The Community Orchardist

February 2010

Michael Phillips, Editor

A full blue moon ended the year just past… and one lunar cycle later we awoke to a gorgeous orange moon dancing on the rim of Cape Horn, the volcanic ridge to the west of our farm here in northern New Hampshire. The two moons straddle the worse time this apple grower has ever had with deer in the orchard. It's not a pretty sight, folks. Fruit buds are stripped away, leaders on young trees lie snapped off, broken shoots abound. Incursions through the electric fence have seemingly been unstoppable despite all the tricks. My brother witnessed me running out half-dressed at twenty below in the early dawn, gun in hand, just because *they were there*. This morning, snow is falling gently and I know the coyotes have the apple trees under watchful eyes. And so… finally… it's time to share another year of fruit growing experience and the cutting edge of holistic orcharding. Wassail to you all!

A Look Back at Last Season

It's getting harder and harder to keep track of the climatic curveballs that make up each growing season, eh? Pollination here in Lost Nation last spring had its good days but then inexplicable periods would go by with nary a bee in sight. The result was bumper crop loading on certain varieties and bare disappointment on others. An outright freeze knocked out the majority of bloom in the north-facing block that was specifically designed (ha!) to delay such tender loss. Next came the fungal monsoons at petal fall and through the month of June… quite an "opportunity" indeed to test holistic approaches to fungal disease. The quality of the harvest spoke to success on that front.

I'll be explaining, promoting, and outright whooping about the **four holistic sprays of spring** that I now have good reason to believe lie at the fore of orchard health and thus reasonable control of fruit tree diseases. Much more research needs to happen here to apply lessons learned to each and every locality. The gist of this approach lies with the use of unpasteurized liquid fish, **pure neem oil**, and either effective microbes or properly-brewed compost tea. I will be sharing plenty on this in my workshops, on the website, future newsletters, and in a new book tentatively titled ***Organic Home Orchard*** to be published this fall… but now y'all just get this teaser!

Last year's speaking schedule took me across the country twice to teach at more than a dozen conferences and lead on-site orchard intensives. Experiencing extremely different ecosystem dynamics has helped open my eyes further to the nuance of what each of you do to grow healthy fruit. Recognizing this interconnected, interdependent orchard paradigm as a fascinating reason to be on this good earth – with plenty of flavorful fruit as the reward – says far more than that tired ol' chestnut from conventional circles that organic fruit growing is impossible. Biology rules, friends.

The visionary side of this Holistic Orchard Network as expressed on the **GrowOrganicApples** website and in the **discussion forum** made its share of gains in the past year. There's far more that we can do, of course, but I've accepted the fact that **"growing good wood"** takes as much time with humans as it does with a fruit tree. Achieving proper funding to do the work we've been given to do will come, methinks.

Evolving Scab

"Scab immune varieties have the so-called V_f gene which transfers hypervirulence into that variety. Essentially the scab fungal hyphae sets off a chemical death in the leaf cell being invaded. I've been told similar genetic mechanisms exist for other diseases (like cedar apple rust) as well. On top of that, a broader resistance exists in the progeny of Worchester Pearmain which may in the end prove more reliable than the V_f gene."

Let's juxtapose those words I wrote several years back with some fungal happenings that came to light in 2007 and 2008 in Indiana, Illinois, and Ohio. The upshot: Plantings of scab-immune varieties are now getting and succumbing to apple scab on the North American continent. I first heard tell of "black spot" on varieties like Liberty and Freedom from a grower on the other end of New Hampshire. Not unlike rumors of war in distant lands, I remember thinking at the time.

Most scab-resistant apples trace their origins to a collaboration between Purdue University, Rutgers University, and the University of Illinois. The PRI apple breeding program began in 1926 when crosses made from the crab apple, *Malus floribunda* 821, were found to show some resistance to apple scab. The PRI group then bred the resistant V_f gene from *Malus floribunda* 821 into commercial apple cultivars… many of which many of us have planted in our orchards today.

The bubble burst officially in Midwestern states these past few years with Pristine, Pixie Crunch, Jonafree, and now Enterprise. The powers-that-be at Purdue have subsequently announced the need for growers to spray even the disease-resistant varieties with fungicides during the primary infection period (between green tissue showing on buds to about 10 days after petal fall).

Here I quote Janna Beckerman of the Department of Botany and Plant Pathology at Purdue University*:*

> *Rare mutations in the fungus growing on susceptible cultivars may allow it to infect resistant cultivars. Although the risk of this is quite low, the sheer numbers of spores the fungus produces can be in the millions — making a one in a million (or a one in 10 million or 100 million) chance a very real possibility that has occurred, and will continue — resulting in the complete breakdown of V_f-resistance.*

Scab mutants which ignore the V_f gene are exactly what European growers have faced all along on the disease-resistant front. It's not surprising that new "races of scab" are ever evolving. You can learn full details of this story in an Extension bulletin titled "Managing Scab-Resistant Apples" at
http://www.extension.purdue.edu/extmedia/BP/BP-76-W.pdf
My suggestion here is a bit different and yet not one iota less than I do for scab-susceptible cultivars: Manage orchard heath and canopy biology to maximize disease resistance from within regardless of the genetic mechanisms involved. Going the route of fungicide medicines with DRCs would be a step backward.

Chickens in the Orchard

Farm diversification allows fruit growers to integrate the benefits of animals into our community orchard operations and homesteads.

Free ranging chickens can play a definite role on the curculio front. The underlying tactic behind "curculio trap trees" is to push'n'pull this weevil pest from repellent-protected trees (achieved with a refined kaolin clay spray, for instance) to unprotected trees within the orchard environs. Curculio will aggregate here, feeding and laying eggs by night, hiding in the grasses below by day. Your chickens will be on top of this funneled situation. My daughter Grace and I built the "chicken gypsy wagon" pictured here. Chickens are moved about the farm every day or two, kept safe and on task by electrified poultry netting. Scratching of the fungal duff beneath our trees goes hand in hand with wholesome eggs!

Deer Psychology

You had to know this was coming. Every apple grower obsesses on a bad situation in his or her orchard. The maxim that a good fence is requisite to keep out deer hasn't changed but there are a few more things to know.

Change is something to fear... maybe. My deer year invariably starts at some point in December with the pawing out of snow-covered oats or clover in outlying gardens. That too easily leads to *nudging in*, which in past years was

kept in check by the family dog. This year I tried the ol' fishline trick (tied between openings between fields) and flashing solar LED lights promoted as resembling "predator eyes" (don't waste your money). Creosote repellent was poured on numerous fence posts. Coupled with patrol action in the early evening and in the pre-dawn hours, all this might have deterred the habit of a nightly stroll through "mad apple valley". But we were gone a week for the holidays when critical deer routes were being plotted for the winter ahead.

Food – once known to be there -- is a compelling force to overcome fear. Snow falls, a man plows, banks pile high along the driveway. The high-tensile fence (8 wires spaced to six feet high) that protects the orchard lies tight along the driveway for a short section. The first entry point proved to be an easy hop over the fence from the snowbank. The fruit bud salad bar was now open for business. Incursions through the fence became a nightly event, in part, because the battery in the solar fence charger went kaput this very week. Arrrgh! Deer will go under or through before opting to go over. Once the fence was repaired to full shock capacity, the menu was established for continuing trouble regardless. Alternate wires in the fence were grounded out to compensate for snow insulating "each tiny little hoof" but that didn't help.

Carnivores have no sense of grace. You start with chicken bones and fat, spread here and there along the fence. Add a deer leg from a road kill. Ready for eye of newt next? The point being the air smells different, something is wrong with this picture. Coyotes come round to investigate more often. A couple weeks of peace pass. But should things change, two wildlife depredation permits from Fish and Game are now in pocket, allowing night shooting within 100 feet of the fence line. Commercial apple growing is not what Walt Disney had in mind when he gave us Bambi.

Deep Soil

There's a woman homesteader down in Tennessee named Donna who contributes wide-ranging insights to the **North American Fruit Explorers**' discussion forum. Hers is one of the names I look for when perusing the daily digest of messages for value. Here I'm sharing an edited post about establishing a woodsy ecology downunder, so to speak, primarily because I'd like to generate some feedback from those of you versed in deep soil biology.

Donna began by listing some permaculture recommendations for preparing orchard ground from a man named Geoffrey Stone:

> Clear steep slopes for perennial crops by:
> 1) felling trees and making use of logs for lumber and firewood (do not destump)
> 2) leave the limbs in place and add available organic matter and available char
> 3) inoculate this prepared (terraced) area w/ "fungally dominated" compost tea.
> 4) plant fruit trees, nut trees, food producing shrubs on these terraces.
> 5) manage the area w/ as little disturbance of the "soil food web" as possible

Our nutrient-dense guide followed this with her own doings:

I was at a garden meeting where a local guy named Jim Joyner said that gardeners spend so much time worrying about the top six inches of the soil, but that he'd seen instances where organic matter much deeper had had dramatic results. He gave two examples. One was a tropical island where a hurricane had knocked down all the coconut palms. Someone had laid the palms down in a single layer and piled dirt on them before planting a commercial avocado grove. He said that the trees in the part of the grove with palms under them did much better than those without. He said that in the Ozarks an experimental station had been trying without success to produce grapes, and finally resorted to making 4 ft deep trenches in the clay soil and filling them with woody debris. The grapes grew fine after that. I have been fantasizing about making a ditch witch across our slopes for a decade now. Because of these stories, I have let wild trees grow where they shouldn't be so we can cut these down later after their roots have punched holes down into the subsoil for my own trees to follow. Branches of the trees we remove wind up piled on the ground near the fruit trees.

Wild and wooly indeed. I deliberately left tree root systems (from overgrown pasture) intact between tilled rows in a block that was planted here five years ago. I desired that "mycorrhizal connection" intact for my fledgling trees in a soil ecosystem I was essentially co-opting with my cover cropping plans for the fruit-trees-in-very-straight-rows to come. Biological compromises are made every day in farming. Since then, much work has gone into mulching with ramial wood chips, all deciduous, all in the guise of building woodsy soil from the top down.

Let me hear what you do for your fungi, okay?

> It is by the place we got,
> and our love for it and our keeping of it,
> that this world is joined to Heaven.
>
> **Wendell Berry in *Hannah Coulter***

The Passing of Apple Friends

Two apple growers of note have left us in the past several months… people I think of with great affection and appreciation for their teachings and tree passion.

Doug Murray deserves full credit for breaking through my dense mind and driving home the point that what we spray should build tree health first and foremost. This man introduced me to pure neem oil and the rest is history. Midwest growers valued Doug's insights as the first holistic orchard consultant.

Terry Maloney made cider. Good cider. Perhaps the best cider I ever tasted. This is the man who gave us **Cider Day** and effervescent varietal ciders under his **West County Cidery** label. Bless your passage to the far orchard, brother.

Question of the Month

I wish to experiment with Surround and untreated trap crops in a fenced chicken pens in the border rows. It seems to me the best traps might be a combination of several trees: *Prunus americana* and *Prunus avium*. There are Hawthorns as well, but they seem like disease magnets... especially fire blight and rust, so they are not in consideration. Are there more attractive trap species to offer than apples?

> Curculio is an omnivore since migrating from the native plum thickets. That said, regional preferences are apparent in that certain fruits in differing climatic zones seem to be better for successful reproduction. You straddle the apple / plum line in that regard in southern New England. Sweet cherries appear more relevant towards the Great Lakes, perhaps because the moderating effect of big water gives PC an earlier (warmer) start on smaller stone fruit. Timing of relevant fruit size to the activity of the insect is what counts here. Trap tree recommendations for Japanese hybrid plums and particularly attractive apples like Chestnut Crab and Liberty tie into that tenet. Late pruning of trap trees is part of the draw as volatile odors are released. Native hawthorne would probably not be of any interest to PC though I d see AC at work occasionally on this heart medicine tree.
>
> Experimenting and observing ultimately will reveal the right localized answer.

Waiting for a Tree to Bear

A guy plants a tree. Early on it develops branch structure. Wood growth is steady and definitely palpable. Still, several years go by before first fruit buds appear. These don't necessarily develop into fruit that first season … but the tree continues to grow. Of course some varieties are much slower to take off, begging the question:

Is **Grow Organic Apples** a prodigy of Northern Spy? Are we really going to have to wait a dozen plus years before this awesome networking effort truly comes into bearing?

I'd like if everyone appreciating this newsletter could please take a moment to read **The Boring Bit** by clicking that explanatory blue link. Consider it to be one page on the way to group fruition. There. That's the whole of this issue's assignment!

Hearty thanks go out to the folks below who made a network donation in the second half of 2009 to make site updates possible!

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

Michael Phillips