



# BEYOND PESTICIDES

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March 23, 2018

Ms. Michelle Arsenault  
National Organic Standards Board  
USDA-AMS-NOP  
1400 Independence Ave. SW.,  
Room 2648-S, Mail Stop 0268  
Washington, DC 20250-0268

## Re. CS: Sulfur as a molluscicide

These comments to the National Organic Standards Board (NOSB) on its Spring 2018 agenda are submitted on behalf of Beyond Pesticides. Founded in 1981 as a national, grassroots, membership organization that represents community-based organizations and a range of people seeking to bridge the interests of consumers, farmers and farmworkers, Beyond Pesticides advances improved protections from pesticides and alternative pest management strategies that reduce or eliminate a reliance on pesticides. Our membership and network span the 50 states and the world.

The technical documentation for this petition does not support listing on §205.601. There is a Technical Advisory Panel (TAP) review from 1995 and a Technical Review (TR) for livestock use from 2017. As will be seen below, the TAP does not support the use of sulfur on crops. The TR does not address crucial issues associated with crop use. In view of this documentation and additional documentation we have found, Beyond Pesticides opposes the listing of sulfur as a molluscicide.

## Sulfur presents environmental and health risks.

Sulfur poses a threat to farmworkers. It was the cause of the most agriculture-related acute illnesses in California between 1998 and 2000.<sup>1</sup> Drift of the dust may harm humans, plants, and aquatic systems. In addition, its manufacture is associated with sulfur dioxide pollution.<sup>2</sup>

In 2011, the NOSB demonstrated concern over worker protection by including language in the narrative portion of the recommendation on coppers:

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<sup>1</sup> Reeves, M. and Schafer, K.S., 2003. Greater risks, fewer rights: US farmworkers and pesticides. *International journal of occupational and environmental health*, 9(1), pp.30-39.

<sup>2</sup> Orloff Engineers, Modified Claus Recovery Process. <http://www.ortloff.com/sulfur-recovery/modified-claus-process/> 1/12/2015. Also, older document: EPA, 1973. Characterization of Claus Plant Emissions. <http://nepis.epa.gov/Exe/ZyPDF.cgi/9101LFQ4.PDF?Dockkey=9101LFQ4.PDF>

The Committee will work with the National Organic Program to advance guidance that ensures that organic operations are strictly meeting, and to the extent possible, exceeding the standards established by the product label in meeting principles of sustainability and a sustainable work environment for all those who work in organic production.

This never happened. Although the use of sulfur in molluscicide baits does not present the same risks as its use as a dust, the NOSB has properly expressed concern about sulfur's hazards to farmworkers.

Application instructions of the petitioner's products call for broadcasting around plants and in planted areas, where it can have a negative impact on a range of organisms. The 1995 TAP Review (the most recent review for use in crops) says, "It is one of the most toxic fungicides to beneficial gastropods, and even compared to most insecticides, it does not do that well." Specific effects of sulfur to beneficial (pest control) organisms in the agroecosystem have been rated as: low to high impacts on predatory mites, high impacts on parasitoids, low to moderate impact on general predators.<sup>3</sup>

### **Secret ingredients present unknown hazards.**

The petitioner's product is 1% sulfur. Other ingredients are not identified, except:

"This product contains iron, which may stain surfaces such as sidewalks, patios, wooden decks, driveways, and clothing."

"This product is a unique blend of the active ingredient, sulfur, with slug and snail bait additives."<sup>4</sup>

In view of the use of iron compounds (ferric phosphate and ferric phosphate complexed with EDTA and related agents) as molluscicides, it makes sense to ask what makes up the 99% of the product that is not sulfur. In the case of ferric phosphate, the NOSB learned that it was only effective when reacted with (complexed with) EDTA.<sup>5</sup> Although we do not know whether EDTA or other chelators are contained in the secret ingredients that comprise 99% of the petitioner's product, if they are present, they have a significant effect in increasing leaching and plant uptake of heavy metals.<sup>6</sup>

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<sup>3</sup> UC Davis, IPM Online, Sulfur <http://www.ipm.ucdavis.edu/TOOLS/PNAI/pnaishow.php?id=67>

<sup>4</sup> Petition, OR-CAL BIO-SUL Slug and Snail Bait label.

<sup>5</sup> Ferric Phosphate, Petition to Remove NOSB Recommendation October, 2016.

<https://www.ams.usda.gov/sites/default/files/media/Ferric%20Phosphate%20to%20be%20removed%20Formal%20Rec.pdf>. Ferric Phosphate Supplemental Technical Review, July 2016.

<https://www.ams.usda.gov/sites/default/files/media/Ferric%20Phosphate%20to%20be%20removed%20Supplemental%20TR.pdf>.

<sup>6</sup> Chen, Y., Li, X. and Shen, Z., 2004. Leaching and uptake of heavy metals by ten different species of plants during an EDTA-assisted phytoextraction process. *Chemosphere*, 57(3), pp.187-196.

## **Sulfur is not essential as a molluscicide.**

Research presented in the petition shows the petitioner's sulfur product to be equal in efficacy to the ferric phosphate molluscicide Sluggo. In addition, the 2010 TR for ferric phosphate identified alternative substances and practices, and more have been identified by organic growers.<sup>7</sup>

## **Conclusion**

Beyond Pesticides concludes that sulfur should not be added to the National List as a molluscicide because it is hazardous to the environment and is not essential.

Thank you for your consideration of these comments.

Sincerely,



Terry Shistar, Ph.D.  
Board of Directors

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<sup>7</sup> Ferric phosphate TR, lines 509-537

<https://www.ams.usda.gov/sites/default/files/media/Ferric%20Phosphate%20to%20be%20removed%20TR.pdf> .

Rodale's OrganicLife, 6 Tricks To Wipe Out Snails And Slugs In Your Garden Naturally.

<https://www.rodalesorganiclife.com/garden/remove-slugs-naturally>.