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Environmental Protection Agency  
1200 Pennsylvania Ave. NW  
Washington DC 20460-0001  
May 15, 2019

**Re: Proposed Interim Registration Review Decisions for tree fruit antibiotics: oxytetracycline: EPA-HQ-OPP-2008-0686; streptomycin: EPA-HQ-OPP-2008-0687**  
*The following comments are submitted in response to EPA's proposed interim registration review decision regarding oxytetracycline and streptomycin. These comments are being submitted on behalf of the Western IPM Center, and provide input from Northwest commodities and university experts.*

In the Northwest, oxytetracycline and streptomycin are used by the tree fruit industry to control the fire blight pathogen. In most seasons, growers need to apply antibiotics twice during bloom, but there are many exceptions. The increased utilization of 'disease risk models' by growers likely has reduced the number of applications of oxytetracycline in orchards, and helped target application timing for increased efficacy. In some years, the risk of disease in a particular orchard may be low, and the material might not be applied. In other years, disease risk can be extremely high, and trees can be lost without timely antibiotic interventions.

Over the last several years, fire blight has been severe in many areas throughout the Northwest. In severely impacted orchards, expert recommendations include the use of antibiotic mixtures in extended programs to improve control and eliminate disease. Some long blooming cultivars such as Pink Lady apple, and orchards of mixed cultivars (common in pear), can require 3-4 antibiotic applications in some seasons. In California, the extended bloom period in pears and apples can require up to six full antibiotic applications to effectively control fire blight.

Due to already developed resistance to streptomycin, this product is used only once per season. Another product commonly used, kasugamycin (Kasumin), has similar use limitations. However, experts currently recommend mixing in oxytetracycline with kasugamycin and streptomycin applications in situations where improved control is needed, and for added resistance management.

Oxytetracycline has been in use for fire blight management since the 1970s, and to date, there has not been a documented case of resistance development in the fire blight pathogen. Further, attempts by scientists to select resistant pathogen strains in the lab (artificially) have been unsuccessful. In contrast, this has been easily successful with both streptomycin and kasugamycin. Consequently, oxytetracycline is considered a critical material that has shown little risk of developing resistance.



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Paradoxically, limiting oxytetracycline use could hasten resistance development to streptomycin, and perhaps lead to resistance development to kasugamycin, as both materials are currently considered at risk for resistance development.

Oxytetracycline is a bacteriostatic material (as opposed to bactericidal) with a short half-life (a few days), and thus is only partially effective and does not impose a strong selection pressure on the pathogen population.

Experts caution against applying the same ideas of 'use-limitation for antibiotic resistance management' to every antibiotic material without considering the specific properties of each material, and their history and usage. Based on these factors, it is recommended to EPA that label language for oxytetracycline could limit users to two consecutive *solitary* applications before alternating or mixing with another bactericide of a different mode of action.

Please feel free to contact me with any further questions about usage of these antibiotics in Northwest tree fruits.

Respectfully,

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*Katie Murray is Statewide IPM Coordinator for Oregon State University, and the Western IPM Center's Northwest IPM Network Coordinator. Katie has expertise in agricultural stakeholder engagement and consultation methods that include understanding current pesticide usage trends, and pesticide compatibility with IPM.*

*The IPPC is the hub for Oregon's statewide IPM program, and the main IPM resource in Oregon for farmers, researchers, and extension agents. The expertise represented in the IPPC is highly interdisciplinary and includes toxicology, entomology, horticulture, adult education, public health, and anthropology, all with an IPM focus. Within the IPPC, we have a collective expertise in understanding the use of pesticides within IPM programs with a goal of protecting the economic, environmental and human health interests of our stakeholders.*

*To compile comments, input is actively solicited from stakeholders throughout the Pacific Northwest in an effort to convey use patterns, benefits, potential impacts, and the availability and efficacy of alternatives. These comments largely reflect expert testimony from stakeholders, including research and extension experts as well as farmers and commodity groups. The comments do not imply endorsement by Oregon State University or the Western IPM Center.*