



Bicarb for Cedar Apple Rust

Posted by [Mike Biltonen](#)

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[Mike Biltonen](#)

[Bicarb for Cedar Apple Rust](#)

February 23, 2015 12:37AM

Registered: 10 years ago

Posts: 298

Just re-read the Feb Community Orchardist re: cedar apple rust and had a few questions.

1a. If alkalinity "alters the prospects of these basidiospores," is there research (any type) to suggest over what alkaline pH range CAR is less active or doesn't infect at all?

1b. Over what acidic pH range is scab least infective?

1c. Do those pH ranges overlap at all and is there a pH that could be optimal in terms of overall disease control?

2. If a grower is using sulfur to control scab preventatively, theoretically the sulfur residue would suppress the pH for a period of time. How does the presence of S or other pH suppressing material (assuming a reasonably high residue level) affect the rate of K-bicarb required to increase the pH sufficiently to inactivate CAR? Obviously time is important in the weathering of residues, so the longer you wait the less residue there is.

3. Do sulfur and k-bicarb applied together (or very close) inactivate each other's pH influence?

4. Apart from the toxic characteristics of k-bicarb, wouldn't lime be a more cost effective way to increase pH on the leaf surface and discourage CAR infection?

Thanks for the indulgence. Mike

[Mike Biltonen, Know Your Roots](#)

Zone 5b in New York

Edited 1 time(s). Last edit at 02/26/2015 06:16PM by Michael Phillips.

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[Michael Phillips](#)

[Re: Cedar Apple Rust](#)

February 26, 2015 01:37AM

Moderator

Registered: 11 years ago

Posts: 621

I'll bite ... being the guy behind "an alkaline answer" to cedar apple rust in the [February edition of Community Orchardist](#). What's offered here further sets the stage ... and hopefully prompts growers in CAR territory to contribute their own observations and thinking.

Ten or so years ago someone wrote in about potassium bicarbonate being effective against cedar apple rust in their orchard. This particular disease is indeed listed on the label for bicarb products. This was the same time orchard consultant Doug Murray in Michigan suggested "alternating pH" as a legitimate strategy for a mix of fungal disease.

First point, concerning what's deemed research, no, I know of nothing in particular from the powers-that-be. The Holistic Orchard Network lacks the funding necessary to access proprietary channels or prove anything in its own right. No surprise there. This doesn't bother me, given the absolute failure of reductionist thinking to grasp system health as the starting point for useful discovery. This is all the more reason for growers to buckle down and undertake coordinated research on our own.

Sulfur makes the leaf surface "acidic" and this is what limits the necessary enzyme production of scab spores to further develop hyphae penetration into a leaf or fruitlet cell. No one has ever expressed a range of acidity to accomplish this; it's simply understood as the underlying mechanism of sulfur as a fungicide.

No.

Alternating pH is another person's idea. (And unfortunately we lost Doug several years ago.) The q&a offered in the [February Newsletter](#) does not address "recovery time" between an acidic spray and an alkaline spray ... precisely because the addition of bicarb is suggested in the context of a holistic approach. Others of you doing "whatever for CAR" need to chime in here, including those playing the sulfur card on its own terms.

Read between the lines as regards suggested spray intervals, noting that micronized sulfur degrades in ultraviolet light after 7 days max. Let's not create unnecessary distraction before we even give a suggestion a try.

Key words from the q&a: **Potassium bicarbonate acts very rapidly to cause dehydration and total collapse of spores and mycelium of susceptible fungi.** Perhaps the specific mechanism unique to bicarb chemistry should not be described as "alkalinity at work" if somehow we start thinking substituting lime is an alternative here.

Thanks for good questions, Mike. As always, I have been somewhat abrasive in my responses precisely because I want others to be "pricked" into finally contributing to this forum of ideas.

[Lost Nation Orchard](#)

Zone 4b in New Hampshire

Edited 1 time(s). Last edit at 02/26/2015 06:13PM by Michael Phillips.

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[Mike Biltonen](#)

[Re: Cedar Apple Rust](#)

May 06, 2015 01:40AM

Registered: 10 years ago

Posts: 298

Now that I have had time to think about this.....I/we and another grower are implementing a very aggressive strategy to control cedar apple rust. My strategy is based on 3 main tenets: 1) leaf integrity (think Game of Thrones), 2) competitive exclusion/colonization (don't give the damn spores a place to land) and 3) K-bicarb (kill the buggers when they do take hold). Not actually original thinking per se, but I am devout in my belief that the first 8-12 weeks of the season (from greentip to petal fall) are the most critical. Therefore: whatever it takes. With the understanding that I/we have discarded a sulfur or copper based approach on any level, though we do use as a "re-set" task as needed to save the crop, because disrupts the orchard ecosystem to such a huge degree. I'll be interested to see how this all works out. This particular grower has had a HUGE problem with CAR over the years and if this works, I'll have to figure out to bottle and sell it.

[Mike Biltonen, Know Your Roots](#)

Zone 5b in New York

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[Michael Phillips](#)

[Re: Bicarb for Cedar Apple Rust](#)

May 06, 2015 03:05PM

Moderator

Registered: 11 years ago

Posts: 621

Bicarbonate's action apparently applies only to actively-germinating spores, according to Dave Rosenberger. Thus separate applications (not part of the holistic mix) should be made only once wetting criteria for infection are met. Cornell provides a wetting chart for CAR here:

<http://www.nysipm.cornell.edu/factsheets/treefruit/diseases/car/car.pdf>

So, say at 54F, a bicarbonate spray should be made 4 to 8 hours after the rain starts. Allowing yourself several hours beyond this to hit the mark (and thus have some flexibility) might be okay. How long an "alkaline blast" will be effective is yet to be determined.

Keep in mind that bicarb during bloom may thin your crop (which can be helpful) but still, don't apply unnecessarily. I think the majority of rust infections occur in that immediate month after petal fall ... so all the more reason to supplement a nutritional and biological program during that phase anyway.

[Lost Nation Orchard](#)

Zone 4b in New Hampshire

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[Caleb Donnell](#)

[Re: Bicarb for Cedar Apple Rust](#)

September 21, 2016 06:43PM

Registered: 7 years ago

Posts: 1

I know this is an older post but I was curious to see what happened with the k-bicarb applications in treating/preventing cedar apple rust. I am new to orcharding, I've been through almost 2 growing seasons on a hand full of varieties that I grafted onto m26 rootstock. What I am worried about most is the cedar apple rust that has taken over the nursery these last two years and am wondering what the best method is to prevent it AND treat it if it has taken hold. I plan to transplant all 65 trees later this fall to a location 5 miles away. I'm not sure if the infection will travel with the trees or if i will be ok since I will be away from the cedars that were infecting the trees. Some of the more susceptible varieties have it pretty bad especially the Golden Delicious. Others aren't as bad, But a good majority are affected. Just wanting to know what i can do to make sure it doesn't come back. Any insight is greatly appreciated!

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[Mike Biltonen](#)

[Re: Bicarb for Cedar Apple Rust](#)

September 21, 2016 06:58PM

Registered: 10 years ago

Posts: 298

In short, in heavy pressure areas, K-bicarb didn't work. Looking at other alternatives, starting with removing all cedar trees within 200' of any apple trees. You can't really change the susceptibility of the varieties after the fact, so you have what you have there. Timing of sprays seems to be very important, more important that I had thought. But what materials will work is still up in the air, since nothing seems to work very well. regalia + oil seems to be our best option, but Regalia has thinning properties that, given the timing needed for CAR, needs to be heavily considered before application.

[Mike Biltonen, Know Your Roots](#)

Zone 5b in New York

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