

“It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change.”

— Charles Darwin

In February, the Federal Government set off a whirlwind of confusion and speculation... which many would just say is “business as usual” coming from our benevolent overlords. But in this case, they upset the apple cart for beekeepers. Usually, our Fellowship is overlooked by regulation and change of any sort, so this announcement left many wondering what was going on and how we should react.

The February announcement¹ was made by the Environmental Protection Agency (EPA). It said that they were eliminating the need to establish a maximum permissible level of oxalic acid residues in honey and honeycomb. Specifically, EPA amended 40 CFR (Code of Federal Regulations) chapter I to add the following text:

§ 180.1381 Oxalic Acid; exemption from the requirement of a tolerance.

Residues of oxalic acid in or on honey and honeycomb are exempted from the requirement of a tolerance when oxalic acid is used as a miticide in honeybee hives.

This announcement sparked a firestorm of discussion. Many people assumed that this means we can use oxalic acid however we want in future. Others realized that the announcement did not say that oxalic acid was “Generally Recognized as Safe” (GRAS) which would mean it was no longer to be regulated; it just said that residue limits don’t apply. But did that mean we can ignore the restrictions in the current label regarding, for example, use during a honey flow?

USDA Agricultural Research Service issued a [FAQ](#) that addressed many of these issues but who reads that stuff? Isn’t it more fun to guess



Oxalic Acid Dihydrate

For Varroa mite control on bees

Active Ingredient:
 Oxalic Acid Dihydrate:..... 97.0%
 Inert Ingredients..... 3.0%
 TOTAL:..... 100.0%

EPA Reg. No. 91266-1
 EPA Est. No.
 Net Contents:
 Batch Code No.:

EPA has approved a new label for oxalic acid as a treatment for Varroa mites. What has changed? What does that mean for beekeepers?

the right answer and argue about other people’s guesses?

Guess no more. In our never-ending quest to shine light on darkness, the certifiable answers follow.

A new label is here

It would have been nice if a new EPA label with revised oxalic acid instructions had been released at the same time as the tolerance exemption, but at least they didn’t wait too long. In fact, the new label was finalized on April 30th, just a little over two months from the initial announcement. So the speculation about what the tolerance exemption means is now moot; the EPA has told us what it means. The new label, as well as all previously-approved ones, can be accessed at http://www.kellysolutions.com/nc/showproductinfo.asp?Product_Name=API%2DBIOXAL&EPA_Id=91266%2D1%2D73291

The changes

The substantive changes to the previous label, which was finalized October 13, 2015, are as follows:

USE RESTRICTIONS

(Old label)

...Use only in late fall or early spring when little or no brood is present. Oxalic Acid Dihydrate might damage bee brood. Oxalic Acid Dihydrate will not control Varroa mites in capped brood.

¹ Federal Register Document [2021-03256](#)

Do not use when honey supers are in place to prevent contamination of marketable honey.

(New label)

These particular restrictions have been removed.

APPLICATION DIRECTIONS

(Old label)

No deletions to existing directions, just additions.

(New label)

Use Oxalic Acid Dihydrate when little or no brood is present as Oxalic Acid Dihydrate will not control Varroa mites in capped brood and may damage bee brood. Consult state guidelines and local extension experts about best application practices when applying Oxalic Acid Dihydrate when capped brood is present because multiple treatments several days apart will be needed to reduce successive cohorts of adult mites.

Oxalic acid can be used when honey supers are on the hive.

What do these changes mean?

The most significant change is that now we may legally apply registered oxalic acid product to our hives to control Varroa mites while honey supers are in place. That's a pretty big deal: it greatly expands our options for Varroa management.

The second change is a soft-padding of the language about using while brood is present. Previously, we were restricted in our ability to do so. The new language does not restrict someone's use of oxalic acid when brood is present, but it does keep the statement that it is pretty worthless as a treatment when most of the Varroa mites are underneath pupal caps.

Instead of saying that somebody would have to be stupid to expect good results in those situations, it tells us to consult with people who actually know something about this issue. (See "[What's the Deal with Oxalic Acid: Part Two](#)" for more on improper and ill-advised application.) But "all beekeeping is local", so maybe an application of oxalic acid when supers are on and brood is present could tide a colony over until an effective treatment can be applied after the flow and supers have been removed. I'm not recommending that – I'm just saying that may be a conversation to have with your State Apiary Inspector.

Is oxalic acid, applied when supers are on, really safe with respect to the honey?

According to [WebMD](#), a half cup (15 grams) of cooked spinach contains 755 mg of oxalic acid (5%). Dark beer, coffee, chocolate and rhubarb also contain very high levels of oxalic acid. In comparison, the oxalic acid dribble method uses 35 grams of oxalic acid in one liter of sugar water. That's a concentration of 3.5%.

Studies have repeatedly shown that oxalic acid treatments for Varroa raise the oxalic acid levels in honey insignificantly or not at all. In addition, the natural oxalic acid content of honey varies tremendously according to the floral source, making small increases due to Varroa treatment meaningless from a practical sense. In their review article, Rademacher and Harz² said, "It is not expected that oxalic acid will accumulate in beeswax and propolis due to its hydrophilic properties. Oxalic acid is a natural component of honey. Concentrations in honey vary between 3.3–761.4 mg/kg (Nanetti et al., 2003c) depending on the botanical origin of the nectar. Natural values for oxalic acid in honey are, for example: honeydew 38–119 mg/kg; wildflower honey 8–51 mg/kg (Bogdanov et al., 2002); heather 48–151 mg/kg and 85.5–168 mg/kg (Nozal et al., 2000, 2003); honeydew 59–158 mg/kg, oilseed rape honey

² Eva Rademacher and Marika Harz, "Oxalic acid for the control of varroosis in honey bee

colonies – a review", *Apidologie* 37 (2006) 98–120.

13–53 mg/kg (Pechhacker et al., 2004). Most honeys contain < 200 mg oxalic acid/kg honey (Wibbertmann, 2003)."

Um, my box of oxalic acid has the old label...

EPA has approved a new label that must be included on all new packages of oxalic acid pesticide. In addition, they have approved a Supplemental Label that the manufacturer and distributors can affix to product that hasn't been sold yet – the Supplemental Label supersedes the existing label on those packages. However, pesticide laws dictate that existing product that is already purchased must follow the label that is on the package that came with that product, and that label must accompany the product. There is no wiggle room here – if someone bought 100 pounds of oxalic acid pesticide last January, they must use that product following the label directions that came with that purchase. They cannot use oxalic acid following the new label (i.e., while honey supers are on the hive) until they buy the new product. This is because under Federal law, **THE LABEL IS NOT SEPARABLE FROM THE PRODUCT.**

Along those same lines, what if I am really clever... could I download the label and use it with the old product? Wouldn't that be using the "new label", so I could use it while honey supers are on?

[USDA's FAQs](#)³ address this question point blank: "No. The amended label must be supplied when the product is purchased to use the product legally." That means that only the manufacturer or distributor may put a label on the product. Joe Beekeeper is neither of those. We can't supply our own labels.

The upshot of all of this

I am very glad to see the Federal Government taking sensible actions that make our lives a little better. When was the last time that happened?

³ [https://www.ars.usda.gov/northeast-area/beltsville-md-barc/beltsville-agricultural-](https://www.ars.usda.gov/northeast-area/beltsville-md-barc/beltsville-agricultural-research-center/bee-research-laboratory/docs/oxalic-acid-faqs/)

KEEP OUT OF REACH OF CHILDREN

DANGER-PELIGRO POISON



The new label for oxalic acid retains the signal word "Poison". Notice that it also has a skull and crossbones, not a Happy Hearts Care Bear. Respect all pesticides and follow the label directions!

Do keep in mind that even though oxalic acid is quite safe for the honey consumer, there are dangers when applying it, particularly when using the vaporization method. Don't ignore the label warnings! And never overlook the fact that the top of the label contains the signal word "Poison"!

Also don't assume that because it is cheap that it should be your Varroa treatment of first resort. It is a "flash" treatment that only kills phoretic mites at the time of application. Repeated applications do the same thing – they only kill the phoretic mites at that moment. Evidence shows that the strategy of repeatedly applying the product over several weeks is ineffective in the long run, especially when compared with other treatments that are either long-acting or kill mites underneath brood cappings.

Oxalic acid has a valuable spot in our beekeeper toolkit. The latest EPA label change makes it even more versatile. Let's now use it intelligently so we can give those mites the boot!

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