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National Organics Standards Board

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Hoch Orchard and Gardens Position on Antibiotics in Organic Fruit Production

This topic is creating concern in both commercial fruit production and among organic advocacy groups. This paper contains my views on the use of antibiotics in fruit production and a proposal to settle this issue using a three step phase out. I hope the board will consider this proposal. Feel free to contact me directly if you have questions or need something clarified.

It appears antibiotics will be phased out of organic production sooner or later and there are many opinions on how long this phase out should take. While I would prefer this decision be based entirely on the science and concept behind the National Organic Program, I understand there are many other factors that will play a role in this decision. Organic advocates fear the public will lose confidence in the organic program if the use of antibiotics on the fruit becomes publicized. Large scale apple growers with large plantings of susceptible varieties are uncomfortable with the new products that help reduce the risk of fire blight. Marketers fear many growers will drop out of organic production and shift fruit to the conventional market. This could drop the availability of organic apples below the critical mass to keep shelf space in major grocery chains and have a negative effect on demand and pricing. At the same time this shift of fruit into the conventional market could cause downward price pressure on all apple sales.

Antibiotic or synthetic?

I understand the value of antibiotics in tree fruit production but I also understand the concept of organics. While both streptomycin and oxytetracycline are naturally occurring substances, the commercial products are not produced organically. This makes them approved synthetic products according to the NOP. In my opinion all synthetic products should be continually reviewed and be prohibited from organic production when organic options become available. Since there no organic versions of these products and there are several organic products that help prevent fire blight; I feel that the two conventionally manufactured antibiotics should be phased out of organic production in the United States.

If the manufacturers of oxytet or strep come up with an organic process there should be no question on their allowance in the NOP. If a new natural product is developed that kills fire blight bacteria it will be classified as a new antibiotic! If this is the case, will the NOSB have the same debate over antibiotics? I certainly hope not. While any product that kills or suppresses microorganisms will have a negative effect on the soil or the phyllosphere, antibiotics used infrequently in the orchard environment have much less of an impact than many of the approved organic pesticides.

Antibiotic Resistant Human Pathogens

There has been a lot of discussion within the NOSB over the potential of antibiotics applied to an orchard leading to anti biotic resistant human pathogens. I have found little evidence to support this fear. In the case of antibiotics, there are a few studies showing antibiotics in animal feed can lead to

resistant animal pathogens, but there are no studies that I have heard of, showing that occasional treatment of apple trees can lead to resistance developing in animal or human pathogens. There is now a very conclusive study done in Wisconsin showing 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>

It is my opinion that antibiotics should be highly restricted because of the affect on microorganisms, consumer perception of organic fruit being free of antibiotics, and to reduce the potential of developing resistance plant pathogens; NOT because of potential development of resistant human pathogens! I feel antibiotics are over used in some regions. Even though predictive models and weather data recorders are used routinely, broad application of antibiotics are used on entire orchards, regardless of orchard age, rootstock or scion resistance, or presence of inoculum. These practices will lead to more antibiotic resistant strains of fire blight.

Loss of Orchards from Fire Blight

In the modern orchard an apple grower can have as much as \$20,000 invested per acre before the first crop is harvested. While the return on investment and production efficiency is high, these high density orchards are very susceptible to a fire blight outbreak in the early years. This is typically between three and seven years after planting. At this stage 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 fast growing stage the fire blight pathogen travels farther and faster from the infection site (flowers or damaged tissue). It is not uncommon for an orchard in this age range to lose well over 50% of the trees if an infection occurs when the conditions are right. Quite often an infection of this degree can only be dealt with by removing the entire block. There is no comparable degree of risk in all of organic agriculture.

National Organic Coalition Centrist Proposal

I have read the Centrist Position on antibiotics produced by the National Organic Coalition. While this proposal should reduce the amount of antibiotics used in organic production, I feel that its implementation will require a large amount of training and be very burdensome on certifiers and the NOP. If the intent of the NOSB is to allow the antibiotics to sunset in three or four years, the implementation of the NOC program will hardly be worth the effort.

Long Range comprehensive plan

First of all the NOSB needs to address the issue of antibiotic use vs. allowed synthetics. If a natural product is developed that kills the fireblight bacteria, it will be an organic antibiotic. How will this fit in to the NOP? When taking into consideration market issues, consumer fears, scientific data, and the environmental costs of replanting an orchard, a long range plan for the phase out of Streptomycin and Oxytetracycline is merited.

Three Steps for the NOP phase out synthetic antibiotics

Step one

Create a set of restrictions based on the NOC centrist proposal. This would apply to any antibiotic (synthetic or organic) and would be implemented in November of 2014.

Step two

Allow the use of oxytet to sunset in October of 2014 as scheduled. Create a new NOP rule allowing the 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. Unlike synthetic pesticides, antibiotics break down quickly on a plant surface and lose the ability to affect microorganisms after a few weeks. This is unlike antibiotics fed to animals and excreted into manure and incorporated into the soil; where antibiotics can persist for many months. 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.

Step three

In five years remove all synthetic antibiotics regardless of progress on new products. No more petitions, no more extensions. The restrictions in step one will stay in place and apply to organic antibiotics to come. This needs to be addressed because organic antibiotics should be restricted, and they would have to be allowed regardless of consumer concerns!

The long range plan above will bring an end to the ongoing petitions to delay the sunset of individual antibiotics. This plan will set hard dates for growers and researchers to implement new fire blight control strategies and will allow growers realistic timelines to start planting fire blight immune rootstock. This will also give the NOP a reasonable timeline to create new rules one at a time over a period of several years. This should avoid the need to create a hastily written rule that will affect the livelihood and environmental impact of apple growers and their farms.

Harry Hoch