



# BEYOND PESTICIDES

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National Organic Standards Board  
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## Re. CS: Streptomycin petition

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 supports the minority position of the Crops Subcommittee in opposition to the petition. The use of streptomycin to control fire blight in apples and pears meets none of the criteria of the Organic Foods Production Act (OFPA). It presents significant adverse impacts to human health and the environment, is incompatible with organic and sustainable agriculture, and is not essential.

We are shocked to see that the majority of the Crops Subcommittee found that streptomycin meets all three OFPA criteria. In 2011, the NOSB found that it failed all three. And this year, the majority recommends only a three-year extension on the expiration date. It is therefore remarkable that the majority found that streptomycin meets all three criteria.

### **1. Streptomycin use poses significant health and environmental threats.**

#### **a. Antibiotic resistance in human pathogens is a serious health threat, and use of antibiotics in the orchard contributes to that threat.**

Antibiotic resistance poses a serious threat to human health, and we are happy to see that both the majority and minority acknowledge that fact. We have all had either firsthand or secondhand experience with antibiotic resistant infections—whether it is a child with ear infections that fail to respond to one antibiotic after another, a relative who died from methicillin-resistant *Staphylococcus aureus* (MRSA), someone who acquired a multiply resistant infection in the hospital, or another experience with persistent and non-responsive infections. The Infectious Disease Society of America (IDSA) estimates the annual cost of antibiotic-resistant infections to be 21 to 34 billion dollars, and states, “Just one organism, methicillin-resistant *Staphylococcus aureus* (MRSA), kills more Americans

every year than emphysema, HIV/AIDS, Parkinson's disease, and homicide combined."<sup>1</sup> Thus, "Antimicrobial resistance is recognized as one of the greatest threats to human health worldwide."<sup>2</sup>

In April, the NOSB discussed the problem of antibiotic resistance thoroughly with respect to tetracycline, and heard from numerous commenters concerning the problem of antibiotic resistance with respect to use in orchards. I am not going to repeat all of the evidence concerning antibiotic resistance in general that was presented with regard to tetracycline. However, in view of the majority claims in their conclusion that, "There is no evidence that applications of antibiotics to orchards during bloom contributes to antibiotic-resistance in human pathogens. Human pathogens have not been found in orchards and would have to be present for the resistance genes to transfer," I would like to quote from the invited presentation of Dr. Glenn Morris of the Infectious Disease Society of America<sup>3</sup> (emphasis added) :

I would say that the concern is that, given what we know about the animal environment, there are concerns that the basic concepts are also going to be applicable to an orchard environment.

- You know, the obvious answer always is, well, we need more studies. The problem is these studies are very difficult. As I pointed out, particularly in the CAFO study, they really have to be done at a genetic level. They take time. One really needs to be sampling both human populations and the basically everything in the orchard environment. And they are very expensive.

- So consequently, you know, the question is are there sufficient data extrapolating from other settings to be able to move forward? What I would say is I think that there are sufficient data extrapolating from other settings.

- But I will also say it is extrapolating from other settings. And again, as Dr. Stockwell has pointed out, we are beginning to see some data coming out. There is, you know, there is a need for additional data. **The question is do we go ahead and move forward at this point and stop the usage, given the data that we do have?**

- **I think if you say we wait for more studies, we are potentially talking years and a lot of money. And again, while I'm not speaking officially for IDS, for the Infectious Disease Society of America, I believe there is a letter from IDSA in your docket, and again the feeling very strongly from the Infectious Disease Society for America is, you know, it's time to do it now.**

...

I can say that the approach that we have started to take increasingly, given the significant problems we're encountering in human medicine, is we need to try to limit or eliminate use in

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1 IDSA, "Facts About Antibiotic Resistance"

[http://www.idsociety.org/IDSA/Site\\_Map/Topics\\_of\\_Interest/Antimicrobial\\_Resistance/Public\\_Policy/Facts\\_about\\_Antibiotic\\_Resistance.aspx](http://www.idsociety.org/IDSA/Site_Map/Topics_of_Interest/Antimicrobial_Resistance/Public_Policy/Facts_about_Antibiotic_Resistance.aspx) accessed 2/14/2013.

2 IDSA, "Facts About Antibiotic Resistance"

3 Transcript of April 2013 NOSB meeting, page 700 line 13 through page 702 line 6; page 716 line 17 through page 717 line 21.

all instances, because all of this -- and again, even though, you know, what difference does it make? Well, there is a remote possibility that one could get selection of new tetracycline resistance gene tomorrow, when you spray, and that that could then move into human populations with devastating impact. Again, it's a very, very rare event. But what's fascinating is that when you work with the mathematical models, even very, very rare events can clearly have significant downstream populations because of the potential for amplification once they get into the human intestinal flora. And again, that's our concern.

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**It's not movement into a human pathogen, but movement into the overall ecology of your intestinal flora, where it may not even be detectable until you are in a setting where suddenly antibiotics are administered, and where suddenly you become very susceptible to farther infection.**

**b. The evidence for streptomycin is even more compelling than the evidence for tetracycline.**

The Crops Subcommittee recognized this fact in the section of the proposal titled "Differences between Streptomycin and Oxytetracycline" by acknowledging that

- Streptomycin may be used later in the growing season, which can lead to more residues.
- Residues of streptomycin have been detected in fruit, as documented by an Austrian study that found highest residues in the core.
- Multiple forms of resistance to streptomycin are known in fire blight bacteria, two of which are known to be carried on a plasmid, and hence transferable to other bacteria.
- The genes for streptomycin resistance that are carried on a plasmid are known to confer resistance to streptomycin in human pathogens.
- Streptomycin is classified as a critically important antimicrobial by the World Health Organization.

These facts are all acknowledged by both the majority and minority views in the Crops Subcommittee. They are supported by numerous studies cited in the subcommittee proposal.

**c. The fact that streptomycin is administered through injection does not affect the ability of ingestion of streptomycin or streptomycin-resistant bacteria to contribute to resistance in pathogens.**

Streptomycin is administered through injection because it is poorly absorbed through the gastrointestinal tract.<sup>4</sup> Referring back to the comments of Dr. Morris, we see that the presence in the gastrointestinal system of streptomycin or streptomycin-resistant bacteria can foster the growth and development of resistant bacteria, which will be able to provide the genes for resistance to human pathogens.

**2. Streptomycin use is incompatible with a system of organic and sustainable agriculture.**

As the minority opinion points out, the use of antibiotics in organic agriculture is contrary to consumer expectations.<sup>5</sup> It is inconsistent with practices in much of the rest of the world. Livestock farmers have

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<sup>4</sup> <http://www.rxmed.com/b.main/b2.pharmaceutical/b2.1.monographs/CPS-%20Monographs/CPS-%20%28General%20Monographs-%20S%29/STREPTOMYCIN%20SULFATE.html>

<sup>5</sup> As reported in "Organic pome and cherry production and marketing issues: Past, present and future," and presented to IFOAM, "Over the last ten years, the Hartman Group (Bellevue, Washington, USA) has studied changes in consumer attitudes, backgrounds, and buying characteristics related to the organic market. The Hartman Group surveyed about two

rightly asked why it antibiotic use is acceptable to save plants but not animals. Finally, reliance on antibiotics in not sustainable because pathogens will develop resistance.

### **3. Streptomycin use is not necessary.**

The most telling argument presented by the opponents to extended use is the fact that so many organic apple and pear growers are growing for the European Union, which does not allow antibiotics. Certainly, many of these growers like having antibiotics as a backup, but they are not necessary. Given the importance of the crisis of antibiotic resistant infectious diseases, we need to ask –along with the IDSA—will we have 'antibiotics to cure sick apples, or sick children?'<sup>6</sup>

Resistance to streptomycin in fire blight bacteria is widespread.

Proponents of extending the expiration date for streptomycin say, “Experience of pear growers especially in the 2013 season has shown that Blossom Protect has not worked well in the Pacific Northwest or California. It was an unusually warm spring.” They give no citation for this statement, so it is not possible to check to determine whether Blossom Protect did not work well in all of the Pacific Northwest and California, or only parts. Nor is it possible to determine how Blossom Protect was used. However, the efficacy of Blossom Protect in the Pacific Northwest and California has little relevance to the need for streptomycin. Fire blight resistance to streptomycin is so widespread that it is not recommended in the Pacific Northwest<sup>7</sup> and the California Central Valley.<sup>8</sup> In Coastal Mountain areas of California, use of streptomycin is recommended only in concert with tetracycline.<sup>9</sup>

### **4. It is time to finally say “No” to antibiotics in organic fruit.**

The proposed resolution does no more than the motion that was passed in 2011. Only biting the bullet and denying the petition for an extension will finally make organic production of apples and pears what the public expects. The organic apple industry does not have a good record of listening to science and public opinion about its favorite chemicals. A high percentage of today’s apple growers are the same people who ignored warnings about Alar for years, and caused the industry to collapse

thousand household consumers across four regions of the USA. They found that the ‘traditional’ properties suggested by ‘organic’ were no longer the same properties held by the new organic consumer. The survey indicated that traditional properties such as ‘locally-grown,’ Fair Trade, ‘tastes better,’ and sustainable production ranked at the bottom. The new organic consumers made it clear that they want, plain and simple, a product centered around the ‘absence of all health concerns,’ and the absence of pesticides, growth hormones, GMO’s, antibiotics, and BSE.”

<sup>6</sup> Physicians Ask EPA, 'Antibiotics To Cure Sick Apples, Or Sick Children?' Science Daily, August 4, 2008. <http://www.sciencedaily.com/releases/2008/07/080731173137.htm>

<sup>7</sup> Timothy J. Smith, 2012. Fire Blight Management in the Pacific Northwest USA. [http://county.wsu.edu/chelan-douglas/agriculture/treefruit/Pages/Fire\\_Blight.aspx](http://county.wsu.edu/chelan-douglas/agriculture/treefruit/Pages/Fire_Blight.aspx)

<sup>8</sup> Broc G. Zoller, 2011. Use of Streptomycin and Oxytetracycline for Fire Blight Management In Organic Pear Production in California. <http://www.tfrec.wsu.edu/pdfs/P2399.pdf>

<sup>9</sup> *Ibid.*

by ignoring those warnings. Now they are organic growers. That's great. But organic consumers have expectations that are not consistent with the use of antibiotics on their food, just as parents do not expect to have carcinogens in their children's food.

Thank you for your consideration of these comments.

Sincerely,

Terry Shistar, Ph.D.  
Board of Directors