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September 20, 2013

National Organic Standards Board
Fall 2013 Meeting
Louisville, KY

Re. CS: Sulfurous acid sunset

These comments are submitted on behalf of Beyond Pesticides. 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, 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 groups around the world.

Beyond Pesticides urges the Crops Subcommittee to oppose the relisting of sulfurous acid to correct alkalinity in soil that has accumulated carbonates and bicarbonates through irrigation water in more arid regions. There are potential adverse impacts that have not been evaluated by the NOSB. Furthermore, under the new sunset process announced by the NOP, unless the Crops Subcommittee (CS) proposes not to relist sulfurous acid, it will not be reviewed and considered by the full board as required by OFPA.

The most recent technical review that has been posted is dated March 23, 2010. Some crucial questions are not answered completely. In particular:

1. "The U.S. Environmental Protection Agency proposed to revoke the exemption from the requirement of a tolerance for sulfurous acid (U.S. Environmental Protection Agency – 40 CFR 180.910). " (Lines 80-81 of TR) EPA did in fact revoke the exemption. Is there a tolerance?
2. "Sulfurous acid has bio-cidal properties and will kill micro-organism in the immediate ecosystem…" (70) But "No eco-toxicity or environmental data are available on sulfurous acid." (145) This suggests that more information is needed about environmental impacts, particularly on the soil.
3. "From the limited information submitted by the petitioner on the manufacturing process, there appears to be fugitive quantities of sulfur dioxide produced in the manufacturing process. However, scrubbers capture the fugitive sulfur dioxide and get it into solution and prevent its release into the atmosphere. Also, nitrogen gas is ventilated to the environment during the manufacturing process." (137-140) Are these scrubbers part of the on-farm process for making sulfurous acid, or does this refer to industrial processes?

4. “Sulfurous acid is degraded to a hydrogen ion and a bi-sulfite ion (HSO3). Through microbial decomposition, the bi-sulfite ion is broken down into a hydrogen ion and a sulfate ion (SO4). The hydrogen ions are what give sulfurous acid its acidifying effects. If sulfurous acid is applied to the soil or through irrigation waters, the pH should be monitored closely. The sulfate ion can be used as a nutrient by plants and micro-organisms.” (184-188) This suggests that sulfurous acid might be considered a fertilizer.
5. “There are not any wholly natural products that could be substituted for sulfurous acid.” (222) This needs to be re-evaluated, considering, “Humic acid is one of the major components of humic substances, which are dark brown and major constituents of soil organic matter. Humus contributes to soil chemistry and physical quality and also is precursors of some fossil fuels. A substantial fraction of the mass of the humic acids is the carboxylic acid functional groups (Stevenson, 1994), which allow these molecules to chelate (bind) positively charged multivalent ions (Mg+2, Ca+2, Fe+2, Fe+3, as well as others). The chelation of ions is probably the most important role of humic acids with respect to living organisms and systems. By chelating the ions, they facilitate the uptake of these ions by several different mechanisms. One mechanism is the prevention of the precipitation of the multivalent ions. Another mechanism seems to be a direct and positive influence on their bio-availability. Therefore, the prevention of the precipitation of these multivalent ions and their increased bio-availability for uptake by plants should lessen the accumulation of salts in arid and semi-arid soils that are irrigated.” (229-239)
6. With regard to “Evaluation Question #14: Are there alternative practices that would make the use of the petitioned substance unnecessary?” consideration should be given to the role of humic acids (derived from compost), as described above, as well as preventing the build-up of alkaline salts. The build-up of alkaline salts results from unsustainable agricultural practices. As stated by Richard Cowen, Ph.D. of University of California Davis,

> Therefore, irrigation can only be maintained on a long-term basis in the following conditions. Water is applied in such a way that salt is not allowed to build up in the soil. Usually, this means that a lot of good-quality water is applied, and that drainage is rapid and efficient. Soils need a large infusion of fertilizer, to balance the flushing that is required to keep them salt-free.
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> A region that can be irrigated on a long-term basis thus has
>
> - An abundant supply of good water.
> - Well-drained soil.
> - Good regional drainage.
> - A supply of fertilizer for the soil.
>
> If any of these conditions fails, the system will eventually fail. Such failures have brought down civilizations that solved the engineering and logistic problems of designing, building, and maintaining irrigation systems, but neglected the long-term effects of salinization or nutrient depletion. Long-term problems of irrigation may

> not appear for a long time: today, for example, the valleys and basins of the San Joaquin, Rio Grande, Indus, Nile, Murray-Darling, Jordan, and Tigris-Euphrates are being irrigated, with progressive and visible increases in salinization and water-logging, and no remedy in sight. Only a few civilizations based on irrigating dry country have lasted for any length of time: sensible civilizations should not try to grow wetland crops in arid climates.
>
> The major success stories for civilizations based on agricultural irrigation are Egypt and China. The major stories of failure are happening right in front of us. In present-day California, a giant industry is trying to maintain an irrigation economy with a diminishing supply of poor-quality water, on clay soils with very poor natural drainage, in an almost landlocked plain with poor or non-existent regional drainage, applying water that has been stripped of its natural load of silt.[1]

Therefore, the NOSB needs to ask whether the "need" for sulfurous acid reflects unsustainable farming practices.

There is no new technical review (TR) posted for this substance. We would like to be able to review a TR before submitting comments. It does not appear that we will have a chance to submit comments to the docket that will be considered by the CS after a TR is posted, according to the new sunset process, so these comments are somewhat less detailed than we would like.

Finally, the NOP announcement concerning sunset allows for only one kind of recommendation to come out of the subcommittee –a recommendation against relisting the sunset substance. Even if the subcommittee believes that sulfurous acid should be relisted, we do not believe that it has the authority to act on behalf of the full board. If the CS does not recommend against relisting, it would be acting without adequate transparency and public input. Therefore, the CS must propose that sulfurous acid not be relisted.

Thank you for your consideration of these comments.

Sincerely,

Terry Shistar, Ph.D.
Board of Directors

[1] Richard Cowen, "Ancient Irrigation," Chapter 17 of *Essays on Geology, History, and People*. http://mygeologypage.ucdavis.edu/cowen/~GEL115/115CH17oldirrigation.html Accessed 12/29/2012.