



# BEYOND PESTICIDES

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March 27, 2014

National Organic Standards Board  
Spring 2014 Meeting  
San Antonio, TX

## 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 do not agree with the majority position of the Crops Subcommittee, which concludes, astoundingly, that streptomycin meets all three OFPA criteria. In 2011, the NOSB found that it failed all three criteria – impact on humans and environment, essential and availability criteria, and compatibility and consistency. And this year, the proponents of an extension of streptomycin use propose a shortened relisting period (three-year extension), even though they find that streptomycin meets all three criteria.

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

#### a. Antibiotic resistance in human pathogens is a serious public 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 this 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, according to IDSA, “Antimicrobial resistance is recognized as one of the greatest threats to human health worldwide.”<sup>2</sup>

In April 2013, 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 its use in orchards. We will not repeat all of the evidence concerning antibiotic resistance in general that was presented with regard to tetracycline. However, a statement of the majority, which is out of sync with the science, must be highlighted in this discussion. Despite the scientific findings to the contrary, the majority has concluded: “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.” At the Spring 2013 NOSB meeting, Glenn Morris, M.D.,<sup>3</sup> professor of infectious diseases in the University of Florida College of Medicine, stated the following (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**

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<sup>1</sup> 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.

<sup>2</sup> IDSA, “Facts About Antibiotic Resistance”

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

**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 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.

**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 further infection.**

**b. The evidence for bacterial resistance to 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. Those who argue that, because streptomycin is administered through injection when used as a human drug, the ingestion of streptomycin or streptomycin-resistance is irrelevant to resistance in human pathogens overlook some critical facts.**

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

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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>

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 rightly asked why antibiotic use is acceptable in crop but not in livestock production. Finally, reliance on antibiotics is 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, with alternative practices that reduce the threat of fire blight. 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>

Because we are already seeing widespread resistance to streptomycin in fire blight bacteria, its essentiality is called into question.

Proponents of extending the expiration **date for streptomycin say, “Oral and written public comments (Docket AMS-NOP-13-0049)** from pear growers noted that especially in the 2013 season, Blossom Protect did not work well in the Pacific Northwest and California. (The manufacturer of Blossom Protect does not agree with this statement and voiced their disagreement during the written public comment period prior to the canceled fall 2013 NOSB meeting.) It was an unusually warm spring. The copper material that is very promising has been delayed in registration until at least 2014 nationwide and 2015 in California.” They give no specific 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

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<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 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>

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>

We hope that all NOSB members have had a chance to read the new report, *Grower Lessons and Emerging Research for Developing an Integrated Non-Antibiotic Fire Blight Control Program in Organic Fruit* by Harold Ostenson and David Granatstein that describes the system used by growers who sell to the European Union. It can be found at: [http://organic-center.org/wp-content/uploads/2013/07/TOC\\_Report\\_Blight\\_2b.pdf](http://organic-center.org/wp-content/uploads/2013/07/TOC_Report_Blight_2b.pdf).

#### **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 conventional, chemical-intensive apple industry has not had a good track record of listening to science and public opinion about chemical use, resulting in a crisis in consumer confidence in production practices and a collapse in the marketplace during the “Alar scare.” We do not want to follow a similar path by betraying organic consumer concern about antibiotic use in organic food production. We are pleased that many formerly chemical-intensive growers have joined the ranks of organic producers, but do not want to make similar mistakes that undermine the organic market and the brand. Organic consumers have expectations that are not consistent with the use of antibiotics in food production, just as parents do not expect to have carcinogens used in the production of their children’s food.

Thank you for your consideration of these comments.

Sincerely,



Terry Shistar, Ph.D.  
Board of Directors

Attachment: New York Times, *Antibiotic-Resistant Infections Lead to 23,000 Deaths a Year, CDC Finds*, 2013.

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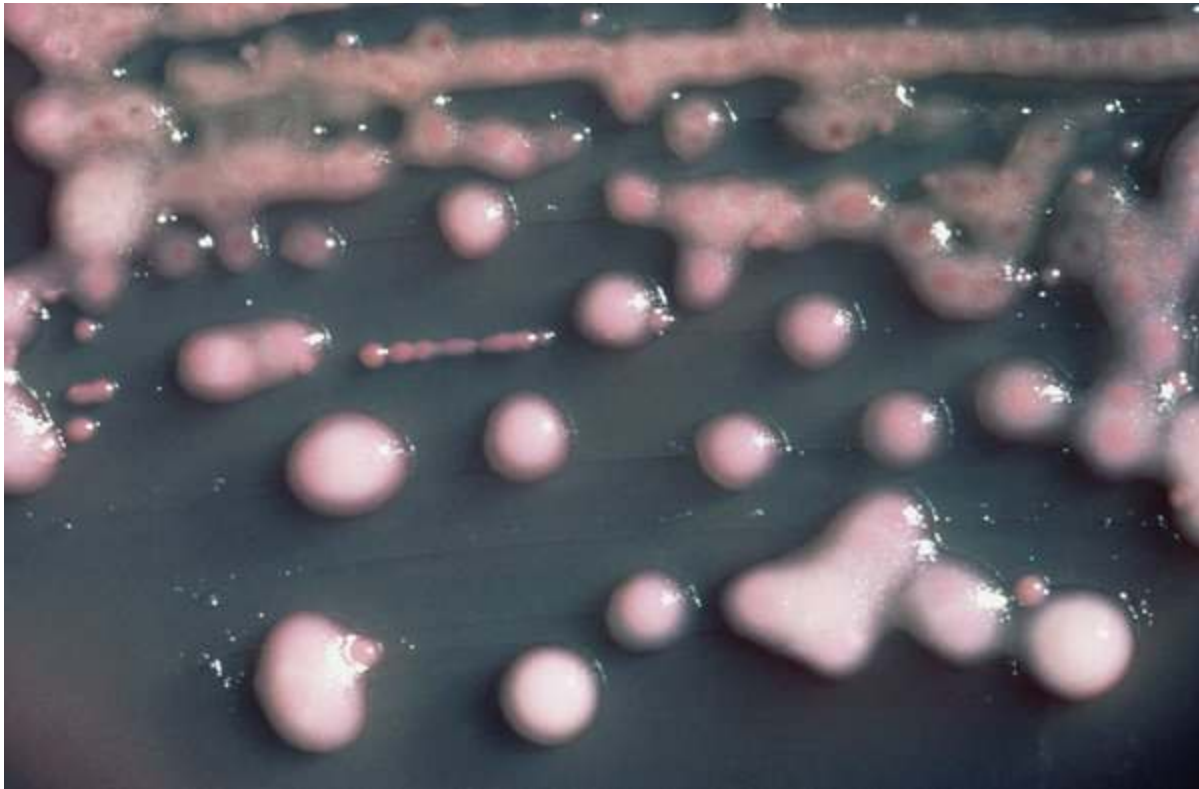
<sup>7</sup> Timothy J. Smith, 2012. Fire Blight Management in the Pacific Northwest USA. [http://county.wsu.edu/chelan-douglas/agriculture/treefruit/Pages/Fire\\_Blight.aspx](http://county.wsu.edu/chelan-douglas/agriculture/treefruit/Pages/Fire_Blight.aspx)

<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.*

[http://www.nytimes.com/2013/09/17/health/cdc-report-finds-23000-deaths-a-year-from-antibiotic-resistant-infections.html?\\_r=1&](http://www.nytimes.com/2013/09/17/health/cdc-report-finds-23000-deaths-a-year-from-antibiotic-resistant-infections.html?_r=1&)

## Antibiotic-Resistant Infections Lead to 23,000 Deaths a Year, C.D.C. Finds



Centers for Disease Control and Prevention, via Associated Press

One particularly lethal type of bacteria, known as CRE, has become resistant to nearly all antibiotics on the market.

By [SABRINA TAVERNISE](#)

Published: September 16, 2013

Federal health officials [reported Monday](#) that at least two million Americans fall ill from antibiotic-resistant bacteria every year and that at least 23,000 die from those infections, putting a hard number on a growing public health threat. It was the first time that federal authorities quantified the effects of organisms that many antibiotics are powerless to fight.

The number of deaths is substantially lower than previous estimates, in part because researchers from the Centers for Disease Control and Prevention stripped out cases in which a drug-resistant infection was present but not necessarily the cause of death. Infectious disease doctors have long

warned that antibiotic resistance — in which bacteria develop defenses against antibiotics used to kill them — threatens to return society to a time when people died from ordinary infections.

“They have come up with hard numbers where it has been only guesswork,” said Dr. Stuart B. Levy, a professor of microbiology at Tufts University and the president of the Alliance for the Prudent Use of Antibiotics. “This sets a baseline we can all believe in.”

In 2007, [the C.D.C. estimated](#) that about 100,000 people died every year of infections they developed while in hospitals. Most of those infections were believed to be resistant to some antibiotics, but not necessarily the most widely used ones. And it was unclear how many of the deaths were caused by the drug-resistant infections. Monday’s report quantifies that.

Dr. Steven L. Solomon, the director of the C.D.C.’s office of antimicrobial resistance, acknowledged that the report underestimated the numbers, but said that was by design. Researchers were instructed to be conservative and to base their calculations only on deaths that were a direct result of a drug-resistant bacterial infection.

“This is a floor,” Dr. Solomon said. “We wanted the cleanest number, the least subjective number.”

One point of contention has been the extent to which industrial-scale animal farming contributes to the problem of antibiotic-resistant infections in humans. The government has estimated that more than 70 percent of antibiotics in the United States are given to animals. Companies use them to prevent sickness when animals are packed together in ways that breed infection. They also use them to make animals grow faster, though federal authorities are trying to stop that.

The report said that “much of antibiotic use in animals is unnecessary and inappropriate and makes everyone less safe.” It also said that about half of antibiotic use in people is inappropriate.

The 114-page report counts infections from 17 drug-resistant bacteria and one fungus, pathogens that Dr. Solomon said caused an overwhelming majority of drug-resistant bacterial infections in the country. It drew on data from five disease-tracking systems, including a major count of bacterial infections reported in hospitals in 10 different areas across the country. The count of deaths was based on mathematical models — one for each resistant organism.

One particularly lethal type of drug-resistant bacteria, known as CRE, has become resistant to nearly all antibiotics on the market. It is still relatively rare, causing just 600 deaths a year, but researchers have identified it in health care facilities in 44 states.

“We are getting closer and closer to the cliff,” said Dr. Michael Bell, a C.D.C. official who presented the data.

Infections from one of the most pervasive types of drug-resistant bacteria tracked in the report, MRSA, have been declining. Invasive MRSA infections in hospitals [went down by more than half](#) from 2005 to 2011, according to a paper published Monday in the journal JAMA Internal Medicine. However, the number of invasive MRSA infections picked up outside health care

settings has not changed much, and researchers pointed out that the number of those types of infections has for the first time outstripped the number acquired in hospitals.

“This is a really big switch,” said Eli Perencevich, an infectious disease epidemiologist at the University of Iowa.

Hospitals have taken steps to prevent drug-resistant infections, but less is known about preventing infections outside hospitals, clinics and nursing homes. There has been little research, for example, on the extent to which antibiotic use on industrial farms contributes to resistant germs in people. The farm animal industry has been reluctant to allow data collection, and very few studies of the link have been done.

In [a separate study](#) in JAMA Internal Medicine on Monday, researchers from the Johns Hopkins Bloomberg School of Public Health sifted through health records of more than 440,000 people in the Geisinger Health System, which operates a network of clinics and hospitals in Pennsylvania, and found that patients who lived near farms and areas where manure was dumped were 38 percent more likely to develop a MRSA infection, particularly of soft tissue or skin, researchers found.

Some researchers not involved in the study said it offered evidence that living near farms increased one’s chances of developing a MRSA infection. But the study did not test farm animals or soil for MRSA, nor did it find evidence of the type of MRSA that is typically associated with farm animals, and others said the infections might have been caused by something other than antibiotics on farms.

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