September 30, 2026

Ms. Michelle Arsenault
Advisory Committee Specialist
National Organic Standards Board
USDA-AMS-NOP
1400 Independence Avenue SW
Room 2642-S, STOP 0268
Washington, DC 20250-0268

RE: Docket Number AMS-NOP-26-0892; Meeting of the National Organic Standards Board

Dear Ms. Arsenault,

The Northwest Horticultural Council (NHC) appreciates the opportunity to comment on the National Organic Standards Board (NOSB) sunset reviews, proposals, and discussion documents listed in the NOSB meeting materials posted in the *U.S. Federal Register* on August 14, 2026. The NHC welcomes the five new members to the NOSB, and thanks all of the members for their service to the organic industry. We acknowledge the many hours of work it takes to prepare each proposal, discussion document, and material sunset review.

The NHC represents the growers, packers, and shippers of apples, pears, and sweet cherries in Idaho, Oregon, and Washington. The Pacific Northwest is the leading region in the United States in the production of organic tree fruit. For the 2024-2025 season, nearly 16 million forty-pound boxes of organic apples were harvested from 28,000 acres in Washington, according to the Washington State Tree Fruit Association. There is also a significant volume of organic pears and cherries grown in our region, with approximately 6,500 acres planted across the Pacific Northwest.

According to the USDA National Agricultural Statistics Service (NASS), Washington state is home to 89 percent of the reported organic apple acres in the U.S., producing 97 percent of the nation's reported fresh organic apple volume. Washington also has 71 percent of the organic pear acreage, representing 60 percent of the volume in the country, and 83 percent of the sweet cherry acreage, representing 93 percent of the nationwide volume.

The total value of the organic apple, pear, and cherry crops in the Pacific Northwest topped $640 million in 2021, of which organic apples alone accounted for approximately $604 million (USDA NASS, 2022). In fact, organic tree fruit generated more than 50 percent of the farmgate value of all organic products grown in Washington state that year.

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Many of the materials under sunset review are vital to the continued production of organic apples, cherries, and pears in the Pacific Northwest. Organic tree fruit growing, handling, and shipping are complex and costly processes, and industry has a limited set of tools to manage harmful pests and diseases. Our farmers must routinely manage pests that have the potential to make fruit unfit for consumption, or suppress tree growth and overall fruit production. In the Pacific Northwest, growers must protect fruit from injury by 33 direct insect pests (those that feed directly on the fruit), 47 indirect insect pests (those that feed on the tree), two common bacterial pathogens, eight fungal pathogens, ten viral pathogens, five phytoplasmas and viroids, and seven postharvest diseases (Washington State University, 2026). Invasive or emerging pests are also a continual threat.

In addition to pests and diseases that affect the fruit or the tree, our growers and packers must also combat foodborne pathogens – such as *Listeria monocytogenes*, pathogenic *E. coli*, and *Salmonella* – that are naturally occurring in the environment. Growers and packers must have access to the sanitizers necessary to prevent cross-contamination on food contact surfaces through the harvest and packing processes, and to comply with food safety regulatory and customer-based requirements. Access to different types of sanitizers with different modes of action is critical to sanitizing the various types of food contact surfaces and combating the multitude of microorganisms that can be found in fruit-growing and fruit-packing environments.

The Organic Foods Production Act (OFPA) states that synthetic substances may be permitted if, among other criteria, the substance is deemed "necessary to the production or handling of the agricultural product because of the unavailability of wholly natural substitute products." We ask NOSB members to be cognizant of the impacts to the practical abilities of organic growers and packers to produce organic food in a manner that allows for effective management of threats from plant pests and diseases and human pathogens when considering whether a listed material truly has a wholly natural alternative. In particular, the evolution of insect, weed, and microbe resistance means that producers and packers need access to multiple tools to deploy season-long management programs that allow for the rotation of products with differing modes of action to manage the evolution of resistance and therefore to be able to continue growing and handling organic food. A single product often cannot be considered a full substitute for another, and as such, should not be considered so by the NOSB.

Not all alternatives provide equal efficacy in controlling the target pest organism; nor is it a certainty that an alternative product is compatible with all pest management or food safety programs in all regions of the country to manage varying pest and pathogen complexes under a myriad of different weather and soil conditions. In addition, impacts to material supply chains are another important consideration when deliberating whether to delist existing organic materials. Manufacturers and input distributors may not have the capacity to easily ramp up production and distribution of alternative products to fill a void created by delisting a material, leaving end users without the materials they need to produce and pack organic produce.

Below are the Pacific Northwest tree fruit industry's comments to the NOSB on the materials under sunset review that are of particular importance to organic tree fruit growers and packers, as well as our feedback on other petitions and proposals before the Board. We appreciate NOSB members' careful consideration of these materials and your work to understand how they are used and why they are important (and in many cases critical) to organic tree fruit production and packing.

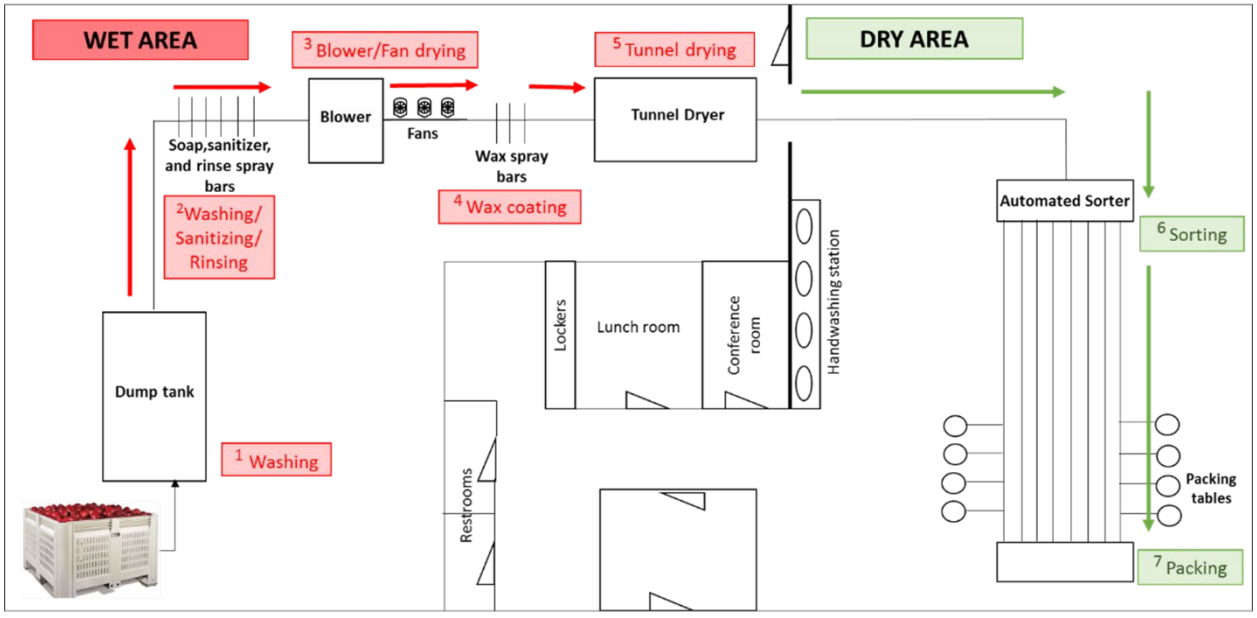
Sanitizers and Disinfectants

Protecting public health is a top priority of the tree fruit growers and packers the NHC represents. Fresh produce is grown in the open environment where dangerous, and sometimes deadly, pathogens exist. It is impossible to eliminate the potential for these pathogens to reach the surface of produce in the field, and therefore it is critical for growers and packers to have the tools necessary to combat these pathogens before they reach the consumer. This includes cleaning the produce itself (although no "kill step" exists for fresh produce), as well as cleaning and sanitizing all food contact surfaces (including water) to reduce the potential for cross-contamination.

In order to understand the important role that various sanitizers play throughout tree fruit production, it is first essential to understand the process by which fruit is packed, stored, and shipped. After harvest, some organic apples may be stored for up to 12 months in either traditional refrigerated storage or controlled atmosphere storage. Organic pears are also placed in cold storage for several months after harvest. Following this storage period, when it is time to prepare the fruit for shipment to the customer, apples and pears are run over a packing line to be washed, graded, and placed in various packaging.

Packing lines consist of a wet area and a dry area (see Figure 1 below). The wet area consists of a water flume system called a dump tank, various conveyor systems, an array of spray bars for soap, rinse, and sanitizer application, and a fan and heated tunnel system to dry the fruit. Wax coatings are applied on an as-needed basis to help protect against decay and reduce scuffing. The main parts of the dry area are an optical sorter/grader and various packaging stations.

Figure 1: Depiction of a Typical Apple Packing Line



Source: Dr. Faith Critzer, University of Georgia

Packing lines for sweet cherries are largely similar to those for apples and pears, but extra care is taken to mitigate mechanical injuries. Cherries are susceptible to bruising (also known as pitting), making them difficult to handle. Before cherries are sorted and sized, they go through a cluster

cutter to cut stems of clusters into single cherries with shorter stems. Hydrocooling is an important step to bring down the temperature of cherries immediately following picking (and before arriving at the packinghouse) and specific sanitizers are used to disinfect the water in cherry hydrocoolers.

Tree fruit growers and packers need access to more than one type of sanitizer to be able to achieve the critical objective of delivering a safe and healthful product to consumers year-round. Each sanitizer and disinfectant on the National List has specific benefits that make it the most effective and appropriate choice for a particular circumstance. It is also important to note that different products with different modes of action are regularly used in postharvest handling in order to manage the vast array of public health microorganisms, which include viral, protozoa, and bacterial targets. In addition to the need to attack these pathogens from multiple directions, the maintenance of multiple sanitizers is also important because of concerns that reliance on a single type of sanitizer could lead to active ingredient resistance evolution by the pathogens. Therefore, growers and packers must have access to multiple products to combat the full plethora of pathogens of human health concern and to manage their potential for resistance development. Many packers rely on an environmental monitoring program to assess when to change products for a particular action – whether it be a sanitizer used on a particular food contact surface, or applied to water systems such as hydrocoolers, dump tanks, flumes, and spray bars.

For example, a grower may use peracetic acid (PAA) to sanitize food contact surfaces in the field. Once the fruit reaches the packinghouse, the packer may use calcium hypochlorite as a wash water sanitizer and PAA in the spray bars. At the end of the workday, the lines may be sanitized using chlorine dioxide or ozone, while sodium hypochlorite may be used to sanitize the cold storage rooms. This regimen is changed should environmental monitoring data show that the effectiveness of sanitation on a particular food contact surface is reduced.

Lastly, in addition to protecting human health, these sanitizers are needed for growers and packers to comply with the requirements of the Food Safety Modernization Act's Produce Safety rule and Preventive Controls for Human Food rule.

Handling Subcommittee (HS) and Crops Subcommittee (CS)

2028 Crops and Handling Sunset Reviews

The following comments are in strong support of the continued listing of chlorine materials under both Crops and Handling for organic tree fruit production and packing.

§205.601(a)(2) Chlorine materials – as algicide, disinfectants, and sanitizer, including irrigation system cleaning systems, for preharvest use

§205.605(b)(12) Chlorine materials – disinfecting and sanitizing food contact surfaces, equipment, and facilities

(i) Calcium hypochlorite

The NHC supports maintaining calcium hypochlorite on the National List. It is used as an algaecide, disinfectant, and sanitizer. Calcium hypochlorite is commonly used to disinfect water in cherry hydrocoolers, which are used to cool fruit postharvest, extending its retail shelf life.

Hydrocoolers can be transported to sites near the orchard in order to hydrocool cherries within an hour of harvest. Calcium hypochlorite is favored in hydrocooler use because it is available in a stable tablet form that is safe and easy to handle, including during transport. It is also not as corrosive as peracetic acid or ozone. Calcium hypochlorite has several other uses. It is widely used on packing lines to sanitize food contact surfaces, as a disinfectant in wash water, and as a fruit wash. Once again, worker safety and ease of handling is a significant factor in the decision to use calcium hypochlorite. In addition, it is easier than other products to keep use levels at peak efficiency and prevent over-application, due to the availability of robust, accurate, and inexpensive monitoring and control systems. Unlike sodium hypochlorite, it does not easily get tied up by organic matter or create salts in water.

(ii) Chlorine dioxide
The NHC supports maintaining chlorine dioxide on the National List. Chlorine dioxide is used for disinfecting and sanitizing food contact surfaces and storage rooms prior to use. It is equally as effective as PAA in penetrating biofilms, without being as corrosive – making it a better option for certain food contact surfaces or in rotation on a limited basis for biofilm control. It is also often applied through spray bars on the packing line as a fruit rinse, as it gasses off during application. The lack of any residue also means that it does not adversely affect a packinghouse's wastewater. In addition, chlorine dioxide can be used in dump tanks. It is commonly used in commercial organic tree fruit packing facilities, and some packers are investigating expanding its use to other equipment on the dry end of the facility to limit cross-contamination caused by water-applied sanitizers.

(iii) Hypochlorous acid
The NHC supports maintaining hypochlorous acid on the National List. Electrolyzed water, which generates hypochlorous acid, is being used by more and more packinghouses in the Pacific Northwest and has become an important material for flume sanitation on packing lines. It also has the benefit of leaving no residue. In addition, hypochlorous acid is an important material in the orchard, being used in certain instances to help control fire blight (*Erwinia amylovora*).

(iv) Sodium hypochlorite
The NHC supports maintaining sodium hypochlorite on the National List. Sodium hypochlorite is widely used in packinghouses to disinfect and sanitize food contact surfaces and cold storage rooms. It is also commonly used in packinghouse dump tanks. A volume of research has shown this product to be effective. Benefits include that it is more portable than calcium hypochlorite (i.e., no dilution system is required), and it does not require fresh potable water for use. It is also less corrosive than PAA or ozone. Like calcium hypochlorite, it is easier to keep use levels at peak efficiency and prevent over-application, due to the availability of robust, accurate, and inexpensive monitoring and control systems. Additionally, an increasing number of organic tree fruit growers use sodium hypochlorite to disinfect orchard equipment being used to remove fire blight.

Crops Subcommittee (CS)

Proposal: Chitosan (addition to §205.601(j) and §205.601(i)) - petitioned
Pacific Northwest organic tree fruit growers are interested in the possibilities of chitosan. Its potential benefits in our region's organic orchards as a plant disease control material or as a crop

and soil amendment is still an open question. Chitosan products need to be tested at scale to determine their efficacy in commercial organic orchards. If chitosan is added to the National List, organic tree fruit growers will endeavor to conduct that testing, based on resource availability.

Tree fruit growers share the NOSB's goal of reducing copper applications in organic production, in a pragmatic manner that takes into account proven efficacy in the field and cost effectiveness. Research into copper alternatives cannot happen in a laboratory – field testing is essential to account for variations in soil types, pest pressures, precipitation, and moisture levels. The Crops Subcommittee is correct to seek better understanding about the mode of action for chitosan as a crop disease control. Adding chitosan to the National List could provide another tool for organic tree fruit growers to help manage fruit quality, disease resistance, and long-term input costs and financial sustainability. But its efficacy, application methods (such as timing and formulations), and overall cost to growers are yet to be determined.

We agree that copper-based materials must be used in a manner that minimizes accumulation in soil and water, and thus decreases the potential for harmful effects on soil and water biota. In the Pacific Northwest, perennial horticultural systems, soil types, and irrigation practices significantly reduce any chances of leaching, runoff, or copper accumulation in or next to orchards. While a majority of organic apple and cherry growers use copper in their orchards, applications are made only where and when most needed. In addition, newer formulations of copper require less active ingredient per acre, thus helping to minimize potential risks to water and soil.

To help control bacterial canker (*Pseudomonas syringae*), organic sweet cherry growers have exchanged one of their copper applications – either spring or fall – with lime sulfur, meaning there has already been a 50 percent reduction in copper use in organic cherry orchards. While lime sulfur has proven an effective canker control agent and a tool to mitigate potential copper resistance development, lime sulfur cannot fully replace coppers in combating bacterial canker.

Copper products used to manage fire blight (*Erwinia amylovora*) are different than those used to control bacterial canker. They have much lower metallic copper equivalent, resulting in a significantly lower risk of soil accumulation. In addition, these applications are generally made only when there is risk of fire blight, such as when there is warm, wet weather during bloom. As such, they are not used every year. Use of copper sulfate is generally limited to trees' dormant stages (before flower development) for overwintering forms of fire blight in pome fruit and Coryneum blight (*Wilsonomyces carpophilus*) in sweet cherries. For apples, not all varieties are treated with copper, and for those that are the rates vary. Some tree fruit growers occasionally use coppers to help control mildews, while others don't use coppers at all for mildews.

An important component for NOSB members to consider in their deliberations over copper compounds – and potential alternatives – is that copper applications are distinct across commodities and cropping systems. The formulation and application methods are substantially different between perennial orchards, annual specialty crops, and row crops. As such, there is not a one-size-fits-all approach to coppers, and the Board should approach the copper alternatives issue with that nuance.

Copper "alternatives" should not be considered a one-to-one replacement of copper compounds currently on the National List. We encourage the NOSB to scientifically scrutinize assertions about any products' ability to "replace" copper applications. Chemicals or products petitioned for addition to the National List may provably help to decrease total copper applications, but they cannot fully replace copper sulfate and fixed coppers in organic production. These are vital materials that must

be maintained. Again, reducing copper use is beneficial, but a pragmatic approach must be taken. The goal should be to decrease total amounts of coppers applied and improve measures that mitigate the risks of soil accumulation and runoff, but not the complete disallowance of well-established, critically important copper compounds.

Should the NOSB vote to add chitosan to the National List, we look forward to the opportunity to investigate its efficacy in commercial organic orchards and better understand how it could benefit organic tree fruit production, orchard soils, and environmental stewardship in the Pacific Northwest.

2028 Crops Sunset Reviews

§205.601 Sunsets: Synthetic substances allowed for use in organic crop production

§205.601(a)(5) Ozone gas – for use as an irrigation system cleaner only
The NHC supports the continued listing of ozone gas on the National List for irrigation cleaning. Ozone gas is a highly effective and environmentally safe irrigation cleaner used to control a wide spectrum of pathogens of human health concern, including *E. coli* and *Listeria*. It is considered a necessity for water sanitation, postharvest handling, and equipment sanitation by tree fruit growers and packers. It has many benefits in comparison to other products, including the fact that it leaves no residue on food, food contact surfaces, or in water. Because there are no residues, it has no negative impact on soil and in some cases can even be beneficial to soils. Worker safety concerns are negligible, as good ventilation is easy to maintain in the open environment.

While it is not used by a majority of Pacific Northwest tree fruit growers in the orchard due to the cost of the equipment and application, for the many growers who are equipped to use ozone for cleaning their irrigation systems, it is an effective and beneficial material. Use of ozone is likely to increase as more growers install micro-sprinklers and mister systems in the orchard to conserve water and to help prevent overheating and sunburn of the fruit. Ozone is an important material to use alongside its alternatives, especially during the hot summer months, as it provides strong algae mitigation, decreases water usage, and leaves no residue on fruit.

§205.601(a)(6) Peracetic acid – for use in disinfecting equipment
§205.601(i)(8) Peracetic acid – for use to control fire blight bacteria
The NHC strongly supports maintaining peracetic acid (PAA) on the National List, as it is used by all organic tree fruit growers and packers in the Pacific Northwest. PAA is widely used as a sanitizer and disinfectant because it has a high efficacy rate against pathogens of human health concern, as well as the biofilms that protect them. As one of the few non-chlorine-based sanitizers available for use in organic production, PAA allows growers and packers to attack naturally occurring pathogens of human health concern with a product that utilizes both oxidation and pH modulation as its primary modes of action. That process is essential to protect consumers against these naturally occurring organisms. PAA is also a critically important tool for resistance management.

In the orchard, PAA is used to sanitize equipment, such as picking bags, pruning shears, ladders, and bins. It is the primary disinfectant and sanitizer utilized on this equipment for a number of reasons. First, it is more portable than most chlorine-based sanitizers (i.e., there is no need for a

generator or other equipment). It also dissipates quickly, which precludes the need to rinse a food contact surface following application – something that can be challenging to do in the field.

PAA is also currently commercially available in several organically approved hydrogen peroxide materials for controlling the pathogen fire blight (*Erwinia amylovora*). Fire blight is a quarantine condition and economically significant threat for apple and pear growers – causing heavy damage to entire orchards in a single growing season under the right conditions. Since growers lost the use of streptomycin and oxytetracycline for controlling fire blight in organic production, PAA has become even more important to pome fruit growers. Scientists at Washington State University have been investigating the use of PAA to control fire blight blossom infections for more than a decade. Applications of a solution of PAA mixed with hydrogen peroxide (ranging from 2 percent to 5 percent) were applied in blocks of Red Delicious apples inoculated with fire blight in 2016, 2019, and 2020. Results of the PAA trials in 2016 and 2020 showed significantly reduced fire blight strikes per 100 flower clusters as compared to untreated, inoculated control blocks. In 2021, both PAA/hydrogen peroxide treatments (Jet Ag and Oxidate 5.0) provided reductions in blossom infections compared to the control, with suppression similar to organic and antibiotic standards (DuPont et al., 2023). In addition to fire blight, PAA is widely used in organic sweet cherry orchards – and occasionally in organic apple orchards – to help control powdery mildew (*Podosphaera spp.*).

In the packinghouse, PAA is widely used as a sanitizer for packing line equipment and to treat wash water to prevent cross-contamination. Tree fruit packers often use both PAA and chlorine-based sanitizers in different areas of the packinghouse to mitigate resistance development and to ensure strong efficacy against pathogens of human health concern – thereby achieving a higher degree of consumer health protection. The same characteristics that influence a decision to use PAA in the orchard, such as portability and the fact that a rinse is not required on food contact surfaces following application, also affect when and where it is used in the packinghouse.

§205.601(j)(5) Magnesium oxide – as crop or soil amendments, for use only to control the viscosity of a clay suspension agent for humates

The NHC supports the continued listing of magnesium oxide as a material that aids in the suspension of humates, which are used to improve the efficiency of nutrient uptake and absorption. Humates are applied by a majority of tree fruit growers on an as-needed basis. Humates must be kept in a state of suspension (i.e., delayed from settling and caking) so that the finished humate product can be put into spray tanks and used at various concentrations. Magnesium oxide is still needed for this use as a crop aid, and we are not aware of any commercially available alternatives that can perform the same function effectively.

§205.601(m)(2) EPA List 3 – Inerts of unknown toxicity, for use only in passive pheromone dispensers

The NHC supports the continued listing of EPA List 3 inert ingredients on the National List, until they are replaced with a new listing via the rulemaking process currently underway by the NOP. List 3 inerts must remain listed during the rulemaking process in order to maintain continuity in pesticide formulations used by organic growers. Inerts listed in both EPA List 3 and List 4 are critical to organic tree fruit production and we look forward to the opportunity to provide comment to the NOP when it releases its draft rule. The NHC appreciates the deliberative process the NOSB

conducted in supporting and advising NOP as the program works to replace the List 3 and List 4 references in organic regulations.

In particular, continuing to allow List 3 inerts for use in passive pheromone dispensers is absolutely critical to the successful management of lepidopteran pests in organic orchards. Passive pheromone products are used for mating disruption, population monitoring, and mass trapping of pests that pose a significant threat to pome fruit production, in particular codling moth, Oriental fruit moth, and leafrollers. Control of codling moth in organic orchards is impossible without the use of pheromones for mating disruption, monitoring, and trapping. Without pheromone disruption, there would be far greater reliance on pesticides, which would be much less effective at managing key pests and reducing overall population levels. Passive pheromone products are the cornerstone of a sound, ecological approach to pest management, including Integrated Pest Management (IPM) programs.

§205.602 Sunsets: Nonsynthetic substances prohibited for use in organic crop production.

§205.602(c) Calcium chloride – prohibited for use except as a foliar spray to treat a physiological disorder associated with calcium uptake.
The NHC supports the continued exemption for calcium chloride – allowing its use as a foliar spray to treat physiological disorders associated with calcium uptake. Calcium chloride is a common plant nutrient that provides calcium for plants, including pome and stone fruit trees, and helps prevent destructive postharvest physiological disorders, such as cork spot, fruit cracking, internal browning disorder, and bitter pit of apple. A majority of tree fruit growers in the Pacific Northwest use calcium chloride regularly in their spray programs because it is a critical component for maintaining fruit quality, especially in certain varieties. Some popular apple cultivars, such as Honeycrisp, are highly prone to bitter pit – a physiological disorder that begins in the orchard but for which symptoms may only begin to appear in storage. Without foliar applications of calcium chloride, a significant amount of fruit would be lost every year to bitter pit. Higher instances of bitter pit could jeopardize year-round availability of organic fruit. Foliar applications of calcium chloride also help prevent alfalfa greening on pears and fruit splitting on cherries.

§205.602(f) Rotenone
The NHC supports the continued listing of rotenone as a prohibited material.

<u>Materials Subcommittee (MS)</u>

Proposal: 2027 Research Priorities
The NOSB's annual list of organic food and agriculture research priorities is an example of the organic industry's forward-thinking approach to challenging issues, and the NHC generally supports the 2027 research priorities under Crops and Handling that would benefit organic tree fruit production. In particular, we appreciate the addition of postharvest decay management (#3 under Food Handling and Processing), which would help support the critical need to better understand postharvest issues in organic fruit, thereby reducing food waste.

Conducting a comprehensive review of the positive and negative impacts of copper products in pest management (#10 under Crops - Inputs) necessitates some important context. Copper applications are distinct across commodities and cropping systems. The formulation and application methods are substantially different between perennial orchards, annual specialty crops, and row crops. There is not a one-size-fits-all approach to coppers, and its potential positive and/or negative impacts will vary widely across different crops and growing regions. The Board should approach copper research and the copper "alternatives" issue with that nuance.

The NHC continues to support NOSB collaboration with research commissions, universities, and the IR-4 project; the funding of commodity- and region-specific life cycle assessments (LCAs) to help identify practices that can reduce greenhouse gas emissions; and increasing the availability of sustainable fruit packaging and biodegradable planting aids. We also always support the NOP and NOSB developing mechanisms for incentivizing funding of these research priorities, providing necessary updates and follow-up to stakeholders, and distributing key learnings to industry members.

Conclusion

The NHC's comments are focused on materials that are important, and in some cases critical, to Pacific Northwest organic tree fruit production. The loss of these products would negatively impact the abilities of organic tree fruit growers and packers of all sizes – who already have limited pest control tools – to protect against and manage injury from insects, diseases, and microbial pathogens. Without the continued allowance to use some of these materials, organic regulations could have the unintended impact of forcing tree fruit growers and packers out of organic production.

We ask that members of the NOSB consider their decisions carefully while recognizing the importance of these materials for the role each plays in organic tree fruit production and in preserving management options necessary to respond to food safety concerns and operational needs in organic production and packing. Thank you for your thorough consideration of these comments.

Sincerely,

NORTHWEST HORTICULTURAL COUNCIL

Dan Langager
Technical Communications Manager

cc: NHC Science Advisory Committee and Organic Subcommittee

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