Organic Tree Fruit Association
Position on
Antibiotic Use on Apples and Pears
March 14, 2013

The Organic Tree Fruit Association (OTFA) is a mid-west based organization of tree fruit growers that follow organic standards. Some of our members are certified organic while others are not, but what all members have in common is a commitment to growing practices that are healthy for the consumer, trees, soil and larger environment. Some of our members are diversified farmers with a small number of trees, while other members have 50-200 acres of various tree fruits.

The following response addresses both tetracycline and streptomycin. While we recognize that the petition in question addresses tetracycline, we believe that both products should be addressed in tandem. Further, our comments regarding future rule making assumes that these products will continue to be produced synthetically. Future research and production developments that might bring about antibiotics produced naturally should be considered independently.

Modern orchards are planted with dwarf trees in high densities —800-2000 trees per acre— resulting in investments as high as $20,000 per acre before the first crop is harvested. High density plantings have become the norm for a number of good reasons including: greatly increased yield, earlier first harvests, minimization of disease and pest control inputs, easier and safer orchard care, and a more rapid return on investment, High density orchards are very susceptible to a fire blight outbreak in the early years, typically between three and seven years after planting. At this stage of orchard development the trees are growing vigorously and do not have the natural level of resistance that they will develop after the trees reach maturity. In this early growing stage the fire blight pathogen has the potential to travel quickly from the site of infection (flowers or damaged tree tissue). It is not uncommon for an orchard in this age range to lose over 50% of the trees if an infection occurs when the conditions are right. Without adequate post-infection control, an infection of this magnitude will result in loss of the entire block.

Currently, the only 'curative' inputs available to organic growers are streptomycin and oxy-tetracycline. These antibiotics are derived from naturally occurring soil organisms but are available commercially through processes that result in the products being classified as synthetic. Thus, use of these products has fallen under the synthetic exception rules. It is our understanding that every discussion of use of antibiotics since the exception was first granted has been fairly sharply divided between those who understand the critical, functional role antibiotics play

in apple and pear production and those who believe antibiotics have no part in any organic system.

The OTFA would like to propose a middle ground solution. We understand that there are others who are also seeking a centrist position. While our proposal may not reflect the same elements as other middle ground or centrist proposals, we believe this sort of approach is necessary to move forward on this important and contentious issue. We believe that any discussion of a long-term solution must include recognition of the following:

1. There is currently no viable alternative to antibiotic use for post-blossom post-infection fire blight control. Some promising new products for prevention of fire blight during the blossom phase are making their way to the marketplace. However, the long-term utility in prevention of a serious outbreak of fire blight in a 'perfect storm' conditions is not yet known. In fact, preliminary research at Michigan State University indicates that one product that has received much attention nationally (Blossom Protect) does **NOT** work in Michigan's growing conditions.

2. Blight resistant rootstocks and tolerant cultivars, often touted as the best solution for organic apple production, are, in fact, no solution at all. Orchards, once planted, must stay in production for many years to be economically viable. And, even if orchardists decided to replace all currently planted orchards with disease tolerant trees, true disease resistant apple rootstocks (some of the Geneva series) are not widely available and do not confer resistance to the fruiting portion of the tree. Further, these rootstocks have little trial data regarding their suitability throughout the apple growing range of the United States. While some apple cultivars are known to be fire blight resistant, these cultivars do not necessarily grow well in all apple growing regions of the United States and none are fully resistant. Further, fire blight resistance or tolerance is not at all the same as immunity. For instance, 'Red Delicious' has the greatest level of resistance of all apple cultivars in wide commercial use, but can still suffer 45-65% infection of blossoms if untreated. While certain pear rootstocks may be somewhat resistant, pear cultivars show less variation in resistance and are generally more susceptible than apples. The "blight resistant" cultivars that have been developed by various pear breeding programs around the world have not yet proven to be commercially viable with growers or consumers, and have only shown some level of resistance, but not immunity, to fire blight.

3. The United States is a very large place with diverse climatic and soil conditions. What works in the Northwest may not work at all in the Midwest, and the Midwest is different from the Northeast or the Mid-Atlantic. Organic systems must reflect the realities of the geography, climate, soils and other factors of each locale. This is as true of fire blight control strategies and mechanisms as it is of any other aspect of an organic system in orchards.

There is a very clear divide between the horticultural practices used in Western orchards compared to Eastern orchards as the majority of the former are grown under Mediterranean conditions while the latter under temperate conditions.

4. Inappropriate and overuse of streptomycin has resulted in antibiotic resistant strains of fire blight in some orchards in the Northwest and Michigan. Indiscriminate or 'cover spray' approaches to antibiotic use is incompatible with an organic systems approach to fruit growing.

5. Objections to the use of antibiotics for fireblight management tend to be philosophically rather than scientifically based. The most common science based arguments have been based on: 1) a fear that antibiotic use in orchards will lead to the development of antibiotic resistant human or animal pathogens and/or 2) that antibiotics will find their way into the food system via treated tree fruit. Based on a review of the literature neither of these arguments has ANY scientific merit. Current strains of antibiotic resistant human and animal pathogens have been conclusively linked to the overuse of antibiotics in **ANIMAL** and **MEDICAL** systems. However, no such linkage has been shown for antibiotics applied to a plant pathogen. In fact, quite to the contrary, recently published research from the University of Wisconsin — based on ten years of annual antibiotic application to several orchards— showed no increase in antibiotic resistant microorganisms when compared to unsprayed orchard environments. (See Effect of Streptomycin Treatment on Bacterial Community Structure in the Apple Phyllosphere. http://www.plosone.org/article/info:doi/10.1371/journal.pone.0037131) Another study, seeking to quantify antibiotic residues in apples showed that residues were unquantifiable —so low as to be of little or no concern. (http://jac.oxfordjournals.org/content/63/5/1076.2.full.)

6. Some organic consumers believe that use of antibiotics is incompatible with organic agriculture. Various 'consumer advocate' groups who oppose all use of antibiotics would have us believe that they speak for the majority of organic consumers. However, to our knowledge, national survey data have yet to be collected regarding this issue, and what data we have seen seems to be skewed by the collection methods. Despite this, we believe recognition of concern and outright opposition by a segment of organic consumers, and some growers, is necessary and any long-term solution to antibiotic use must reflect this recognition.

With these factors in mind, we propose that oxy-tetracycline, and streptomycine, use as an emergency post-infection control be permitted with the following provisions.

1. Allow the current rule to expire as scheduled in 2014.

2. Develop a new rule that will sunset in 2019 that allows use of these materials post-infection as documented by both computer models such as Cougar blight and orchard observation. The orchard's Organic System Plan must address prevention through measures such as sanitation and pruning, as well as use of other preventive inputs when the local situations dictate such use (i.e. known infections in the last year). This period will allow further trials of new products to assess their utility in controlling fire blight outbreaks in all phases of a growing cycle and after an infection has actually occurred. It will also allow increased quantities of fire blight resistant rootstocks to reach the marketplace.

3. In 2019, transition to a even more restrictive rule that allows use of antibiotics in emergency situations in order to save an orchard planting. Under this rule an organic orchard will keep its organic certification, but the fruit treated with antibiotics will not be sold as organic. Sacrificing one year's crop in order to save an entire block of trees seems a reasonable compromise and will guarantee no antibiotics are applied to an organic crop while ensuring that growers are not forced to remove large numbers of tree from certification.

We believe these restrictions will allow growers to save their orchards in the face of a major fire blight outbreak while still protecting the organic 'brand'. We trust that all stakeholders and parties in this critical discussion will be able to look at this middle ground and find common ground.

Adopted by the OTFA Board of Directors this 14th day of March, 2013