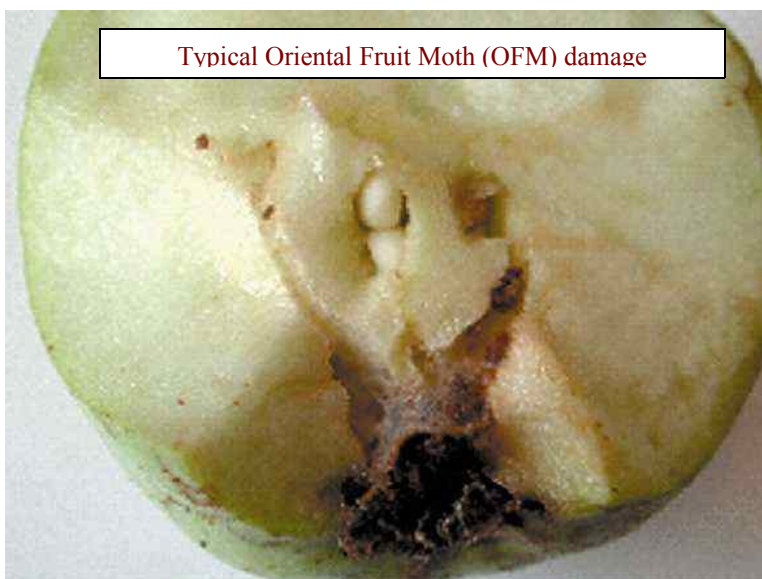


ice pack. This not only keeps the top of any trunk guard exposed but deters chewing rodents from establishing highways (vole runs) from tree to tree. If you have rabbits and/or voles in your area—and most of us do—protect your tree investment and planting effort with guards around each tree. I use the black plastic version of quarter inch grid hardware cloth (available from OESCO) with the snap buttons... as I need growing season access to the trunk because of borers. This wraps around the trunk to 24 inches high. I cut 18 inch lengths off the commercial mesh roll to create an “expandable cylinder” on the order of 4–6 inches in diameter so the tree can grow without constriction. Peastone at the base of my trees makes it easy set the guards in an inch so that voles cannot tunnel under the cage and get to the tree. This costs about \$1.40 to protect each tree, which may not be much of a savings over metal hardware cloth available locally.

Expanding on Entrust

Entrust is an organically-approved formulation of SpinTor, a well-known conventional insecticide. The active ingredient is spinosad, a compound derived from a soil organism (*Saccharopolyspora spinosa*) under aerobic fermentation conditions. Spinosad is a fast acting, broad-spectrum material that can kill an insect through ingestion (the primary mode) or contact, such as being hit by a droplet or walking across a newly treated surface. It affects the nervous system of the insect through nicotinic receptors, causing loss of muscle control. Continuous activation of motor neurons causes insects to die of exhaustion within 1–2 days. Care must be taken when applying spinosad when honeybees are foraging, but after residues dry (three hours) it is far less toxic to bees.

That’s a bit of what you read in the revised version of **Apple Grower**... I think it’s time to expand on use of this very expensive material and keep resistance management issues to the fore. Reflecting on how to improve one’s spray program is a definite task for all of us at this time of year!



Typical Oriental Fruit Moth (OFM) damage

Research indicates better activity against leafrollers and bud moths than internal feeders like codling moth and Oriental fruit moth. Still, the beauty of spinosad is a longer-lasting residual than Bt, on the order of 10 days instead of 3 days. Entrust is absolutely convincing against European apple sawfly, right after petal fall, if instar damage appears substantial. Glen

Koehler in Maine recently shared that “substantial activity” against plum curculio

exists as well, though lacking “efficacy enough” to officially list this pest on the label. Add to that Entrust’s fleeting affinity for apple maggot fly and this is one potent organic spray option.

The resistance management scoop falls along these lines: Limit applications to 4 times a year, rotating in another spray material (different mechanism) for the next generation and/or applying with low-rate Bt to double-whammy potential survivors. Cost alone should motivate growers to respect these guidelines. Allowing resistant species to develop because of overuse would be a cardinal sin.



I reserve the “Entrust card” for sawfly in the petal fall week and in early August should I see potential for second generation CM and LAW getting out of hand. Last year I did not use spinosad at all as pest damage thresholds were not crossed. Dealing with OFM in one’s orchard changes that reality somewhat. If indeed there’s “curculio gain” in the cover spray period after petal fall—and this is when first generation CM and OFM egg hatch occurs—and if one “needs to provide for EAS” in week one of this period—then 3 applications in that window may be a very cost-effective approach. This is hard, however, as growers using Surround are already employing a curculio strategy. Pure neem oil applied to trunks and dripline ground in early spring also has direct effect on OFM pupation. Add mating disruption and/or granulosis virus to the scenario and you soon see how compounded intermixing all these options gets to be.

Please don’t go take all this as a personal advocacy for this Dow Agro Science product... big ag comes with **definite baggage**. And certainly we have to be very, very wise at \$500 a pound! I’m interested in hearing grower thoughts on how you utilize Entrust for any overlapping pest challenges faced in your orchard. Sound thinking (as always!) will be shared.

On the Consulting Trail

Conversations range widely when growers purchase an **orchard calling card** with me... here’s a bit of past dialogue that might help you in the season ahead.

We applied compost tea on our apples in early spring... but then we decided at the last minute not to count on compost tea foliar sprays for scab protection and used several low-rate sulfur and serenade sprays.

This middle-of-the-road approach seems especially suitable for growers new to testing biological waters. Using holistic approaches very early in the season (up to pink), then switching to 2 or 3 full-rate sulfur applications during primary when the forecasting models shout *help*, then going back to holistic combinations after petal fall (post 760 DD) through the summer months was exactly how I started on this journey. Tank mixing sulfur and Serenade is probably okay as Serenade is bacterial in nature. I will stress considering adding nutritional support in the form of liquid fish and pure neem oil as “the missing link” to making the aerated compost tea method work in disease-prone locales.

We used both garlic oil and neem oil in our first application of Surround and created a BIG MESS! We followed the instructions on the website and heated up the neem and mixed it in a 5 gallon pail with our Dr. B's (emulsifying soap) but when it hit the 300 gallons of ground temperature water it all hardened up again. The other ingredients were already stirred into the tank. Can you imagine? We had to climb in after the spray and use a hand trowel to get what turned out to be more than half the amount out of the spray tank. Of course it was all over everything -- inside and out -- the filters, lines, the spray tips. Now that we're cleaned up once again I don't know if we will ever use neem again.

Growers can get carried away with doing too many strategies at once... which is often an indication to me that you may not fully understand how each aspect is intended to work. Applying neem oil with full-rate Surround is the wrong thing to do for two reasons. It indeed might overwhelm the pump. And secondly, the kaolin clay should not be stuck to the leaf as it surely would be by this mix. Let's be totally clear about the specifics for properly mixing neem oil. First mix the soap into neem oil at liquid consistency. I have found Ecover dishwashing liquid a far better emulsifier than Dr. Bonner's to be. Now pour very warm water into the neem, causing the mixture to go cloudy white. I too use ground temp water in the sprayer tank... and it's definitely agitating when I pour in the neem. The neem concentration should be no higher than 0.5% when foliage shows. . . so rate may be part of your problem. And at clean-up, if air temps are warm enough, drain tank, then immediately fill partially with enough water to distribute a citrus-based degreaser throughout the tank and lines. If air is cold, don't turn off sprayer but clean with citrus poured directly into whatever remains for spray mix. Raw neem is doable and not nearly the scum scenario you encountered on this first attempt.

Despite all that, we did get better coverage of the surround -- whether it was the garlic oil or the neem oil, I don't know -- but I'd like to spray every other surround spray with something that would work as a sticker. I know you don't recommend this -- but doesn't it make sense that the leaves and fruit would be better covered with the help of the sticker and then spraying without the sticker for the next round? Wouldn't that let the clay powder still come off and thus be able to stick to the PCs????

We now enter the land of extremely refined nuance. I do indeed include a "base coat" of Surround with the neem oil/ fish/ EM application at petal fall. Sounds totally contrary to what I just said but here's the defining caveat: I use a clay rate of 5# at most in the 100 gallons of water rather than the full-rate of 25-50# recommended by the manufacturer. I say this assuming that you understand that that first week at PF requires 2 if not 3 full-rate applications to achieve the initial base coat. That little bit of clay stuck with the oil acts as a particle matrix to hold the loose clay to follow. Surround gets renewed weekly after this with no sticker whatsoever. If you think like a human (especially one paying for Surround!) then you focus too much on sticking the clay to the leaves through a rain to get your money's worth. You need to think more like a pissed-off bug who wonders why this clay came off so readily onto your armpits and eyeballs in the first place!

A Quick, Absolutely Informal Yet Helpful Varietal Poll

I am racing to the finish line—what publishers deem an author's 'do or die' deadline—on a new book tentatively titled ***Organic Home Orchard***. I will be

making discerning recommendations about the very best apple, pear, peach, apricot, Asian pear, quince, cherry, plum, nectarine, pluot, and berry varieties to grow in various growing zones across the country. I know apples well. Some of the others push my northern bounds. I would love to have **NO MORE THAN FIVE RECOMMENDATIONS** of varieties you feel should be better promoted. Don't overwhelm me, please, but include whys. Fantastic flavor matters the most. Send your thoughts to michael@groworganicapples.com. Thanks!

*You never change things by fighting the existing reality.
To change something build a new model
that makes the existing model obsolete.
Buckminster Fuller*

Coming into Bloom

Fruit buds are swelling here at Lost Nation headquarters. More and more of you, I'm glad to say, are seeing the full value of the **Holistic Orchard Network**.

Orcharding requires patience, of course, as we develop *good wood* on which to hang the work intended. **Sharing information** is my forte, and I appreciate the financial support that allows me to do more of it. The **discussion forum** has finally begun to come into its own. Figuring out how to better coordinate **holistic research** remains a big frontier... but grassroots funding will eventually launch the ideas that the universities just don't seem capable of understanding.

Please consider becoming a **full-fledged member** in this work. The general public is ever so eager for the community orchard concept we promote. Ultimately, it's our collective momentum that will push these fruit buds to "pop" into full glory.

Thanks go out to the folks below who made a network donation in the "dormant season" of 2010. This funding allows the website to progress, enables modest holistic research, and helps Michael do even more orchard networking!

Brian Caldwell - RENEWAL
Jon Place - FULL MEMBER
Sarah Shields - FULL MEMBER
Paul Loftness - FULL MEMBER
Russell Braen - FULL MEMBER
Jeffrey Corbett - RENEWAL
Lucien Hinkle - FULL MEMBER
Terry & Carolyn Harrison
Alan Suprenant - RENEWAL
Elizabeth Ryan - FULL MEMBER
Ed Anthes - FULL MEMBER
Lynette Carnes
Douglas Schmidt

Stay in touch, think deeply, and treasure those venerable trees!

Michael Phillips