



## Secondary Scab Infection Control Strategies

Posted by [Tim Bates](#)

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[Tim Bates](#)

[Secondary Scab Infection Control Strategies](#)

Registered: 11 years ago

Posts: 58

April 04, 2016 09:24PM

Wowser (as Michael might say). Just when I thought I was getting serious scab control the last 2 years with only 1 or 2 added sulfur sprays (and not the whole orchard!) 2016 comes along. I'd have to say it is the worst primary infection I've even seen---and the earliest---but then green-tip and bud swell were the earliest I've ever seen. Will cogitate on how it might have happened in scab conundrums, elsewhere in Fungal Pathogens. What's scary is how early the stage was (beyond 1/4" but before full bloom). So, there has been no rain since I spotted the stuff (10 days ago) and none in sight for 8 days. I have some sulfur on hand and plan on going out just before the next rain event, meanwhile I keep spotting more and more scab. In the bio kit bag I have plenty of CCB (Competitive Colonization Boost) material on hand and now also time on some varieties for petal fall spray. The Plan: Going out weekly or more often with CCB to help keep it in check (maybe I'm dreaming) during full bloom and after petal fall sprays..and finally some sulfur as the rain event closes in. I will still be resolute about my 3-4 acres of NO sulfur. The Q is should I spray sulfur now to just maybe "nail" it? (And risk some burn--many days in mid to high 70's) Legend around here has it that foggy mornings (the famous Philo Phog) can keep scab moving along---I tend to believe it. Any other help or ideas in this matter would be welcome (I recall some of our Southern Hemisphere folks dealing with this?)

[The Apple Farm](#)

Zone 8b in California

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[Michael Phillips](#)

[Re: Secondary Scab Infection Control Strategies](#)

**Moderator**

Registered: 11 years ago

Posts: 621

April 05, 2016 09:28PM

Bud-based conidia have you again, my friend. The mantra where temps drop down well below freezing in the winter months is *no need to worry about the first three or so wetting events* of early spring. This in a "clean orchard" with good leaf decomposition, between green tip and tight cluster and even up to earliest pink. I'm going to venture there was significant conidia production in late fall (when California trees hold on to leaves far too long) and that a warmer winter assured a greater percentage of these survived. You were set up bad . . . and accordingly whatever green tissue was showing got infected with one of your first "green tissue rains". I know you think about such things, and maybe even attempted a dormant version of the fatty acid knockdown. It would be nice to know how dormant copper impacts conidia--Terrence Welch south of the Bay Area goes about this with lime sulfur. Not that the question of "conidia toughness" compared to "ascospore toughness" is the concern at this point. The relevance is that **holistic spring sprays** go on to target the entry mechanisms of ascospores in the regular scab season by boosting immune function and putting a competitive crowd in the way. Conidia take a much shorter path but I never have looked fully into the details.

The thing I've been contemplating about secondary scab season is how some varieties seem even more susceptible to conidia released from established primary lesions but others seem to dry up and cruise along to harvest. TRANSLATION: We keep scab minimal throughout the orchard but then certain "scab magnets" really should have additional protection when things appear to let off. Another observation during this time period is that scab spreads more on leaves than on fruit in general. I acknowledge varieties like Pink Pearl, Gravenstein, and Gala seem to be "conidia prone" here in my orchard.

Using sulfur has definite impact on good organisms in the short-term so you need to give some consideration to compost tea/ em renewal, if that's the direction you go. I have definitely tightened things up in the "fruit sizing window" being those 30-40 days beyond petal fall when I make the **holistic comprehensive sprays** with the calcium and silica teas. The CCB utilizes only karanja oil rather than the synergistic mix with neem (because during bloom protecting bees from azadiractins) so not sure why you'd continue with CCBs beyond bloom.

BOTTOM LINE: I support a sulfur app or two for "yuge wetting events" that close off the primary window, given the great pressure you are facing.. Beyond that, no, unless you want to trial summer sulfur on "conidia prone" varieties only. Allopathic merged into holistic is a very gray area. I feel a holistic summer would do you good, mon.

And if several others contribute what they have observed, this post could actually turn into something useful.

[Lost Nation Orchard](#)

Zone 4b in New Hampshire

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[Tim Bates](#)

[Re: Secondary Scab Infection Control Strategies](#)

Registered: 11 years ago

Posts: 58

February 05, 2017 08:22AM

WOE WAS ME--I have mentioned elsewhere shortly that the results above turned into absolutely the worst scab scenario I could have imagined. I send my apologies to you all for basically taking most of a year off from commenting here and other threads I follow--excuses? Pretty good amount of depression and nail biting as I had the lowest \$ fresh sales in many many years (thank the lord for being as much in the juice business (growing) as anything else we do here). So, in follow-up to the above and response to Michael's observations--I did do 2 Micro-sulfur sprays in half my orchard

and a third spray on worst scabby types (Bartletts and most pears, note-- the Boscs shrivelled up and dropped around 70% of tiny fruitlets, Pink Pearls, Splendours) basically to no avail. 99.5% unsellable Bartletts, 80% on Splendours (which seem to be getting more and more scabby in the last 10 years) 60-75% in Pink Pearls (high retail). Most of all I continued with Michael's program and good doses of Comfrey and Nettle Teas (though not as much per acre yet as growing patches are too small for our needs and should do better this year--had fun making them and those engrossing odors--whew). I originally planned on an in depth analysis of each holistic spray and where the timing might have gone wrong or a hundred other excuses for my big problem, but was too busy worrying and fretting and...and now it does not seem worthwhile. Somehow we are still standing and still some money in the bank. If any of you show interest I could outline for you exactly what I did complete with rain events attached. Let me know. As for Michael's scab magnets and those that do not get much on the fruit even though leaves are damaged--the winners are Sierra Beauty, Wickson, Arts, Gravenstein (not all that much on the leaves, but way more than usual), Astrachan, Bramley's Seedling, good ol'Jonathan, Ashmead's Kernel, Buerre Hardy, Comice--I'll stop there. Unaffected--Sweet 16 and Gold Rush. I guess to be expected. One that usually does not get scab toooo much (liberal interpretation) Golden Delicious, got hammered. I have to say my anger and depression led me to thinking can all this effort be worth it? The money spent...the extra sprays...the loss of pretty much 50% of fresh sales. (add ons--my JOHN DEERE tractor gave up the ghost after only 2500 hours...definitely a story there: and maximum rainfall and flooding and loss of river bank (just last week) But, it's February and the days are getting longer and the promise of Spring is in the air (at least here in California) so I'm gearing up at least in my mind until it finally stops raining to do..? I feel pretty resigned to a lot more sulfur at the get go. Old practice around here is Lime Sulfur on Bartletts before leaf break to get those f.....s on the twigs before they activate---I may do that on some apples mentioned above too though it will break my heart. I am having a genuine PCA come and count out twig lesions (conidia?)or whatever they are called next week.( Crazy dream---last year they all activated and are all used up and there will be less than last year because of continued holistic practices--what a dream). Would appreciate any ideas---advice---criticisms (go easy there, please--sensitive Leo type) If you are wondering why I have such long paragraphs---more than once when i push return to start a new paragraph, what I had written so far disappeared...it's probably somewhere I suppose---the icloud?---but i couldn't find it, nor could my computer savvy friends. TTFN

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[Mike Biltonen](#)

[Re: Secondary Scab Infection Control Strategies](#)

February 05, 2017 04:47PM

Hi Tim,

Registered: 10 years ago

Posts: 298

Sorry to hear 2016 was such a horrible year. I guess we've all been there before (I know I have) - and that's where the hope of new year always comes in, regardless of who is in the White House. I know that the northeastern US is much different than northern CA in regards to climate and scab, but I for one would love to hear the specifics of your scab program - rain events, scab maturity, past year's severity, other inoculum sources, etc. It was an easy year in 2016 for us in New York - relatively speaking - we were in the middle of drought most of the year. Two sulfur sprays, well timed, along with a strong nutritional and holistic spray program kept us relatively scab free (don't ask about cedar apple rust!). I am very interested in the nutritional components, esp micronutrients, that eliminate the preferred food supply for scab and other fungal organisms, as well as provide strong building blocks for cell walls and leaf cuticle, etc. Been reading a lot and devising some interesting hypotheses. For now, if you could share specifics, I'd be interested to see what you did and when. Also, can you expound on your the "engrossing odors" you concocted? Was it a bad smell? My feeling is that bad -- really bad -- smells mean anaerobic conditions and just like with compost, things have gone awry with the fermentation/decomposition process. But I'd be interested to get your olfactory feedback on those smells.

[Mike Biltonen, Know Your Roots](#)

Zone 5b in New York

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[Michael Phillips](#)


[Re: Secondary Scab Infection Control Strategies](#)

February 05, 2017 05:25PM

**Moderator**

Registered: 11 years ago

Posts: 621

**Editor's Note:** I see this conversation potentially going *everywhere*! Which can readily happen in any orchard discussion.  Yet as we drift from "secondary infection control strategies" to the select use of mineral fungicides in the primary infection window to the specifics of dealing with regional strains of the scab fungus to the fact that fermented herbal teas have always taken on a strong smell since time immemorial . . . let's remember that the topic index and new threads especially can be useful tools for zeroing in.

[Lost Nation Orchard](#)

Zone 4b in New Hampshire

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[Michael Phillips](#)

[Re: Secondary Scab Infection Control Strategies](#)

February 05, 2017 05:57PM

**Moderator**

Registered: 11 years ago

Posts: 621

Coming off a bad scab year like Tim's, and one where late fall rains ensured conidia establishment that will carry forward to the next growing season -- a huge concern for fruit growers in warmer zones -- playing an *allopathic card* like lime sulfur as buds approach green tip makes complete sense. This is the last and final ramification of secondary scab. Such a clean slate move essentially resets the orchard stage so as to return to more holistic methods. Maybe there are even two lime sulfur apps, the second coming on the heels of that first "green tissue rain" . . . after which you restore biological integrity to all plant surfaces. Then in other springs, returning to a gentler "fatty acid knockdown" may be entirely appropriate for a subdued conidia scenario coming off a dry fall. Gauging the disease pressure factor from the year before is paramount in making these decisions.

There's a sidebar in [Mycorrhizal Planet](#) that addresses "Dynamic Understanding" that I'm eager for all to see. I speak about the struggle between trusting to deeply held principles in the face of onslaught. The point is that it's okay at times to take a seemingly step backward in order to take two steps forward in this journey we walk with our trees.

[Lost Nation Orchard](#)

Zone 4b in New Hampshire

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[Tim Bates](#)

[Re: Secondary Scab Infection Control Strategies](#)

February 17, 2017 08:07PM

Registered: 11 years ago

Posts: 58

The Lime/Sulfur is here and so also another 6 days of rain. Pears do not seem to moving along much yet...thanks, someone. I had a second round of flooding and have lost more land and 12 pears trees destroyed. Sigh. Mike, I will lay out my 2016 program for you soon, as I can't even make pruning a part of my day. There is now 6" more rain than average for the whole year. Should we move this to Conundrums? I see from looking at other threads that I might finally contribute to Claude's severity index.

[The Apple Farm](#)

Zone 8b in California

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[Michael Potts](#)

[Re: Secondary Scab Infection Control Strategies](#)

March 18, 2017 09:14PM

Registered: 11 years ago

Posts: 21

Caspar Michael here, posting a spreadsheet for my neighbor, Philo Tim . I hope this is somewhere like where he wanted his Spray Program posted, 'cause here it is: [Tim Bates Spray Program PDF](#)

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[Joanne Patton](#)

[Re: Secondary Scab Infection Control Strategies](#)

March 30, 2017 09:32PM

Registered: 7 years ago

Posts: 62

What do the following codes stand for from Tim's sheet. Thank you Tim/Michael for posting this.

FAK

SPI

SPII

Comp 1 (compost tea?)

Joanne Patton, Squire Oaks Farm

Zone 6A, Northern Virginia

[Reply](#) [Quote](#)

[Michael Phillips](#)

[Re: Secondary Scab Infection Control Strategies](#)

March 30, 2017 10:21PM

**Moderator**

Registered: 11 years ago

Posts: 621

What I call the Holistic Spray Framework is set up around establishing particular terms for sprays made in the different windows of the season. You can read more about this in past editions of the [Community Orchardist](#), back at the start of 2015 if I'm recollecting right. Tim, being master of the acronym, abbreviates many of these terms in his spray record.

"Four Sprays of Spring" made to straddle the *primary infection window* become Sp1, Sp2, Sp3, and Sp4


The "fatty acid knockdown" for overwintering pathogens becomes the FAK.

A "competitive colonization boost" made during bloom for fire blight becomes a CCB.

Comprehensive applications made in the *fruit sizing window* become COMP1, COMP2, COMP3.

Summer applications made in the *fruit ripening window* maybe have yet to be abbreviated.

The assorted spray charts and records that I use with consulting clients feature this terminology. And someday soon , when I write the third and final thriller of my orchard trilogy, all such will be widely shared . . .

Now that I've drifted far from discussing "secondary scab" once again how about we just call this a sidebar. 

[Lost Nation Orchard](#)

Zone 4b in New Hampshire

Edited 1 time(s). Last edit at 03/30/2017 10:24PM by Michael Phillips.

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[Joanne Patton](#)

[Re: Secondary Scab Infection Control Strategies](#)

March 31, 2017 08:59PM

Registered: 7 years ago

Posts: 62

Maybe Tim's spreadsheet can be updated with a key. I would have \*never\* figured out the FAK. I knew what CCB stands for but the rest were alluding me! Thanks Michael....

Joanne Patton, Squire Oaks Farm

Zone 6A, Northern Virginia

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[Joanne Patton](#)

[Re: Secondary Scab Infection Control Strategies](#)

April 04, 2017 04:01PM

Registered: 7 years ago

Posts: 62

Just noticed sulfur used on 4/8, 4/13 and 4/21 and then I assume Neem and/or Karanja were used shortly thereafter in the SPIV and Comp-n sprays. I just double checked some documentation and oils aren't to be used for a *minimum* of 14 days after using sulfur.

Need some clarification on this please as I have a big bag of micro-sulf and haven't used it because I don't want to eliminate the oils for 2 weeks especially now in the 'Four Sprays of Spring' season...

Joanne Patton, Squire Oaks Farm

Zone 6A, Northern Virginia

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