

## Sunset 2017 Review Meeting 2 - Review Crops Substances October 2015

As part of the National List Sunset Review process, the NOSB Crops Subcommittee has evaluated the need for the continued allowance for or prohibition of the following substances for use in organic crop production.

**Reference: 7 CFR §205.601 Synthetic substances allowed for use in organic crop production.**

[Alcohol: Ethanol](#)

[Alcohol: Isopropanol](#)

[Chlorine Materials: Calcium hypochlorite,](#)

[Chlorine dioxide, Sodium hypochlorite](#)

[Hydrogen peroxide](#)

[Soap-based algicide/demossers](#)

[Herbicides, soap-based](#)

[Newspaper or other recycled paper](#)

[Plastic mulch and covers](#)

[Soaps, ammonium](#)

[Ammonium carbonate](#)

[Boric acid](#)

[Elemental sulfur](#)

[Lime sulfur](#)

[Oils, horticultural](#)

[Soaps, insecticidal](#)

[Sticky traps/barriers](#)

[Sucrose octanoate esters](#)

[Pheromones](#)

[Vitamin D3](#)

[Coppers, fixed](#)

[Copper sulfate](#)

[Hydrated lime](#)

[Potassium bicarbonate](#)

[Aquatic plant extracts](#)

[Humic acids](#)

[Lignin sulfonate\(j\)4](#)

[Lignin sulfonate\(l\)1](#)

[Magnesium sulfate](#)

[Micronutrients: Soluble boron products,](#)

[Sulfates, carbonates, oxides, or silicates of zinc,](#)

[copper, iron, manganese, molybdenum,](#)

[selenium, and cobalt](#)

[Liquid fish products](#)

[Vitamin B1, C, E](#)

[Ethylene](#)

[Sodium silicate](#)

[EPA List 4 - Inerts of Minimal Concern](#)

[Microcrystalline cheesewax](#)

### **205.602 Prohibited nonsynthetic substances**

[Ash from manure burning](#)

[Arsenic](#)

[Lead salts](#)

[Potassium chloride](#)

[Sodium fluoaluminate](#)

[Strychnine](#)

[Tobacco dust \(nicotine sulfate\)](#)

Links to additional references and supporting materials for each substance can be found on the NOP website: <http://www.ams.usda.gov/rules-regulations/organic/national-list/petitioned>

## Alcohols - ethanol

**Reference:** 205.601(a)(1)

(i) Ethanol. As algicide, disinfectants, and sanitizer, including irrigation system cleaning systems.

**Technical Report(s):** 1995 TAP; [01/2014 TR - Ethanol](#)

**Petition(s):** N/A

**Past NOSB Actions:** 10/1995 NOSB minutes and vote; 11/2005 NOSB sunset recommendation; 04/2011 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/2017

### Subcommittee Review

Ethanol (ethyl alcohol) is currently allowed for use in organic crop production as an algicide, disinfectant and sanitizer, including irrigation system cleaning. Ethanol provides broad-spectrum antimicrobial activity against vegetative bacteria, viruses and fungi, and is commonly used in organic production for disinfecting pruning tools. Ethanol can be produced through natural fermentation processes, but due to the common use of genetically modified organisms and other materials prohibited in organic production, ethanol from commercial sources are considered synthetic. Essential oils can be used as disinfectants, but their efficacy is in question.

In the first round of public comments, there was support for renewal of ethanol on the National List as a safe and effective sanitizer, though some comments suggested that natural sources of ethanol should be used.

### Motion to Remove

This proposal to remove ethanol will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of ethanol from §205.601(a)(1) based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: NA

### Vote in Subcommittee

Motion to remove Ethanol from §205.601(a)(1)

Motion by: Francis Thicke

Seconded by: Harold Austin

Yes: 0 No: 5 Abstain: 0 Absent: 1 Recuse: 0

## Alcohols - isopropanol

**Reference:** 205.601(a)(1)

(ii) Isopropanol. As algicide, disinfectants, and sanitizer, including irrigation system cleaning systems.

**Technical Report(s):** 1995 TAP; [02/2014 TR - Isopropanol](#)

**Petition(s):** N/A

**Past NOSB Actions:** 10/1995 NOSB minutes and vote ; 11/2005 NOSB sunset recommendation; 04/2011 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/2017

### Subcommittee Review

Isopropanol (isopropyl alcohol) is currently allowed for use in organic crop production as an algicide, disinfectant and sanitizer, including irrigation system cleaning. Isopropanol provides broad-spectrum antimicrobial activity through the dissolution of lipid membranes and rapid denaturation of proteins and is used in organic production for disinfecting irrigation lines and disinfecting pruning tools. Commercial isopropanol is produced primarily through direct and indirect hydration of propylene. Isopropanol can be produced through natural fermentation processes.

In the first round of public comments there was support for continued use of isopropanol as a safe and effective sanitizer, though some comments suggested that natural forms of ethanol should be used.

### Motion to Remove

This proposal to remove isopropanol will be considered by the NOSB at its public meeting.

The Subcommittee proposes to remove Isopropanol from § 205.601(a)(1) based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: NA.

### Vote in Subcommittee

Motion to remove Isopropanol from § 205.601(a)(1)

Motion by: Francis Thicke

Seconded by: Harold Austin

Yes: 0 No: 5 Abstain: 0 Absent: 1 Recuse: 0

## Chlorine materials - Calcium Hypochlorite

**Reference: 205.601(a)** - As algicide, disinfectants, and sanitizer, including irrigation system cleaning systems. (2) Chlorine materials -For pre-harvest use, residual chlorine levels in the water in direct crop contact or as water from cleaning irrigation systems applied to soil must not exceed the maximum residual disinfectant limit under the Safe Drinking Water Act, except that chlorine products may be used in edible sprout production according to EPA label directions.

(i) Calcium hypochlorite

**Technical Report(s):** [1995 TAP](#); [2006 TR](#); [2011 TR](#)

**Petition(s):** N/A

**Past NOSB Actions:** 10/1995 NOSB minutes and vote; 11/2005 NOSB sunset recommendation; 04/2011 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/27/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### Subcommittee Review

Calcium hypochlorite is an EPA registered pesticide (OPP No. 014701) that is used in controlling bacteria, fungi, and slime-forming algae (2011 TR lines 86-87). In water and soil, calcium hypochlorite separates into calcium, hypochlorite ions (OCI-), and hypochlorous acid (HOCl) molecules. The hypochlorous acid molecules diffuse through cell walls of microorganisms, changing the oxidation-reduction potential of the cell and inactivating triosephosphate dehydrogenase, an enzyme essential to the digestion of glucose, destroying the microorganism's ability to function. (2011 TR lines 122-133).

Calcium hypochlorite is produced by passing chlorine gas over slaked lime. It is then separated from the coproduct, calcium chloride, and air dried or vacuumed (TR lines 194-195).

Calcium hypochlorite is highly caustic and is a concern for occupational exposure. Acute exposure to high concentrations can cause eye and skin injury. Ingestion can cause gastrointestinal irritation and corrosive injuries to the mouth, throat, esophagus and stomach (2011 TR lines 411-418).

For the first round of public comment, the subcommittee asked two questions:

1. Are there less toxic disinfecting and sanitizing materials that could be practically substituted for chlorine materials in organic crop production?
2. Are all three of these chlorine materials needed for use in organic crop production?

None of the public comments specifically addressed those questions. However, a number of comments were received insisting that chlorine materials are necessary in organic production and handling, and that chlorine sanitizers have a wide range of uses, including sanitation of equipment and work surfaces, maintaining functioning irrigation systems, and preventing the spread of disease. One comment advised that food safety requirements make chlorine products necessary in a variety of circumstances. However, one comment argued that organic production should be chlorine-free as much as possible.

### Motion to Remove

This proposal to remove calcium hypochlorite will be considered by the NOSB at its public meeting.

The Subcommittee proposes to remove Calcium hypochlorite from 205.601(a) based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: None given.

#### **Vote in Subcommittee**

Motion to remove Calcium hypochlorite from 205.601(a)

Motion by: Francis Thicke

Seconded by: Colehour Bondera

Yes: 1 No: 4 Abstain: 0 Absent: Recuse: 0

### **Chlorine materials - Chlorine Dioxide**

**Reference: 205.601(a)** - As algicide, disinfectants, and sanitizer, including irrigation system cleaning systems. (2) Chlorine materials - For pre-harvest use, residual chlorine levels in the water in direct crop contact or as water from cleaning irrigation systems applied to soil must not exceed the maximum residual disinfectant limit under the Safe Drinking Water Act, except that chlorine products may be used in edible sprout production according to EPA label directions.

(ii) Chlorine dioxide

**Technical Report(s):** [1995 TAP](#); [2006 TR](#); [2011 TR](#)

**Petition(s):** N/A

**Past NOSB Actions:** 10/1995 NOSB minutes and vote ; 11/2005 NOSB sunset recommendation; 04/2011 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/27/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

#### **Subcommittee Review**

EPA has registered the liquid form of chlorine dioxide for use as a disinfectant and sanitizer. The Agency also has registered chlorine dioxide gas as a sterilant. Chlorine dioxide is added to drinking water as a disinfectant in some municipal water-treatment systems in the United States. EPA has set a maximum contaminant level (MCL) of 0.8 mg/L for chlorine dioxide in drinking water and 1 mg/L for chlorite (chlorine dioxide's oxidation product) (2011 TR lines 104-110).

Chlorine dioxide kills microorganisms directly by disrupting transport of nutrients across the cell wall. Chlorine dioxide is an effective disinfectant at a pH of between 5 and (2011 TR lines 149-157).

To form chlorine dioxide, sodium chlorate (NaClO<sub>3</sub>) and sulfuric acid (H<sub>2</sub>SO<sub>4</sub>) are reacted with sulfur dioxide (SO<sub>2</sub>), or chloric acid is reacted with methanol (CH<sub>3</sub>OH). Alternatively, chlorine dioxide can be formed with chlorine (Cl<sub>2</sub>) and sodium chlorite; sodium hypochlorite with hydrochloric acid; potassium chlorate with sulfuric acid; or by passing nitrogen dioxide through a column of sodium chlorate (2011 TR lines 206-210).

Chlorine dioxide is a severe respiratory and eye irritant. The reaction products of chlorine dioxide (chlorite and chlorate) can cause oxidative damage to red blood cells and mild neurobehavioral effects (2011 TR lines 433-436).

For the first round of public comment, the subcommittee asked two questions:

1. Are there less toxic disinfecting and sanitizing materials that could be practically substituted for chlorine materials in organic crop production?
2. Are all three of these chlorine materials needed for use in organic crop production?

None of the public comments specifically addressed those questions. However, a number of comments were received insisting that chlorine materials are necessary in organic production and handling, and that chlorine sanitizers have a wide range of uses, including sanitation of equipment and work surfaces, maintaining functioning irrigation systems, and preventing the spread of disease. One comment advised that food safety requirements make chlorine products necessary in a variety of circumstances. However, one comment argued that organic production should be chlorine-free as much as possible.

### **Motion to Remove**

This proposal to remove chlorine dioxide will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of chlorine dioxide from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: None given.

### **Vote in Subcommittee**

Motion to remove Chlorine dioxide from 205.601(a)

Motion by: Francis Thicke

Seconded by: Carmela Beck

Yes: 1 No: 4 Abstain: 0 Absent: Recuse: 0

## **Chlorine materials - Sodium Hypochlorite**

**Reference: 205.601(a)** - As algicide, disinfectants, and sanitizer, including irrigation system cleaning systems. (2) Chlorine materials -For pre-harvest use, residual chlorine levels in the water in direct crop contact or as water from cleaning irrigation systems applied to soil must not exceed the maximum residual disinfectant limit under the Safe Drinking Water Act, except that chlorine products may be used in edible sprout production according to EPA label directions.

(iii) Sodium hypochlorite

**Technical Report(s):** [1995 TAP](#); [2006 TR](#); [2011 TR](#)

**Petition(s):** N/A

**Past NOSB Actions:** 10/1995 NOSB minutes and vote ; 11/2005 NOSB sunset recommendation; 04/2011 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/27/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### **Subcommittee Review**

Sodium hypochlorite is an EPA registered pesticide (OPP No. 014703) that is used in controlling bacteria, fungi, and slime-forming algae (2011 TR lines 86-87). In water and soil, sodium hypochlorite separates into sodium, hypochlorite ions (OCl<sup>-</sup>), and hypochlorous acid (HOCl) molecules. The hypochlorous acid molecules diffuse through cell walls of microorganisms, changing the oxidation-reduction potential of the cell and inactivating triosephosphate dehydrogenase, an enzyme essential of the digestion of glucose, destroying the microorganism's ability to function. (2011 TR lines 122-133).

Sodium hypochlorite is highly caustic and is a concern for occupational exposure. Acute exposure to high concentrations can cause eye and skin injury. Ingestion can cause gastrointestinal irritation and corrosive injuries to the mouth, throat, esophagus and stomach (2011 TR lines 411-418).

Generally, sodium hypochlorite is produced by reacting chlorine with a solution of sodium hydroxide (NaOH, also called lye or caustic soda). This method is used for most commercial productions of sodium hypochlorite. A more active, but less stable formulation of sodium hypochlorite can be produced by chlorinating a solution of soda ash (Na<sub>2</sub>CO<sub>3</sub>) (TR lines 199-202).

For the first round of public comment, the subcommittee asked two questions:

1. Are there less toxic disinfecting and sanitizing materials that could be practically substituted for chlorine materials in organic crop production?
2. Are all three of these chlorine materials needed for use in organic crop production?

None of the public comments specifically addressed those questions. However, a number of comments were received insisting that chlorine materials are necessary in organic production and handling, and that chlorine sanitizers have a wide range of uses, including sanitation of equipment and work surfaces, maintaining functioning irrigation systems, and preventing the spread of disease. One comment advised that food safety requirements make chlorine products necessary in a variety of circumstances. However, one comment argued that organic production should be chlorine-free as much as possible.

### **Motion to Remove**

This proposal to remove sodium hypochlorite will be considered by the NOSB at its public meeting. The Subcommittee proposes removal of sodium hypochlorite from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: None given.

### **Vote in Subcommittee**

Motion to remove Sodium hypochlorite 205.601(a)

Motion by: Francis Thicke

Seconded by: Colehour Bondera

Yes: 1 No: 4 Abstain: 0 Absent: Recuse: 0

## Hydrogen peroxide

**Reference:** 205.601(a)(4) - As algicide, disinfectants, and sanitizer, including irrigation system cleaning systems.

**Reference** 205.601(i)(5) - As plant disease control.

**Technical Report(s):** [1995 TAP](#); [2015 TR](#)

**Petition(s):** N/A

**Past NOSB Actions:** 10/1995 NOSB minutes and vote ; 11/2005 NOSB sunset recommendation - deferred; 06/2006 sunset recommendation; 10/2010 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### Subcommittee Review

Hydrogen Peroxide is a very simple molecule with a formula of  $H_2O_2$ . While it can occur in nature fleetingly, it is manufactured through a catalytic reduction method that makes it considered synthetic. It is a weak acid but a strong oxidizer and this makes it very useful as a fungicide, cleaning agent, and disease control.

A new Technical Report (TR) was commissioned for Hydrogen Peroxide because the information on it was old and incomplete. It showed that Hydrogen Peroxide is inherently unstable and breaks down readily into oxygen and water. (TR Evaluation question 3-5). While it is toxic to disease spores and cells on contact, it has absolutely no residual effect. It has low or no impacts on birds, humans, or fish as long as it is used according to the label and protective application measures are taken. There can be some effects on soil microbiota in the very top layer of soil where it may come in contact, but because it breaks down so quickly, soil life is quickly restored. (TR 2015 Evaluation Question #8).

While there are some alternatives on the National List for sanitizers and disinfectants, as well as some essential oils with antiseptic properties, the National List items are not necessarily any better or safer than Hydrogen Peroxide, and the essential oils have not been studied to compare with Hydrogen peroxide side-by-side to see if they are equally as effective and benign. (TR Evaluation question 11). Certain bacterial and fungal products that are beneficial in controlling plant diseases may be valid alternatives for some uses as a fungicide, but often these are best used as preventative and not effective once disease has taken hold, and not good substitutes in all situations. Likewise some biological, cultural and physical methods keep the need for use to a minimum, but don't apply to every situation. (TR Evaluation question 12).

Most public comment supported keeping Hydrogen Peroxide on the National List. It was frequently mentioned that it is one of the few tools left against Fire Blight now that antibiotics cannot be used. It is widely used to clean equipment, in mushroom production, and to alternate with other materials for resistance management. No comments were put forward with new information that would contribute to the OFPA criteria review.

### **Motion to Remove**

This proposal to remove will be considered by the NOSB at its public meeting.

The Subcommittee proposes to remove Hydrogen peroxide from §205.601(a) and §205.601(i) based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable:  
Compatibility

### **Vote in Subcommittee**

Motion to remove hydrogen peroxide from §205.601(a) and §205.601(i)

Motion by: Zea Sonnabend

Seconded by: Carmela Beck/Harold Austin

Yes: 0 No: 5 Abstain: 0 Absent: Recuse: 0

## **Soap-based algicide/demossers**

**Reference:** 205.601(a)(7) - As algicide, disinfectants, and sanitizer, including irrigation system cleaning systems.

**Technical Report(s):** [1996 TAP](#); [2015 TR](#)

**Petition(s):** N/A

**Past NOSB Actions:** **Actions:** 09/1996 NOSB recommendation; 11/2005 NOSB sunset recommendation; 04/2011 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### **Subcommittee Review**

For the first round of public comments, the subcommittee asked the question “What alternative materials are available for use as an algicide/demossers?” No comments were received that addressed that question. However, several general comments were received in favor of relisting soap-based algicide/demossers. One comment said “Soaps are not a threat to human health, they are composed of molecules that are common in the natural environment and which are readily utilized by many living organisms, as well as being readily degraded in the environment by both biological and abiotic processes.”

However, two commenters suggested that soap-based algicide/demossers should not be used for application to water. The 2015 TR indicates that while potassium and ammonium soaps degrade rapidly in the soil (lines 440-441), soaps are more toxic for aquatic organisms: “The acute and chronic toxicity of soap salts is markedly different for land- and water-dwelling organisms. Terrestrial animals—including mammals, birds, and insects—are largely unaffected by exposure to even high doses of potassium and ammonium salts of fatty acids, while aquatic animals are moderately (fish) to highly (crustaceans) sensitive to these substances” (TR lines 350-353).

The subcommittee questions whether soap-based algicide/demossers are in use by organic producers, and if they are essential for organic production. Therefore, the subcommittee is considering removing soap-based algicide/demossers from the National List.

### **Motion to Remove**

This proposal to remove soap-based algicide/demossers will be considered by the NOSB at its public meeting.

The Subcommittee proposes to remove Soap-based algicide/demossers from §205.601(a)(7) based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: Compatibility and Alternatives.

### **Vote in Subcommittee**

Motion to remove Soap-based algicide/demossers from §205.601(a)(7)

Motion by: Francis Thicke

Seconded by: Carmela Beck

Yes: 5 No: 0 Abstain: 0 Absent: 1 Recuse: 0

## **Herbicides, soap-based/ (Soaps, herbicidal)**

**Reference:** 205.601(b) As herbicides, weed barriers, as applicable (1) herbicides soap-based—for use in farmstead maintenance (roadways, ditches, right of ways, building perimeters) and ornamental crops.

**Technical Report:** [1996 TAP](#); [2015 TR](#)

**Petition(s):** N/A

**Past NOSB Actions: Actions:** [1996 recommendation](#); [11/2005 NOSB sunset recommendation](#); 10/2010 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### **Subcommittee Review**

Soaps have herbicidal properties. From the 2015 TR: “the general herbicidal mode of action for soap salts involves the disruption of photosynthesis through destruction of the cell membrane, thereby resulting in plant death” (TR lines 122-123).

Soaps are considered to be relatively non-toxic to mammals and terrestrial systems. “U.S. EPA has waived all generic mammalian toxicity data requirements for potassium and ammonium soap salts due to the lack of effects at high doses in the available toxicity literature” (2015 TR lines 350-351). However, “soaps are toxic to aquatic plants and algae” (TR line 385) and “aquatic animals are moderately (fish) to highly (crustaceans) sensitive to these substances” (TR lines 347-348).

If soaps are used according to their allowed use under 205.601(b)(1) they will be applied to terrestrial systems and should not generally be a problem for aquatic organisms.

In the first round of public comments, several comments were received in favor of keeping soap-based herbicides on the National List. Comments indicated that though soap-based herbicides are sometimes only marginally effective, they are a safe alternative and some farmers rely on them for weed control on farmsteads, roadways, and other places they are approved for use. There were no comments in favor of removing soap-based herbicides.

### **Motion to Remove**

This proposal to remove Herbicides soap-based will be considered by the NOSB at its public meeting.

The Subcommittee proposes to remove Herbicides, soap-based from §205.601(b) based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable:  
None given.

### **Vote in Subcommittee**

Motion to remove Herbicides, soap-based from §205.601(b)

Motion by: Francis Thicke

Seconded by: Harold Austin

Yes: 0 No: 5 Abstain: 0 Absent: 1 Recuse: 0

## **Newspaper or other recycled paper**

**Reference:** 205.601(b) As herbicides, weed barriers, as applicable. (2) Mulches. (i) newspapers or other recycled paper, without glossy or colored inks.

**Reference:** 205.601(c) - As compost feedstocks - Newspapers or other recycled paper, without glossy or colored inks.

**Technical Report:** 1995 TAP; 2006 TAP

**Petition(s):** N/A

**Past NOSB Actions:** 10/1995 NOSB minutes and vote ; 11/2005 NOSB sunset recommendation; 04/2011 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 (77 FR 33290)

**Sunset Date:** 6/27/17

### **Subcommittee Review**

Newspaper and other recycled paper provide organic mulching materials when natural mulches are not available. OMRI submitted comments listing six products made with newspaper or other recycled paper. The annotation prohibits colored inks out of concern for heavy metal contamination and glossy paper because it is more likely to have petroleum-based inks applied.

The CS found that changes have occurred in the processes of making newsprint and printing newspaper

that require further investigation to determine whether the annotation is necessary. Although paper can be a source of dioxins,<sup>1</sup> newsprint is made by mechanical means and processing of recycled paper, which do not use chlorine bleach.<sup>2</sup> As listed, there is some possibility of contamination with inks. Newspapers increasingly use soy-based inks, which eliminate some of the pollution from the petroleum-based vehicle (TR, lines 41-50; 64-65). Carbon black, the pigment used in black inks, is made from burning hydrocarbons and is expected to be partitioned to soil and/or carried by runoff and settle to bottom sediments.<sup>3</sup> Some colored inks still use heavy-metal-based pigments, but others contain organic chemical-based pigments that may not be more toxic than carbon black.<sup>4</sup> Glossy paper is more likely to use faster-drying petroleum-based inks.<sup>5</sup> The subcommittee findings are suggestive rather than conclusive, and an updated technical review would help the NOSB to make a decision based on the latest technology.

Newspaper does not appear to have detrimental chemical interactions with other materials used in organic farming (TR lines 251-253). Its impact is similar to other mulches and wood-based materials, assuming soy inks. Carbon black is not known to have a toxic effect (TR line 281). Carbon black persists in the environment.<sup>6</sup> Newspapers do not have detrimental effects on soil organisms, crops, or livestock (TR lines 275-276).

Natural substitutes are organic materials including wood chips, bark, straw, leaves, grass clippings, compost (TR lines 339-345). In addition plastic mulches and biodegradable biobased bioplastic mulch are on the National List. Alternative practices are mentioned in the TR: "For weed problems, options include mowing, livestock grazing, hand weeding and mechanical cultivation, flame, heat, or electrical means (USDA 2005). Proper crop rotation can serve to maintain soil organic matter, provide pest management, and provide erosion control (USDA 2005). In addition, other materials besides newspaper could be used as mulch." (TR lines 357-361).

In terms of compatibility, mulching confers multiple benefits to an organic system, and when used in conformance with OFPA (when natural mulching materials are not available), newspaper mulches can benefit the organic system.

No comments were submitted opposing the listing. Commenters pointed out that there have been many changes in newspapers since the original listing, and more investigation into newspaper production is needed to determine whether the annotation is still appropriate. One commenter stated, "There has been an exponential increase in the use of colored graphics and photography in daily papers

<sup>1</sup> Alliance for Environmental Technology, "ECF: the sustainable technology,"

[http://www.aet.org/epp/ecf\\_brochure.pdf](http://www.aet.org/epp/ecf_brochure.pdf)

<sup>2</sup> [Canopy Ecopaper Website www.canopyplanet.org/EPD/index.php](http://www.canopyplanet.org/EPD/index.php) ; [Treecycle](http://www.treecycle.com/recycling.html) Recycled Papers (definitions)

<sup>3</sup> Environment Canada, 2013. Screening Assessment for the Challenge: Carbon Black. <http://www.ec.gc.ca/ese-ees/default.asp?lang=En&n=2cf34283-1>

<sup>4</sup> Ink chemistry <http://www.rsc.org/chemistryworld/Issues/2003/March/inkchemistry.asp>

<sup>5</sup> Finley, Charles. 1997. *Printing paper and ink*. Albany: Delmar Publishers. p. 230. ISBN 0827364415.

<sup>6</sup> Environment Canada, 2013. Screening Assessment for the Challenge: Carbon Black. <http://www.ec.gc.ca/ese-ees/default.asp?lang=En&n=2cf34283-1>

since the last Technical Review was prepared and it is not easy to separate colored from black inks.” Another said, “Some colored inks may be no more harmful than carbon black, but this –and a verification procedure– should be determined based on an updated review.”

Three certifiers said newspaper is an important mulch material for the growers they certify. One said growers question the need for separating out glossy paper and paper with colored inks. Lacking an updated technical review, the CS recommends renewing the listing with the current annotation.

### **Motion to Remove**

A motion to remove Newspaper or other recycled paper will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Newspaper or other recycled paper from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: None given.

### **Vote in Subcommittee**

Motion to remove newspaper or other recycled paper from 205.601(b) and 205.601(c)

Motion by: Harold Austin

Seconded by: Carmela Beck

Yes: 0 No: 5 Abstain: 0 Absent: 0 Recuse: 0

## **Plastic mulch and covers**

**Reference:** 205.601(b) As herbicides, weed barriers, as applicable. (2) Mulches. (ii) Plastic mulch and covers (petroleum-based other than polyvinyl chloride (PVC)).

**Technical Report:** 1995 TAP

**Petition(s):** N/A

**Past NOSB Actions:** 10/1995 NOSB minutes and vote; 11/2005 NOSB sunset recommendation; 10/2010 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 (77 FR 33290)

**Sunset Date:** 6/27/17

### **Subcommittee Review**

Plastic mulch has received much criticism because of the need to remove it at the end of the growing season, which results in plastic waste being hauled to landfills. Biodegradable bioplastic mulches are now allowed, which theoretically could eliminate some of the problems with plastic mulches. However, there is still no guidance on ensuring that bioplastic mulch degrades in the required timeframe, and it appears that no mulches are currently available that meet the criteria established by the NOSB and NOP

or are expected to be listed by OMRI this year.

Use of plastic mulch leads to environmental contamination because used plastic gets taken to landfills, and pieces are left behind on fields. (October 2012 NOSB meeting transcript.) Substitution for natural mulches reduces inputs of organic matter. Solarization effect kills microorganisms (Bioplastic mulch TR lines 574-579).

There can be contamination in manufacture and disposal because polyethylene is usually derived from either modifying natural gas (a methane, ethane, propane mix) or from the catalytic cracking of crude oil into gasoline, though it may be made from biological source,<sup>7</sup> and used plastic gets taken to landfills.

Polyethylene mulch leads to loss of water: In one season, the loss of water was 2-4 times higher and the loss of soil sediment was three times higher in plots where polyethylene mulch was used compared to those where hairy vetch residues were used (Bioplastic mulch TR lines 608-610). It substitutes for mulches that could contribute organic matter to the soil.

Natural alternatives are organic mulches and living mulches (Bioplastic mulch TR lines 684-696). Other alternatives on the National List are bioplastic mulch, recycled newspaper and other paper (Bioplastic mulch TR lines 701-721). Practices that could be used instead are: for weed control - tillage and other mulches; for soil warming - planting adapted plants (TAP p5).

The use of plastic mulch is incompatible with organic and sustainable agriculture because it is usually produced from natural gas and petroleum, creates much waste that goes to the landfill, and substitutes for organic mulches that add organic matter to the soil.

Surveys as well as grower comments all show a demand for plastic mulch by growers until biodegradable bioplastic mulches are available. However, one comment from a submitted survey raises a question as to how certifiers are enforcing the annotation of removal: "We always use black plastic mulch when we establish a vineyard. We do not irrigate, and the black plastic mulch is critical to us getting the baby vines growing well over their first three years in the ground. We always take the black plastic up after it has been in for 4-5 years." Since the material is required to be removed at the end of the growing season, this example should raise concerns about how that is carried forth.

### **Motion to Remove**

A motion to remove plastic mulch and covers will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Plastic mulch and covers from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable:

<sup>7</sup> Priscilla Lepoutre, The Manufacture of Polyethylene. <http://nzic.org.nz/ChemProcesses/polymers/10J.pdf>

impact on humans and the environment; compatibility and consistency.

#### **Vote in Subcommittee**

Motion to remove plastic mulch and covers from 205.601(j)

Motion by: Harold Austin

Seconded by: Francis Thicke

Yes: 0 No: 5 Abstain: 0 Absent: 0 Recuse: 0

### **Soaps, ammonium**

**Reference:** 205.601(d) As animal repellents—Soaps, ammonium—for use as a large animal repellent only, no contact with soil or edible portion of crop.

**Technical Report:** [1999 TAP](#)

**Petition(s):** N/A

**Past NOSB Actions:** 10/1995 NOSB minutes and vote; 11/2005 NOSB sunset recommendation; 10/2010 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

#### **Subcommittee Review**

Ammonium soaps are used as a deer repellent. In the first round of public comments we received no comments against relisting ammonium soaps, and one comment from an organization indicating that some of its members depended on the use of ammonium soaps in their organic operations. In past sunset reviews, ammonium soaps were relisted each time without objections being raised. There is no compelling reason to remove ammonium soaps from the National List.

#### **Motion to Remove**

This proposal to remove ammonium soaps will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of ammonium soaps from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable:  
None given.

#### **Vote in Subcommittee**

Motion to remove Soaps, ammonium from §205.601(d)

Motion by: Zea Sonnabend

Seconded by: Carmela Beck

Yes: 0 No: 5 Abstain: Absent: 1 Recuse: 0

## Ammonium carbonate

**Reference:** 205.601(e) As insecticides (including acaricides or mite control). (1) ammonium carbonate — for use as bait in insect traps only, no direct contact with crop or soil.

**Technical Report:** [1995 TAP](#)

**Petition(s):** N/A

**Past NOSB Actions:** 10/1995 NOSB minutes and vote ; 11/2005 NOSB sunset recommendation; 10/2010 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/2017

### Subcommittee Review

Ammonium carbonate is used in small quantities as an attractant in traps. It is volatile, and irritating to eyes and nose. Little damage would be expected other than the attraction of other insects. The main alternatives are manure management and enhancement of predators and parasitoids.

There is little likelihood of contamination of soil with use as fly bait (TAP p6). Escape of gas in use and manufacture is possible. It is made from ammonia and carbon dioxide. Ammonia is volatile and toxic (TAP p10). Irritant to eyes and nose.<sup>8</sup> It is incompatible with strong acids, nitrates, nickel, copper (TAP p11). However, interaction is unlikely with current annotation. Ammonium bicarbonate decomposes to ammonia, carbon dioxide, and water above 36 degrees C.<sup>9</sup> Other insects may be attracted to bait (TAP p4).

Natural alternatives include natural attractants (TAP p6). Other alternative materials are other ammonia-releasing chemicals (TAP p6). Practices that would make its use unnecessary include a good organic environment and enhancement of predators and parasitoids (TAP p4).

There was little interest in ammonium carbonate expressed in public comment. The only support came from an organization that said that because of its limited use pattern, little damage would be expected from it, and it can complement other approaches to controlling flies through manure management and enhancement of predators and parasitoids.

### Motion to Remove

This proposal to remove Ammonium carbonate will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Ammonium from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: Impact on Health and Environment and Essentiality.

<sup>8</sup> PubChem: ammonium carbonate.  
[http://pubchem.ncbi.nlm.nih.gov/compound/ammonium\\_carbonate](http://pubchem.ncbi.nlm.nih.gov/compound/ammonium_carbonate)

<sup>9</sup> PubChem: ammonium bicarbonate  
[https://pubchem.ncbi.nlm.nih.gov/compound/ammonium\\_carbonate](https://pubchem.ncbi.nlm.nih.gov/compound/ammonium_carbonate)

### **Vote in Subcommittee**

Motion to remove Ammonium carbonate from 205.601(i)

Motion by: Harold Austin

Seconded by: Carmela Beck

Yes: 0 No: 5 Abstain: 0 Absent: 0 Recuse: 0

## **Boric acid**

**Reference:** 205.601(e) As insecticides (including acaricides or mite control). (3)Boric acid - structural pest control, no direct contact with organic food or crops.

**Technical Report:** 1995 TAP

**Petition(s):** N/A

**Past NOSB Actions:** 04/1995 NOSB minutes and vote; 11/2005 NOSB sunset recommendation; 10/2010 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### **Subcommittee Review:**

Boric acid, derived from the mineral borax, has long been considered a “least-toxic” pesticide because it is non-volatile when placed in bait or gel formulations, thus eliminating direct exposure. However, when used as a dust for structural pest control, exposure can occur, causing hazards for exposed populations. Boric acid is a reproductive toxicant, a suspected endocrine disruptor, and toxic to plants and animals if misused. Borax mining causes environmental damage. Boric acid raises challenging issues of health and environmental/mining impacts, and there are alternative materials and practices that may be less harmful. Of the alternative choices of pest control products, boric acid is considered to be among the least toxic, as noted in the sources used for this review.

A number of members of the public did comment regarding the listing of boric acid, and the majority supported re-listing.

The following question was put forth to the public:

“Are there situations in which boric acid is the only, or safest, means of controlling the pest?”, and some response was received.

It was stated that it is good to have as a means for control and as a back-up with insect problems.

Comment was received that natural alternatives do exist, and that management changes rather than a material application is the best if problems do occur.

There are many sub-components of OFPA criteria that are not fully met, within the criteria of Impacts on Humans and the Environment, Essentiality, and Compatibility & Consistency, however the alternatives often have equally challenging issues with compatibility.

### **Motion to Remove**

This proposal to remove Boric Acid from 205.601 will be considered by the NOSB at its public meeting.

The Subcommittee proposes to remove Boric Acid from § 205.601(e) based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: OFPA criteria at 7 U.S.C. 6158(m), (7) its compatibility with a system of sustainable agriculture.

### **Vote in Subcommittee**

Motion to remove Boric Acid from § 205.601(e)

Motion by: Colehour Bondera

Seconded by: Carmela beck

Yes: 1 No: 4 Abstain: 0 Absent: 1 Recuse: 0

## **Elemental sulfur**

**Reference:** 205.601(e)(5) - As insecticides (including acaricides or mite control).

**Reference:** 205.601(i)(10) - As plant disease control.

**Reference:** 205.601(j)(2) - As plant or soil amendments.

**Technical Report:** [1995 TAP](#)

**Petition(s):** N/A

**Past NOSB Actions:** **Actions:** [04/1995 NOSB minutes and vote](#); [11/2005 NOSB sunset recommendation](#); [04/2010 sunset recommendation](#); [10/2010 NOSB sunset recommendation](#)

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### **Subcommittee Review**

Elemental sulfur is on the National List at §205.601(e)(5) – As insecticides (including acaricides or mite control), §205,601(i)(10) – As plant disease control, and at §205.601 (j)(2) – As plant or soil amendments.

As an insecticide under (e)(5) it is used to help control anthropoids, mites, leprosis, and scab mites.

As plant disease control under (i)(10) it helps control powdery mildew, rusts, scab, pear scab, brown rot, rose black spot, and peach leaf curl.

As a plant or soil amendment under (j)(2) it is used to help assist in balancing the soil ph and is useful to both plant and soil beneficial insects. It can also help aid in increased water penetration.

Elemental sulfur can come either from a natural mined source, or may be produced as a by-product from natural gas or petroleum operations and refinery process. The latter appears to be the primary source of most elemental sulfur currently being used. Elemental sulfur has been registered for use by the EPA since 1920.

Internationally approved for use by: The E.U., IFOAM. Codex Alimentarius Commission (CAC GL 32-1999) permits the use of sulfur for pest and disease control when the certification body or authority recognizes the need for plant protection (Codex, 2013). Also allowed by Canadian Organic Standards.

In the original TAP the reviewers found Elemental sulfur to be relatively innocuous in the environment when used according to the product use label. It was also found to be of low toxicity. It should not be used within one month of any horticultural oil product, as currently stated on most sulfur labels. Could be considered to be an irritant to farm workers, this should be mitigated if label recommendations and proper PPE recommendations are followed. Two previous Sunset Material Reviews (2005 & 2010) of Elemental sulfur have resulted in all 3 use listings being re-listed.

The subcommittee did not request a new Technical Review during this current Sunset Review cycle.

During the 1<sup>st</sup> posting for public comment of this current Sunset Review cycle there were 3 specific questions posed to stakeholders to assist the subcommittee in their review of Elemental sulfur. There were 20 written public comments submitted along with numerous oral comments at the Spring meeting in La Jolla, Ca. These comments provided insight for the subcommittee in their required review of this material and helped to answer some of the questions that had been posed during the 1<sup>st</sup> posting. Some of this additional information helped to explain to the subcommittee that while there are numerous possible alternatives, many times because of certain situations or conditions, elemental sulfur still remained the best option for use in their specific operation and use pattern. It was explained that weather, humidity, location, variety sensitivity, compatibility, economics, resistance management, and cost all had to be considered by the organic producer and what was the best option for any given application be it for disease or insect control, or as a plant or soil amendment. There was over whelming support for the continued listing of Elemental sulfur by organic stakeholders. One commenter stated that a survey of their members resulted in a good cross section of how necessary elemental sulfur remains to their producers for use in controlling various bacterial diseases, pests, and as a plant and soil amendment. Another commenter stated that this material was a staple product used in organic tree fruit, grape, berries, and hop production. Certifiers provided an accounting (one certifier shows it listed on 2,042 OSP's) of how widely listed Elemental sulfur is in the OSP's of those organic producers that they certify. Two commenters, while not opposed to the re-listing, asked that specific uses and an annotation be considered by the subcommittee and full board.

After reviewing the original TAP, previous committee votes & discussions, and recently provided public comment, it would appear that Elemental sulfur is still necessary in organic crop production. No specific new information was provided that would suggest otherwise.

### **Motion to Remove**

This proposal to remove Elemental sulfur will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Elemental Sulfur from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: None given.

### **Vote in Crops Subcommittee**

Motion to remove Elemental Sulfur from the National List at §205.601 (e)(5), §205.601 (i)(10), and §205.601 (j)(2).

Motion by: Harold V. Austin IV

Seconded by: Carmela Beck

Yes: 0 No: 5 Abstain: 0 Recuse: 0 Absent : 0

## Lime sulfur

**Reference:** 205.601(e)(6) - As insecticides (including acaricides or mite control).

**Reference:** 205.601(i)(6) - As plant disease control.

**Technical Report:** [1995 TAP](#); [2014 TR](#)

**Petition(s):** N/A

**Past NOSB Actions:** **Actions:** [04/1995 NOSB minutes and vote](#); [11/2005 NOSB sunset recommendation](#); [10/2010 NOSB sunset recommendation](#)

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### Subcommittee Review

Lime sulfur is on the National List at §205.601 (e)(6) as insecticides (including acaricides or mite control) and at §205.601 (j)(6) as plant disease control. As an insecticide Lime sulfur is used to control mites (spider mites and rust mites), aphid, and san jose scale in tree fruit and other organic crops. As a fungicide it is used to control powdery mildew, anthracnose, scab, peach leaf curl, and several other plant diseases in tree fruit and berry crops. It is also part of a process that when used in conjunction (or in rotation) with other allowed materials as a replacement for the two recently removed antibiotics for assisting to control fire blight in organic apple and pear production.

Lime sulfur, is often referred to by its chemical name, calcium polysulfide. It is considered to be synthetic and is produced by reacting boiling calcium hydroxide [CaOH<sub>2</sub>] and ground sulfur (US EPA, 2005a; Hajjatie, 2006). Residues of lime sulfur are exempt from the requirement of a tolerance under 40 CFR 180.1232 as determined by the US EPA because the calcium polysulfides found in lime sulfur products rapidly degrade to calcium hydroxide and sulfur in the environment and human body.

### International

- Canada – allowed as a fungicide, insecticide, or acaricide/mite control. (CAN,21)
- Codex Alimentarius – although not mentioned specifically, organic production guidelines from Codex Alimentarius Commission (CAC GL 32-1999) permit the use of sulfur for pest and disease control when the certification body or authority recognizes the need for plant protection (Codex, 2013).
- European Union – permits the use of lime sulfur (calcium polysulfide).
- Japanese Ministry of Agriculture Forestry and Fisheries – permits the use of lime sulfur powder for plant pest and disease control.
- IFOAM – lists lime sulfur in Section II of Appendix 3: Crop Protectants and Growth Regulators (IFOAM, 2014).
- UK Soil Association – only allows the use of lime sulfur on a case-by-case basis, when there is demonstrated a major threat to a grower's crop. (Soil Association, 2014).

The original TAP used the 1922 USDA Farm Bulletin as part of its fact finding! This TAP did not provide much information. There was a new Technical Evaluation Report developed on December 3, 2014 that has provided a source of more current and updated information. While the new TR provides a quite extensive list of alternative materials and alternative practices, it did not specify under what conditions or scenarios lime sulfur might or might not be the best option to use. The new TR did mention human health concerns from lime sulfur due to its high alkalinity, but stated that this concern would be mitigated during formulation or actual use, if proper safety procedures during manufacture and proper use (following label recommendations) are adhered to. There may be some impact on beneficial insects, such as predator mites, when used at higher rates. Attention to temperatures and weather conditions would help to minimize phytotoxicity to non-target plant species, where applicable.

There were 20 written public comments submitted for the 1<sup>st</sup> posting for public comment during the current (Sunset 2017 Review) cycle. There was an over whelming show of support for its continued listing. The commenters also stated that with the loss of the two previously allowed antibiotics and the increase in organic tree fruit production in recent years, the use of lime sulfur has actually increased. Public comments also provided insight to the subcommittee explaining that while there are alternatives, many times because of numerous contributing factors, lime sulfur is still the best option for them in their organic production, be it for disease control, insect control, or use as part of a fire blight control program. One commenter said that a poll of their members showed that it remains to be important and still very necessary for organic crop production. This commenter also stated: “Many of the materials currently under the 2017 Sunset Material Review were accepted by organic certification bodies prior to the implementation of the National Organic Program – they were considered to be part of the traditional definition of “organic” and in line with the Principles of Organic Production. In short, these materials (including lime sulfur) were a part of the foundation on which organic trade and production was built”.

Two commenters while not opposed to the re-listing of lime sulfur asked that its uses be looked at and that an annotation be added limiting its use by adding specific allowed uses.

This current Sunset Review of lime sulfur shows that it would appear to still be necessary in organic crop production. While human health concerns are of minimal concern when proper safety procedures in manufacture and use are followed, environmental concern to predators and non-target plant species are somewhat of a concern. But, these too can be mitigated (or minimized) if proper/or reduced rates and correct timing of applications (taking temperature and weather conditions into consideration) of lime sulfur are used by the organic crop producers applying this material.

### **Motion to Remove**

This proposal to remove Lime-sulfur will be considered by the NOSB at its public meeting.

Motion to remove Lime-Sulfur from the National List as listed at both §205.601 (e)(6) and §205.601 (i)(6).

The Subcommittee proposes removal of Lime-Sulfur from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: None given.

### Vote in Crops Subcommittee

Motion to Remove lime sulfur from §205.601 (e)(6) as insecticides (including acaricides or mite control) and §205.601 (j)(6)

Motion by: Harold V. Austin IV

Seconded by: Carmela Beck

Yes: 1 No: 4 Abstain: 0 Recuse: 0 Absent :0

## Oils, horticultural

**Reference:** 205.601(e)(7) - As insecticides (including acaricides or mite control). —narrow range oils as dormant, suffocating, and summer oils.

**Reference:** 205.601(i)(7) As plant disease control. - narrow range oils as dormant, suffocating, and summer oils.

**Technical Report:** 1995 TAP

**Petition(s):** N/A

**Past NOSB Actions:** 04/1995 NOSB minutes and vote; 04/2006 sunset recommendation; 10/2010 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### Subcommittee Review

Oils, horticultural are on the National List at §205.601(e)(7) –As insecticides (including acaricides or mite control) –narrow range oils as dormant, suffocating, and summer oils and at §205.601(i)(7) - As plant disease control- narrow range oils as dormant, suffocating, and summer oils.

As an insecticide under (e)(7) they are used to help control aphids, scales, leafhoppers, pear psylla, mealy bugs, and web worms in various organic crops.

As a plant disease control under (i)(7) they are used to help control scab, mildew, and various forms of rots in various organic crops.

Horticultural oils are manufactured from refined crude oil production (petroleum based).

Internationally approved for use by: a wide majority of certification groups such as, the E.U., Canada, IFOAM, Codex Alimentarius, and several others.

In the original TAP review it was mentioned that the use of dormant oils was compatible with organic systems because they attacked the pest at a weak stage in its lifecycle. The low toxicity of these materials, along with their mode of action support its use, even as a synthetic by nature. The original TAP states that even as a foliage spray, the low toxicity justifies its use. For summer uses there are other alternative materials, but the TAP mentioned that these do not target the insect eggs like the

horticultural oils do (function as an ovacide).

During the Sunset Review and vote during the November 17<sup>th</sup>, 2005 NOSB meeting the Board decided to defer the vote on oils until further technical information could be obtained. This discussion was around vegetable oils as a natural replacement for the horticultural oils. But, it was discovered that the vegetable oils contained synthetic emulsifiers (mainly derived from a petroleum base) that without these, the oils would not work properly. Both vegetable and horticultural oils require the addition of emulsifiers to allow them to stay in suspension when added to water for application to the targeted crop. It was also determined that the vegetable oils would not control certain pests adequately compared to the horticultural spray oils. Horticultural oils also unlike pesticides are not prone to resistance developing, because they work primarily to suffocate or detour pests and diseases.

There was not a new Technical Review requested by the subcommittee during this current 2017 Sunset Review cycle.

During the 1<sup>st</sup> posting for public comment of this current Sunset Review cycle there were 3 specific questions posed to organic stakeholders and the public to assist the subcommittee in their review of Horticultural oils. There were 27 written comments submitted and several oral comments given at the Spring NOSB meeting in La Jolla, Ca. There was one commenter asking that the use patterns for oils be annotated or if not then it should be de-listed. One certifier commented that horticultural oils are listed on 1,041 of the Organic System Plans of those clients that they certify. Another commenter mentioned that a poll of their members found that this material remains important and still very necessary for organic crop producers. There was over whelming written and oral comments given in support of the continued listing and need for this material in organic crop production.

The comments received helped to provide some insight for the subcommittee and the full NOSB, in their required review of this material and helped to answer some of the questions that had been posed during the 1<sup>st</sup> posting for comment. Some of this information helped to explain to the subcommittee that while there are numerous possible alternatives, many times because of certain situations or conditions, horticultural oils still remain the best option for use in their specific operations. Commenters explained how these oils are used and why. They are allowed world-wide by most organic certifying bodies for use in organic crop production. The commenters also helped answer the question of use patterns under this current Sunset Review cycle stating that there have not been any changes in use or in alternatives that would make Horticultural oils unnecessary, in fact the use has expanded some due to growth in this segment of organic production.

Based off of extensive review of historical documents, previous subcommittee recommendations and the subsequent votes/discussion by the full board, previous and current public comments, and any other information provided to the subcommittee during this current review cycle: it would appear that Horticultural oil still remains a necessary material for use in organic crop production. There was no specific information provided that would suggest otherwise.

### **Motion to Remove**

This proposal to remove Horticultural oils will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Horticultural oils from the National List based on the following

criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: None given.

### **Vote in Crops Subcommittee**

Motion to remove Horticultural Oil from 205.601(e) and 205.601(i)

Motion by: Harold V. Austin IV

Seconded by: Francis Thicke

Yes: 0 No: 5 Abstain: 0 Absent: 0 Recuse: 0

## **Soaps, insecticidal**

**Reference:** 205.601(e)(8) - As insecticides (including acaricides or mite control).

**Technical Report:** [1994 TAP](#)

**Petition(s):** N/A

**Past NOSB Actions:** [04/1995 NOSB minutes and vote](#); 11/2005 NOSB sunset recommendation; 10/2010 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### **Subcommittee Review**

Generally, soaps consist of salts of fatty acid anions and potassium, sodium, or ammonium cations. Soap products are registered with the EPA as acaricides, algicides, herbicides, insecticides and animal repellents intended for residential, agricultural and commercial use ([TR for soaps, herbicidal](#)). For organic crop production, soaps are on the National List for three uses: soap-based algicides/demossers, soap-based herbicides and soap-based insecticides.

As insecticides, fatty-acid soaps disrupt the structure and permeability of the insects' cell membranes. The cell contents then leak from the damaged cells, and the insect dies. There is no residual insecticidal activity once the spray application has dried. Insecticidal soaps are most effective on soft-bodied pests such as aphids, adelgids, lace bugs, leafhoppers, mealy bugs, thrips, sawfly larvae, spider mites and whiteflies. Soap has a limited effect on non-target beneficial insects such as ladybird beetle larvae, parasitic wasps and honey bees, but it can be disruptive to soft-bodied predators, such as syrphid fly larvae and beneficial predatory mites. Once the spray has dried, however, beneficial insects can safely re-enter the treated area (Pundt).

Soaps have low mammalian toxicity. However, they can be mildly irritating to the skin or eyes. Insecticidal soaps are biodegradable, do not persist in the environment, and they do not contain any organic solvents (Pundt).

In the first round of public comments, the Crops Subcommittee heard that some organic producers use insecticidal soaps regularly, and they rated insecticidal soaps as critical to the success of their operations.

The Crops Subcommittee recommends that insecticidal soaps remain on the National List.

### Reference

[Pundt Leanne S., University of Connecticut, Extension Fact Sheet.](#)

### Motion to Remove

This proposal to remove soaps, insecticidal, will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of soaps, insecticidal, from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable:  
None given.

### Vote in Subcommittee

Motion to remove Insecticidal soaps from 205.601(e)(8)

Motion by: Francis Thicke

Seconded by: Harold Austin

Yes: 0 No: 5 Abstain: 0 Absent: 0 Recuse: 0

## Sticky traps/barriers

**Reference:** §205.601(e) As insecticides (including acaricides or mite control).  
(9) Sticky traps/barriers.

**Technical Report:** 1995 TAP

**Petition(s):** N/A

**Past NOSB Actions:** 10/1995 NOSB minutes and vote; 11/2005 NOSB sunset recommendation; 10/2010 NOSB sunset recommendation

Recent Regulatory Background: Sunset renewal notice published 06/06/12 (77 FR 33290) Sunset Date: 6/27/17

### Background

This listing covers a wide range of traps and coatings made with a number of different materials. Some are coated paper, some are coated plastic, and some are a sticky chemical that is brushed on plants. Coated plastic, at least, produces plastic waste that goes to the landfill. The sticky coating may contain petroleum distillates, and the traps may contain volatile attractants. Some are non-specific and can kill non-target insects, spiders, mites, reptiles, and amphibians.

One TAP reviewer (in 1995) suggested the traps are compatible with organic only in processing plants.

Another suggested they should be used only for monitoring or mass trapping. Twenty years since the review, there are many more types of traps, including targeted lures to attract only pest insects, and significant experience with use in organic farming without negative consequences or problems.

#### **Additional information requested and considered by NOSB**

For review, there were questions posed to the public in order to fully consider the questions at hand. Further information questions included:

1. Can/should the wide range of products covered by this listing be categorized by use and materials?
2. Are some uses of sticky traps incompatible with organic production?

Upon receipt of written, or in live testimony at the April, 2015 NOSB public meeting in La Jolla, CA, clearly the simple majority supported the relisted use of sticky traps/barriers as listed in 205.601 as a permitted synthetic. Product availability coupled with successful insect control experience was the primary reason noted.

With the concern regarding environmental impact, and the likelihood of trapping non-target animals, comment was made that the CS should consider an annotation which ensures the targeted use of said traps.

#### **Motion to Remove**

This proposal to remove Sticky Traps/Barriers will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Sticky Traps/Barriers from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable:  
None given

#### **Vote in Subcommittee**

Motion to remove sticky traps from §205.601(e)

Motion by: Francis Thicke

Seconded by: Carmela Beck

Yes: 0 No: 5 Abstain: 0 Absent: 1 Recuse: 0

#### **Sucrose octanoate esters**

**Reference:** 7 CFR 205.601(e), 205.603(b)

**Technical Report:** [Livestock 2005 Technical Report](#); [Crops 2005 Technical Report](#)

**Petition(s):** [2004 Sucrose Octanoate Esters](#); [Amendment #1](#); [Amendment #2](#)

**Past NOSB Actions:** [08/2005 NOSB recommendation for addition to NL](#); [10/2010 NOSB sunset recommendation](#)

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### **Subcommittee Review**

**Use** – As a synthetic substance allowed in crop and livestock production to control soft bodied insects, such as whiteflies, aphids and mealybugs

This material is considered synthetic due to the manufacturing process, which uses a number of catalytic and chemical processes to create this otherwise naturally occurring substance in a cost effective manner. It is approved for food use by the FDA and biodegrades, with no persistence in the environment. It is registered with EPA as a biopesticide with no known risks to the environment. Although solvents are used in the manufacturing process they are of low toxicity and the patented process of the petitioner apparently recovers and reuses them so that there is no liquid and minimal air waste discharge.

According to the NOSB checklist, there are natural soaps and oils that could be used as alternatives, as well as other management practices that should be attempted before use of this product.

During the first review of this material, no concerns were raised about the use of the product. The small amount of public comment was in support, with other public comment seeking additional technical information for its use.

### **Motion to Remove**

This proposal to remove will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Sucrose octanoate esters from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable:  
None given.

### **Vote in Subcommittee**

Motion to remove Sucrose octanoate esters from §205.601(e)

Motion by: Paula Daniels

Seconded by: Harold Austin

Yes: 0 No: 6 Abstain: 0 Absent: 0 Recuse: 0

## **Pheromones**

**Reference:** 205.601(f) - as insect management.

**Technical Report:** 1995 TAP; 2012 TR

**Petition(s):** N/A

**Past NOSB Actions:** 04/1995 NOSB minutes and vote; 11/2005 NOSB sunset recommendation; 10/2010 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### **Subcommittee Review**

Pheromones are a volatile chemical produced in nature by a given species to communicate with other individuals of the same species to affect their behavior. Pheromones are produced naturally by many

organisms and are synthetically produced for use in agriculture. Insect pheromones are generally comprised of very specific esters. These compounds are derived by reacting an oxoacid with a hydroxyl compound, such as an alcohol or phenol, or are formed by condensing an acid with an alcohol. These are odorless materials that are released from the dispenser into the surrounding air. Inerts may be used as part of the formulation process. Considered generally non-toxic and have a low persistence in the environment.

Pheromones are used by organic (and many conventional) crop producers and are especially important for organic tree fruit production. Pheromones are used by growers in a variety of ways such as: to monitor insect presence and population density; trapping certain insects; used in 'attract and kill' systems; and for use in mating disruption or confusion.

- Trapping can be used in a couple of different use patterns: one use would involve mass trapping to help in reducing the overall numbers of an insect pest. Another use would be utilizing the pheromone (placed within a trap) for a specific insect to help the grower to identify its presence and levels of insect population pressure. Ultimately helping to identify if additional crop protection measures are needed or not.
- Attract and kill systems utilize the synthetic pheromone to bring a specific targeted insect into contact with an insecticide.
- Mating disruption/confusion uses the synthetic pheromone to saturate a targeted area that can cause the male of the target species to become confused and disoriented, thus unable to locate the species female for mating. Normally in organic crop production these pheromones are dispersed for use via a passive pheromone dispenser (including traps and lures). Some forms of these dispensers are: pheromone-impregnated polymer spirals, ropes, coils, twist ties, or tubes. The use of wires, clips, or circular tubes allows these pheromone dispensers to be placed directly in the intended area of usage.

### **International**

- Canadian General Standards Board allows pheromones. (List 4A & List 4B3)
- European Economic Community, Council Regulations # 889/2008 allows for their use
- Codex Alimentarius Commission allows for their use.

In the original TAP the reviewers found pheromones to be compatible with sustainable agriculture. During the 2011 Sunset Review there was an annotation that had been proposed for addition to the pheromone listing proposal, but was ultimately withdrawn. That annotation was: "provided that they are formulated with only approved inert ingredients". Currently the USDA permits the use of synthetic pheromones in insect management (7CFR 205.601(f)). Inert ingredients on the EPA List 3 ( inerts of unknown toxicity) and the EPA List 4 (inerts of minimal concern) may be used in conjunction with synthetic pheromone substances (7CFR 205.601(m)); however, the EPA List 3 inerts are only allowed for use in passive pheromone dispensers (7CFR 205.601(m)(2)).

There was a new Technical Evaluation Report issued on March 27, 2012. During past reviews there has

been concern raised over the inerts because they do include known irritants, sensitizers, and allergens. In the 2012 TER it mentions that some compounds could potentially be linked to asthma, cancer, or endocrine disruption. However, under the current use of pheromones utilizing passive pheromone dispensers it is not believed that they would release enough volume to leave any kind of residue on the agricultural crops being treated. It also states that dissipation takes place via volatilization and degradation, rapidly into the environment.

There were some concerns raised around the use of “encapsulated pheromones” (those concerns mentioned harm to honey bees and concerns over aerial applications). During the 1<sup>st</sup> posting for public comment the subcommittee posed several questions for stakeholder input. Comments back to those questions stated that there were no known forms of encapsulated pheromones currently being used in organic crop production.

Also during the 1<sup>st</sup> public comment period for this current Sunset Review cycle there were numerous public comments submitted (both written and oral). Several certifiers responded that their clients continue to rely upon the use of pheromones, with one stating that they are listed on 450 of their producers Organic Systems Plans. There were numerous comments stating how important to organic tree fruit production the use of pheromones are and continue to be. The loss of them would mean the removal of many acres of organic tree fruit, because this is their primary defense for codling moth (also significantly used now in conventional crop production). During this review cycle there were no comments specifically in opposition of re-listing pheromones, while there were numerous public and stakeholder comments as to how necessary pheromones continue to be for organic crop production.

It was also mentioned that during this current Sunset Review cycle the use of pheromones in organic crop production has continued to increase, as various formulations have been developed for specific target species.

Another commenter stated that their organization would support the continued listing, but asked for two specific annotations be added.

In general there was over whelming public comments offered in support of the continued listing on the National List of this material, with one specific comment against its listing.

### **Motion to Remove**

This proposal to remove Pheromones will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Pheromones from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: None given

### **Vote in Crops Subcommittee**

Motion to remove Pheromones from 205.601(f)

Motion by: Harold V. Austin IV

Seconded by: Carmela Beck

Yes: 0 No: 5 Abstain: 0 Absent: Recuse: 0

## Vitamin D3

**Reference:** 205.601(g) - as rodenticides.

**Technical Report:** [1995 TAP](#); [2011 TR](#)

**Petition(s):** N/A

**Past NOSB Actions:** 10/1995 NOSB minutes and vote; 11/2005 NOSB sunset recommendation; 04/2011 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### Subcommittee Review

Vitamin D3 is a well-known vitamin supplement safe for use in humans. A synthetic derivative known as cholecalciferol is used at dosage levels as a rodenticide; its mechanism of action is to cause high levels of calcium in the rodent, which leads to calcification and blockage in the circulatory system.

This material is considered synthetic due to the extraction process that uses organic solvents and ultraviolet light. According to the TR there are no notable environmental impacts from its manufacture or use, and the EPA has approved its use as a rodenticide.

Alternative natural materials could be smoke bombs or castor bean oil pellets or sprays; however, these are labor intensive in use.

Other management practices could be the use of deterrents such as rotten eggs, animal scents, hair; or repellent plants such as castor bean, daffodils, squill, euphorbia; or predators such as corn snakes, cats and owls. (However, corn snakes and cats may also consume chicks and eggs). More common is the use of traps.

At the public meeting, there was discussion of the mechanism of action of this material, in that its use causes cardiac arrest in rodents, with an implication that more humane methods of extermination should be considered. There was also discussion among board members regarding the lack of effectiveness of traps and other methods. Public comment was divided, with those in favor stating that its use was critical for rodent control without viable alternatives; those opposed to relisting asserted its potential for toxicity to non-target animals as well as children and pets.

Input is sought from the public as to whether non-synthetic rodenticides are effective and should be considered as viable alternatives.

### Motion to Remove

This proposal to remove Vitamin D3 will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Vitamin D3 from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: None given

### Vote in Subcommittee

Motion to remove vitamin D from §205.601(g)

Motion by: Paula Daniels

Seconded by: Harold Austin

Yes: 0 No: 6 Abstain: 0 Absent: 0 Recuse: 0

### Coppers, fixed

**Reference:** 205.601(i) As plant disease control. (2) Coppers, fixed —copper hydroxide, copper oxide, copper oxychloride, includes products exempted from EPA tolerance, *Provided*, That, copper-based materials must be used in a manner that minimizes accumulation in the soil and shall not be used as herbicides.

**Technical Report:** [1995 TAP](#); [2011 TR](#)

**Petition(s):** N/A

**Past NOSB Actions:** 10/1995 NOSB meeting minutes and vote; 11/2005 NOSB sunset recommendation; [04/2011 NOSB sunset recommendation](#)

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### Subcommittee Review

Copper is an important tool for organic producers as part of a comprehensive approach to disease management in many crops. While some copper minerals and compounds occur in nature, products for agriculture are made from by-products of processing copper ores and are considered synthetic. Copper is on the list of exemptions for synthetic materials in OFPA at [§6517(c)(1)(B)(i)]. This review applies to both the listing for Coppers, fixed and the listing for Copper Sulfate on the National List 205.601.

The last Technical Report (TR) was completed in 2011 at which time the EPA had recently completed a re-assessment of copper products. The potential adverse impacts are well known and were discussed in the TR. The main concern with copper materials is their potential to accumulate to toxic levels in the environment. The TR notes the many factors that can affect copper accumulation (2011 TR lines 465 to 549). To address this concern, the copper listings on the National List have the annotation "That, copper-based materials must be used in a manner that minimizes accumulation in the soil..."

To put copper use patterns into perspective, we consulted the *Materials Fact Sheet Copper Products from the Organic Resource Guide, 2nd edition (2013)*:

<http://web.pppmb.cals.cornell.edu/resourceguide/pdf/resource-guide-for-organic-insect-and-disease-management.pdf>

"In New York, maximum soil concentration rates for copper have been recommended based on soil type; rates range from 40 ppm in sandy soils, to 60 ppm in silt loam, to 100 ppm in clay soils. These rates have been suggested in order to protect against phytotoxicity and negative impacts

on soil life (Harrison et al. 1999). Typically, each spray with a copper-based fungicide results in an application of 1 to 4 lb. of copper per acre, raising the topsoil concentration from 0.5 to 2 ppm; often several copper sprays are made per season. Under a heavy copper spray program, toxic topsoil levels could be reached in a matter of decades."

The high variability in copper use patterns and organic farming situations has led us to conclude that the annotation in place for this substance is appropriate since certifiers are able to assess copper accumulation in the context of a specific farming operation. However, to make sure that this is true, public comment was requested from growers on the importance of this material, and the ways of monitoring accumulation. Input from certifiers was sought on whether testing was being required for monitoring and whether there have been non-compliances issued for enforcement of this annotation.

The effects on human health from agricultural copper were addressed in the TR as follows:

"In "III Summary of Coppers Risk Assessments" of RED-Cu (2009), human health risk, after aggregate or combined exposure to copper compounds, was adequately assessed. The basic considerations are that copper is naturally-occurring, ubiquitous in environment, copper itself is a nutrient, copper deficiency is more of a problem than copper over-exposure, the active assimilation of copper through routes of food, drink, air, non-occupational sources, and other exposure is efficiently modulated, excessively available copper is not assimilated but instead is actively excreted, and no systematic and carcinogenic effects are observed/confirmed. The overall conclusion is that copper, when used as pesticide following the label, would not cause toxic effects." (2011 TR lines 933 - 940)

The effects of copper on the agro-ecosystem (including on biodiversity) were also discussed in the TR:

The 2011 TR (lines 647 - 761) is quite extensive and evaluates many studies on soil microorganisms, earthworms, and crops. The conclusions in all instances is that it depends on the soil composition, soil pH, concentration of copper, species being studied, and crop species being grown.

and:

Copper can have a significant diminishing effect on biodiversity in an aquatic environment such as wetlands. However it is not prone to leaching or runoff in all but the sandiest of soils and is not likely to end up in the sensitive environments if used according to label restrictions. In contrast, copper can be used to control invasive aquatic plants that out-compete native plants in some ecosystems and this would have a positive effect on biodiversity. (2011 TR lines 870 - 874)

The TR closes with a quote from the "Reregistration Eligibility Decision (RED) for Coppers – Revised May 2009":

"U.S. EPA recognized the advantages of using copper pesticides (RED-Cu, 2009): "Through extensive outreach to the public as well as additional comments and refined information provided by the user community, the Agency has determined that there are many benefits that support the significance and continued agricultural uses of copper pesticides. A significant

benefit is that copper exposure from all sources, including use as a pesticide in agricultural settings, does not pose any human health concerns. Although there is still potential for ecological effects to non-target organisms, there are many benefits to retain agricultural uses of copper pesticides" (from the 2011 TR lines 988-996, p.20)

### **Review of Public Comment from Spring 2015**

The great majority of comments received on copper noted how important of a material this is in organic production. It is used for a wide variety of plant diseases, from fire blight on apples and pears, to Late Blight on tomatoes, to Black, Blue, and Brown Rots and Spots on brassicas, peppers, beans, spinach and more. In all cases it is necessary to the production of a crop after all other efforts at control have failed. Most producers who wrote comments in try to use the minimum amount necessary and rotate copper with other biological materials. They also try to choose formulated products that have lower overall copper content if they are concerned about environmental impact. Several growers noted that it is especially important to have copper as an option for Fire Blight control now that the antibiotics are no longer allowed.

Comments from certifiers directly indicated that they require either a testing protocol or an overall copper monitoring plan for growers who include copper on their OSPs. None of the certifiers who wrote comments have issued a non-compliance for accumulation of copper, but several have done so for not having a monitoring plan in place.

While the only public comments that were opposed to copper on the National List were 3 private individuals, there were several groups who raised concerns that they would like to have addressed. Some groups wanted annotations to stipulate exactly which uses were allowed and specify application rates. A couple of groups called for further research on alternative tools for disease management in organics. Several groups noted that while the intention of the current annotation is appropriate, it is not enforced evenly and some growers are abusing copper sprays to the point where the harvested crop turns color from high copper use.

The Crops Subcommittee strongly supports the idea of further research on alternative to copper and has put this forward as our one new Research Priority for 2015. In reviewing the possibility of annotations changes and knowing how cumbersome a process that can be when over 200 materials will be reviewed in the fall of 2015, we would ask the public to consider petitioning concrete ideas on future annotation changes for the NOSB to review in 2016. With copper used on over 50 different crops for 25 or more diseases (as reported in public comments) it is a daunting task for the NOSB to get more specific. One possible annotation that could be considered is the language that some of the western certifiers had in their standards before OFPA and the USDA organic regulations were published. This annotation (which was in addition to the current one about accumulation) stated: "No visible residue is allowed on harvested crops."

The Crops Subcommittee's review has led us to believe that the current annotation is working well enough to assure that the criteria in OFPA are satisfied, although certifier enforcement of the annotation might need to be looked at by NOP auditors.

### **Motion to Remove**

This proposal to remove will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Coppers, fixed from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: Compatibility with Sustainable Agriculture.

#### **Vote in Subcommittee**

Motion to remove Coppers, fixed from 205.601(i)

Motion by: Zea Sonnabend

Seconded by: Harold Austin

Yes: 0 No: 4 Abstain: 1 Absent: Recuse: 0

### **Copper sulfate**

**Reference:** 205.601(i) As plant disease control. (3) Copper sulfate —Substance must be used in a manner that minimizes accumulation of copper in the soil.

**Technical Report:** [1995 TAP](#); [2011 TR](#)

**Petition(s):** N/A

**Past NOSB Actions:** 10/1995 NOSB meeting minutes and vote; 11/2005 NOSB sunset recommendation; [04/2011 NOSB sunset recommendation](#)

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

#### **Subcommittee Review**

See Coppers, fixed.

#### **Motion to Remove**

This proposal to remove will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Copper Sulfate from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: Compatibility with Sustainable Agriculture.

#### **Vote in Subcommittee**

Motion to remove Copper Sulfate from 205.601(i):

Motion by: Zea Sonnabend

Seconded by: Harold Austin

Yes: 0 No: 4 Abstain: 1 Absent: 0 Recuse: 0

## Hydrated lime

**Reference:** 205.601(i)(4) - As plant disease control.

**Technical Report:** 1995 TAP; 2001 TAP; 2002 TR for Calcium Hydroxide

**Petition(s):** N/A

**Past NOSB Actions:** 04/1995 NOSB minutes and vote; 04/2006 sunset recommendation; 10/2010 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### Subcommittee Review

Hydrated lime (calcium hydroxide, slaked lime, calcium hydrate, carboxide, lime water) is a synthetic produced by the slow addition of water to crushed or ground quicklime (calcium oxide), which is produced by burning various forms of limestone. The two most common uses given in public comment were as an ingredient used to make Lime Sulfur and a disease control in mushroom production.

Most of the public comments were in favor of keeping hydrated lime on the National List. No new information was received from the public about hydrated lime in relation to the OFPA criteria.

The manufacture of lime-sulfur, which many commentators said they could not farm organically without, requires the use of hydrated lime, as does the on-farm production of Bordeaux mixture (copper containing compound). Lime sulfur is used to control fungus, mites, and insects in apples, grapes, blueberries, cherries, and other tree and vine crops. It is also a key material in the control of Fire Blight in the year since the antibiotics went off the National List. Some commentators made the point that lime sulfur has been used for two hundred (200) years with no recorded loss of effectiveness (resistance).

A few commenters stated that no synthetic substances should be allowed in organic, but failed to show how these materials violate OFPA. The Crops Subcommittee found no concerns with this substance that would prevent its renewal on the National List.

### Motion to Remove

This proposal to remove will be considered by the NOSB at its public meeting.

The Subcommittee proposes a motion to remove Hydrated Lime from §205.601(i)(4) based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: none given.

### Vote in Subcommittee

Motion to remove Hydrated Lime from §205.601(i)(4)

Motion by: Zea Sonnabend

Seconded by: Francis Thicke

Yes: 0 No: 5 Abstain: 0 Absent: Recuse: 0

## Potassium bicarbonate

**Reference:** 205.601(i)(9) - As plant disease control.

**Technical Report:**1999 TAP; 2015 TR

**Petition(s):** N/A

**Past NOSB Actions:** 10/1999 NOSB meeting minutes and vote; 11/2005 NOSB sunset recommendation; 10/2010 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### Subcommittee Review

Potassium bicarbonate (CAS # 298-14-6) is on the National List at §205.601(i)(9) as a plant disease control material. It is used by organic crop producers to control: Alternaria in cucurbits and cole crops; anthracnose in cucurbits, blueberries, grapes, spinach and strawberries; black dot root rot in potatoes and also early blight; sooty blotch and powdery mildew in apples; downy mildew in cucurbits, cole crops, grapes, lettuce; gray mold (*Botrytis cinerea*) in beans, lettuce, and strawberries, to name just a few of the crops and specific diseases it helps to control. Historically it has proven to be an extremely important disease control aid in organic crop production.

Potassium bicarbonate is produced by carbonating potassium hydroxide to  $K_2CO_3$  which is then carbonated to  $KHCO_3$ . Carbonation is accomplished by injecting carbon dioxide gas into an aqueous solution of potassium hydroxide.

The original TAP review found this material to be compatible with organic crop production, safer and more environmentally friendly than many of the alternatives both, organic or otherwise. It also states that the components readily dissipate in the environment. During the first Sunset Review period and the subsequent posting of the final rule published October 16, 2007, potassium bicarbonate for plant disease control was renewed. It was mentioned that a foreign government stated that this material and several others were not included in Annex 2 of the Codex Guidelines for Organically Produced Foods and asked for justification for their continued use. The response back to this comment was that these materials had been determined by the NOSB and the Secretary to meet national statutory and regulatory provisions under OFPA. (Potassium bicarbonate (potassium hydrogen carbonate) has since been added to the Codex Alimentarius Commission Guidelines). During the 2010 Sunset Review of potassium bicarbonate, it was renewed unanimously (October, 2012 Sunset date). The subcommittee has reviewed previous decisions, historical data, and additional information that has been provided to them during this current review cycle.

The subcommittee received a Limited Scope TR on January 22, 2015. This LSTR looked at two specific Evaluation Questions: #11 Which asked about natural substances or products that may take the place

of this material. Also, # 12 Which asked about alternative practices that would make the use of potassium bicarbonate unnecessary.

While the new LSTR does a remarkable job of identifying answers to the two specific questions around alternative materials and practices, it did not provide the complete answer. Further clarification surrounding the efficacy of these materials as possible replacements and identification of under what conditions or scenarios the material under review or its possible replacement might give the better control measure for the targeted disease will need to be provided by the appropriate organic stakeholders.

We did get some information regarding this during the 1<sup>st</sup> public comment period both from written public comment as well as during oral comments at the Spring NOSB meeting in La Jolla. Public comments answered one of the subcommittee's questions regarding the question as to whether or not potassium bicarbonate is still an important material for organic crop producers. The producer response was that this material was still very necessary in organic crop production. Several certifiers stated how extensively this material showed up on those organic producers that they certify OSP's, thus showing its continuing use in organic crop production.

While there appears to be possible alternative materials or practices that might help to replace its use in certain scenarios, it does not appear based off of the information provided that the use of potassium bicarbonate could adequately be replaced by these under all circumstances or conditions. Thus potassium bicarbonate still remains necessary for use in organic crop production.

### **Motion to Remove**

This proposal to remove potassium bicarbonate will be considered by the NOSB at its public meeting.

The Crops Subcommittee proposes removal of potassium bicarbonate from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable:  
None given.

### **Vote in Crops Subcommittee**

Motion to remove Potassium Bicarbonate from 205.601(i)(9)

Motion by: Harold V. Austin IV

Seconded by: Carmela Beck

Yes: No: 5 Abstain: 0 Absent: Recuse: 0

## **Aquatic plant extracts**

**Reference:** 205.601 (j) As plant or soil amendments. (1) Aquatic plant extracts (other than hydrolyzed) – Extraction process is limited to the use of potassium hydroxide or sodium hydroxide; solvent amount is limited to that amount necessary for extraction.

**Technical Report:** [2006 TR](#)

**Petition(s):** N/A

**Past NOSB Actions:** 10/1995 NOSB minutes and vote; 04/2006 sunset recommendation; 10/2010 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### **Subcommittee Review**

Plant extracts are composed of chemicals naturally found in aquatic plants, mostly derived from kelp. Aquatic plants contain proteins, lipids, sugars, amino acids, and nutrients, & vitamins. Kelp contains a wide range of naturally occurring plant nutrients & trace minerals essential to plant growth, health, and productivity. Manufacture involves an alkali extraction process using potassium hydroxide or sodium hydroxide.

The Subcommittee did not pose any questions to the public during our Spring 2015 meeting regarding this listing.

The overwhelming majority of comments were in favor of keeping aquatic plant extracts on the National List. No new information was received from the public about aquatic plant extracts in relation to the OFPA criteria.

One commenter opposed the relisting because, as they state: All of these substances are synthetic materials that feed plants directly –or, in some cases, provide other growth promotion functions. Furthermore, they continue by saying that it is inconsistent with organic production practices to use synthetic materials for these uses. However, as reiterated through extensive public comment, aquatic plant extracts are an important element of fertility programs on many organic farms & removal from the National List would significantly, negatively impact an innumerable number of growers. The Crops Subcommittee found no concerns with these substances that would prevent their renewal on the National List.

### **Motion to Remove**

This proposal to remove will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Aquatic Plant Extracts from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: Compatibility with Organic Agriculture.

### **Vote in Subcommittee**

Motion to remove Aquatic plant extracts from 205.601(j)

Motion by: Carmela Beck

Seconded by: Harold Austin

Yes: 0 No: 5 Abstain: 0 Absent: 0 Recuse: 0

## Humic acids

**Reference:** 205.601(j) As plant or soil amendments. 3) Humic acids - naturally occurring deposits, water and alkali extracts only.

**Technical Report:** [1996 TAP](#); [2006 TR](#)

**Petition(s):** N/A

**Past NOSB Actions:** 09/1996 meeting minutes and vote; 04/2006 sunset recommendation; 10/2010 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### Subcommittee Review

Humic acids are used as a component of traditional fertilizers, they do not provide additional nutrients to plants, but rather affect soil fertility by making micronutrients more readily available to plants. Commercially available humic acids are derived from leonardite, lignite, or coal. Extracts from nonsynthetic humates by hydrolysis using synthetic or nonsynthetic alkaline materials are permitted including the use of potassium hydroxide and ammonium hydroxide.

The Subcommittee did not pose any questions to the public during our Spring, 2015 meeting regarding this listing. The overwhelming majority of comments were in favor of keeping humic acids on the National List. No new information was received from the public about humic acids in relation to the OFPA criteria. One commenter opposed the relisting because, as they stated: humic acids do not meet the criteria under OFPA due to the environmental hazards related to the extraction process, are not essential, and are not compatible with organic production. However, as reiterated through extensive public comment, humic acids are a very critical and necessary element of nutrient management in organic farming; removal from the National List would significantly, negatively impact an innumerable number of growers. The Crops Subcommittee found no concerns with these substances that would prevent their renewal on the National List.

The issue of synthetically extracted humic acids not being allowed in Japan was discussed in subcommittee, as was the difference between synthetic alkali extractants and non-synthetic materials used for extraction. It is hoped that the Classification of Materials Final Guidance will clear up the latter issue.

### Motion to Remove

This proposal to remove will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Humic Acids from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: Compatibility with Organic Agriculture.

### Vote in Subcommittee

Motion to remove Humic Acids from 205.601(j)3

Motion by: Carmela Beck

Seconded by: Harold Austin

Yes: 2 No: 2 Abstain: 1 Absent: 0 Recuse: 0

## Lignin sulfonate

**Reference:** 205.601(j) As plant or soil amendments. (4) Lignin sulfonate —chelating agent, dust suppressant.

**Technical Report:** [2011 TR](#); [1995 TAP](#)

**Petition(s):** N/A, 2014 Petition to remove as floating agent

**Past NOSB Actions:** 10/1995 NOSB Minutes and vote; 04/2006 Sunset Rec; 04/2011 NOSB Rec to amend, 04/2011 NOSB Sunset Rec

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### Background from Subcommittee:

Lignin sulfonates are used as chelating agents and dust suppressants found in brand name fertilizer and soil amendments. Lignin is extracted from wood, which has been treated with sulfites in the pulping process. They are by-products of the wood and cellulose industries.. Chelates help supply nutrients to plants.

### Subcommittee Review

There was substantial public comment presented at the Spring, 2015 meeting in support of relisting this material as a chelating agent and dust suppressant. There were some concerns regarding the paper pulping process, however no new information regarding this environmental concern was provided. The Subcommittee did not pose any questions to the public at that time. The Crops Subcommittee found no concerns with these substances that would prevent their renewal on the National List.

### Motion to Remove

This proposal to remove Lignin Sulfonate will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Lignin Sulfonate from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: OFPA criteria at 7 U.S.C. 6158(m), (7) its compatibility with a system of sustainable agriculture.

### Vote in Subcommittee

Motion to remove lignin sulfonate from §205.601(j)(4) as chelating agent and dust suppressant.

Motion by: Carmela Beck

Seconded by: Harold Austin

**Yes: 0 No: 5 Abstain: 0 Absent: 1 Recuse: 0**

## Lignin sulfonate

**Reference:** 205.601(l)(1) - As floating agents in postharvest handling.

**Technical Report:** [2011 TR](#); [1995 TAP](#)

**Petition(s):** N/A, 2014 Petition to remove as floating agent

**Past NOSB Actions:** 10/1995 NOSB Minutes and vote; 04/2006 Sunset Rec; 04/2011 NOSB Rec to amend, 04/2011 NOSB Sunset Rec

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

**Background from Subcommittee:**

Lignin sulfonate is used as a floating agent for pears and apples in postharvest handling facilities. Lignin is extracted from wood, which has been treated with sulfites in the pulping process. They are by-products of the wood and cellulose industries.

**Subcommittee Review**

There was no public comment presented at the Spring, 2015 meeting in support of relisting this material for use as a floating agent in postharvest handling. The Subcommittee asked for public input on the following two questions in preparation for the spring 2015 NOSB meeting: 1) Will removal of lignin sulfonate as a floating agent disrupt your business? And 2) Should the use of lignin sulfonate be subject to documented monitoring of waste water in the OSP?

We did not receive any written or verbal comments in favor or against relisting the material nor did we receive answers to the aforementioned questions. In the absence of any industry feedback, the Crops Subcommittee recommends removal of Lignin Sulfonate because it is no longer an essential material in organic crop production. This decision was also influenced by the existing petition seeking removal for use of lignin sulfonate as a floatation agent. In 2014 a trade association conducted a poll of all certified organic pear packing facilities in the U.S. to determine if the material was still in use; their results indicated that no handlers were using Lignin Sulfonate. Alternatives to Lignin Sulfonate include the use of floatless systems that don't require floating agents or, when necessary, the use of the following National listed materials 1) sodium silicate, 2) sodium carbonate, and 3) potassium carbonate.

**Motion to Remove**

This proposal to remove Lignin Sulfonate will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Lignin Sulfonate from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: OFPA criteria at 7 U.S.C. 6158(m), (7) its compatibility with a system of sustainable agriculture.

Motion to remove Lignin Sulfonate from section 205.601(l)(1) of the National List for use as a floating agent in postharvest handling, and to acknowledge support for the petition received on this removal.

**Vote in Subcommittee**

Motion to remove Lignin Sulfonate from section 205.601(l)(1) of the National List for use as a floating agent in postharvest handling, and to acknowledge support for the petition received on this removal.

Motion by: Zea Sonnabend

Seconded by: Colehour Bondera

Yes: 5 No: 0 Abstain: 0 Absent: 1 Recuse: 0

## Magnesium Sulfate

**Reference:** 205.601 (j)(5) - As a plant or soil amendment. Magnesium sulfate—allowed with a documented soil deficiency.

**Technical Report:** [1995 TAP](#); [2011 TR](#)

**Petition(s):** N/A

**Past NOSB Actions:** 04/1995 NOSB minutes and vote; 11/2005 NOSB sunset recommendation; 04/2011 sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### Subcommittee Review

Magnesium sulfate can be obtained from naturally-occurring sources (kieserite or epsomite open-pit mines) or can be manufactured by a chemical process. Mineral forms of magnesium sulfate are dehydrated, purified and reacted with sulfuric acid to create the magnesium sulfate synthetic version. The material is used to correct for magnesium soil deficiencies and helps to improve the uptake of nitrogen and phosphorus by crops, to help seeds germinate, to increase chlorophyll production, to aid in the production of flowering and is vital in maintaining crop growth and yield.

Historically, there have been no commercially available products containing mined, raw mineral magnesium sulfate in bulk quantities suitable for agriculture. For this reason, the production of synthetic magnesium sulfate has been necessary. The Crops Subcommittee asked the following question in our spring, 2015 NOSB meeting proposal: Is non-synthetic magnesium sulfate available in the marketplace? Public comment indicated that the only form of non-synthetic magnesium sulfate that has been reviewed is potassium magnesium sulfate or langbeinite. However, this material is not a reliable alternative because it is only available in limited quantities and it is impossible to determine upon purchase whether or not langbeinite is synthetic or non-synthetic.

The majority of comments were in favor of keeping magnesium sulfate on the National List. No new information was received from the public about magnesium sulfate in relation to the OFPA criteria.

One commenter opposed the relisting because, as they state: nonsynthetic magnesium sulfate is available as langbeinite and dolomite however langbeinite is constrained by supply and classification issues. While dolomite can be used to treat a magnesium deficiency it is not as effective as magnesium sulfate and was not referenced by other commenters as a viable alternative. The Crops Subcommittee found no concerns with these substances that would prevent their renewal on the National List.

### Motion to Remove

This proposal to remove will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Magnesium Sulfate from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: Compatibility with Organic Agriculture.

### Vote in Subcommittee

Motion to remove Magnesium Sulfate from 205.601(j) as a plant and soil amendment

Motion by: Carmela Beck

Seconded by: Harold Austin

Yes: 0 No: 5 Abstain: 0 Absent: 0 Recuse: 0

## Micronutrients

**Reference:** 205.601 (j)(6) - As a plant or soil amendment. Micronutrients—not to be used as a defoliant, herbicide, or desiccant. Those made from nitrates or chlorides are not allowed. Soil deficiency must be documented by testing. (i) Soluble boron products. (ii) Sulfates, carbonates, oxides, or silicates of zinc, copper, iron, manganese, molybdenum, selenium, and cobalt.

**Technical Report:** [2010 TR Micronutrients](#)

**Petition(s):** N/A

**Past NOSB Actions:** 04/1995 NOSB minutes and vote; 11/2005 NOSB sunset recommendation; 10/2010 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### Subcommittee Review

Micronutrients in general may include but not necessarily be limited to the following substances: boron (B), copper (Cu), iron (Fe), manganese (Mn), molybdenum (Mo), zinc (Zn), nickel (Ni), cobalt (Co), selenium (Se) and chromium (Cr). Micronutrients are essential components for plant growth and occur naturally in the soil. They are involved in virtually all metabolic and cellular functions, like energy metabolism, primary and secondary metabolism, cell protection, gene regulation, hormone perception, signal transduction, and reproduction among others. Commercial micronutrients are generally manufactured as by-products or intermediate products of metal mining and processing industries. Most micronutrients are common chemical compounds and are widely available commercially. Soil deficiency must be documented before micronutrients can be applied because over application can contaminate the soil, can be toxic & can suppress plant growth. Micronutrients are only needed in very small quantities.

The overwhelming majority of comments were in favor of keeping micronutrients on the National List. No new information was received from the public about micronutrients in relation to the OFPA criteria. Two commenters opposed the relisting, stating that the materials fail OFPA criteria, there are hazards associated with mining, zinc contamination is occurring and micronutrients can be considered heavy metals. The Crops Subcommittee is aware of the need to continue monitoring these issues; however, at the present time we have found that the concerns with these substances should not prevent their renewal on the National List.

The Crops Subcommittee asked the following question in our Spring, 2015 NOSB meeting proposal: Does the current annotation apply to today's practices and procedures? A few certification bodies weighed in and support an annotation change to allow for soil deficiencies to be documented using tools other than soil analysis. Examples include: leaf tissue analysis, Certified Professional Agronomist

recommendations, recorded visual observations of micronutrient deficiency, and documented regional soil deficiencies. The recommended annotation would change the following “soil deficiency must be documented by testing” to “soil deficiency must be documented.” A separate proposal is being put forward by the Subcommittee to propose a change to the annotation.

### **Motion to Remove**

This proposal to remove will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Micronutrients from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: Compatibility with Organic Agriculture.

### **Subcommittee Vote**

Motion to remove Micronutrients from 205.601(j) as plant and soil amendment

Motion by: Carmela Beck

Seconded by: Harold Austin

Yes: 0 No: 5 Abstain: 0 Absent: 0 Recuse: 0

## **Liquid fish products**

**Reference:** 205.601 (j) As plant or soil amendments. (7) Liquid Fish Products – can be pH adjusted with sulfuric, citric or phosphoric acid. The amount of acid used shall not exceed the minimum needed to lower the pH to 3.5.

**Technical Report:** [1995 TAP](#); [2006 TR](#)

**Petition(s):** N/A

**Past NOSB Actions:** 04/1995 NOSB minutes and vote; 11/2005 NOSB sunset recommendation; 10/2010 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### **Subcommittee Review**

Liquid Fish Products are processed from by-product fish and are either heated or enzymatically digested. The manufacturers formulate or stabilize these products through a chemical process by adding acid. These products contain fundamental nutrients and many trace minerals critical for use in organic farming. Liquid fish foliar feeds improve crop yields and reduce both insects and diseases and are more available to crops than compost or manures.

The Crops Subcommittee asked the following question in our Spring, 2015 NOSB meeting proposal: Is the annotation sufficient in which fish is blended with other ingredients? Public comment indicated that the annotation is sufficient and that the common practice is to adjust the pH of the liquid fish product prior to being blended with other ingredients. One commenter requested clarification regarding whether or not this listing includes non-fish fish including crab and shrimp products.

The overwhelming majority of comments were in favor of keeping liquid fish products on the National

List. No new information was received from the public about liquid fish products in relation to the OFPA criteria.

One commenter opposed the relisting because, as they state: liquid fish products remove valuable nutrients from marine ecosystems and may harm agro ecosystems. And while some liquid fish products are made from fish waste, others are made from whole fish harvested for the purpose. Furthermore, fish that do not have commercial value may have ecological value. While the Crops Subcommittee found no concerns with these substances that would prevent their renewal on the National List, we do want to emphasize the importance of the sustainable harvesting of fisheries.

#### **Motion to Remove**

This proposal to remove will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Liquid Fish Products from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: Compatibility with Organic Agriculture.

#### **Vote in Subcommittee**

Motion to remove Liquid Fish products from 205.601(j) as a plant and soil amendment

Motion by: Carmela Beck

Seconded by: Harold Austin

Yes: 0 No: 5 Abstain: 0 Absent: 0 Recuse: 0

## **Vitamin B1, C, E**

**Reference:** 205.601 (j)(8) - As plant or soil amendment. Vitamins B1, C, and E

**Technical Report(s):** [2015 TR](#)

**Petition(s):** N/A

**Past NOSB Actions:** 10/1995 minutes and vote, 11/2005 NOSB sunset recommendation; 10/2010 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 (77 FR33290)

**Sunset Date:** 6/27/17

#### **Background from Subcommittee:**

Vitamins including, synthetically derived vitamins B1 (Thiamine), C (Ascorbic Acid) and E (Tocopherols) are generally considered non-toxic essential nutrients for terrestrial and aquatic organisms.

Nonsynthetic sources of all vitamins and synthetic sources of vitamins B1, C, and E may be used in certified organic crop production. Vitamin B1 is an ingredient in many commercially sold root stimulator products helping to establish nursery grown planting stock once transplanted. Per the Technical Review, overall, the available literature does not support the premise that foliar and soil applications of vitamin B1 are responsible for root stimulation in transplanted crops. Vitamins C and E are used to promote both growth and yields and to protect plants from oxidative stress due to salinity. However, practical information regarding their use was unavailable, therefore the TR relied on peer-reviewed scientific

literature.

An OMRI search for each of the three vitamins resulted in zero entries. However, an OMRI generic materials database search indicated that nonsynthetic plant hormones such as gibberellic acid, indole acetic acid (IAA) and cytokinins may be applied to organic crops as plant growth regulators. Additionally, there are several naturally derived, OMRI-listed substances marketed to stimulate root growth.

### **Subcommittee Review**

There was some public comment presented at the Spring, 2015 meeting in support of relisting these materials for the purpose intended. Commenters indicated that Vitamins B1, C and E are rarely used individually but are included as ingredients in some of the products reviewed for crop fertility. The only TAP on file for review of these materials was conducted in 1995. The Subcommittee did not pose any questions to the public at the Spring meeting, however, the SC did request a TR.

The TR indicated that the root growth claims associated with vitamin B1 are largely unsubstantiated. Alternative practices include encouraging the growth and productivity of beneficial soil microorganisms in the soil to help produce vitamin B1, reduce fertilizer use, refrain from applying fertilizer at the time of planting, proper irrigation of root ball and surrounding soil. There was no use information for vitamins C and E on agriculture extension websites.

### **Motion to Remove**

This proposal to remove Vitamins B1, C, and E will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Vitamins B1, C, and E from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable:  
None given.

### **Vote in Subcommittee**

Motion to remove Vitamin B1, Vitamin C, Vitamin E, from §205.601(j)(8)

Motion by: Carmela Beck

Seconded by: Harold Austin

Yes: 0 No: 5 Abstain: 0 Absent: 1 Recuse: 0

## **Ethylene gas**

**Reference:** 205.601(k) - As plant growth regulators. Ethylene gas - for regulation of pineapple flowering.

**Technical Report:** [02/2000 Supplemental TAP](#); [2007 TAP](#); [2011 Supplemental TR](#)

**Petition(s):** N/A

**Past NOSB Actions:** 11/1995 NOSB recommendation; 10/2001 recommendation; 11/2005 NOSB sunset

recommendation; 04/2011 NOSB sunset [recommendation](#)

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### **Subcommittee Review**

Ethylene gas (CAS # 74-85-1) is on the National List at §205.601(k) – as plant growth regulator. Ethylene gas-for regulation of pineapple flowering.

It is a simple molecule ( $\text{CH}_2=\text{CH}_2$ ) that is a colorless gas at room temperature. Produced naturally in small amounts by some plants and functions as a hormone and ripening agent. The commercially used form which is synthetic is (chemically) identical to the natural occurring form. The synthetic form is produced from hydrocarbon feedstocks, such as natural gas liquids or crude oil.

It is used for pineapple flower induction and has been allowed for use in organic crop production since 1999. Some international organic standards, including those of the European Union (EC889-2008), also permit its use. Ethylene gas is used to induce uniform flowering of the pineapples (they produce a crop approximately every 18 months and are a very labor intensive crop), this aids in producing a crop that can be harvested uniformly at once, rather than over a several week or months. The use of ethylene allows for controlled year-round production because the growers can better manage harvest times by controlling when the plants flower. Currently ethylene gas is the only material on the National List allowed for this specific use.

During the 1<sup>st</sup> public comment period there were three questions asked looking for feedback from organic stakeholders. While there has been considerable comment during previous sunset reviews for this material, this time it was minimal. There were five public comments submitted during the 1<sup>st</sup> posting. One public commenter stated “Simply put, in their experience, without ethylene, organic tropical fruit (pineapples) would not be readily found in the produce aisle.” One certifier mentioned that they have one large client that uses this material. Another commenter stated: “I would say for large organic pineapple farmers, ethylene is absolutely necessary. I don’t know of any other way to produce pineapples consistently on a yearlong basis. For the smaller farmers, they tend to grow pineapples seasonally and don’t need or rely on ethylene”. While this issue has been discussed in great detail in the past, it helps bring into perspective the level of change in the organic industry and the diversity that now exists within it. This along with consumer expectations of a steady supply would tend to help answer the question of whether or not this material is still necessary for use in organic crop production.

Two other commenters raised issue (which has been discussed in length in previous Sunset Reviews) with the fact this material is only used by larger producers who are trying to supply a crop year round. While, smaller producers grow pineapples only seasonally and thus do not rely upon the use of ethylene. Thus bringing into question if this material is necessary and is it compatible with organic crop production. This commenter felt that it was neither necessary nor was it compatible with organic crop production.

There were no human health or environmental issues or concerns that were brought to the subcommittee or the full boards attention, that have not already been discussed at length in previous Sunset Reviews. Those issues previously raised have been found to be of minimal to no concern if the label uses and proper production practices during manufacture were followed.

The January 25, 2011 Supplemental Technical Evaluation Report provided to the described alternatives, but those seemingly applied more to small scale production and several were still in the experimental stages. Historic information, previous Sunset Reviews and their discussions, and public comment have stated how the use of ethylene gas has helped grow the organic pineapple industry and allowed organic producers to compete globally and enable them to provide a more year round supply to the market.

It is still very unclear as to whether or not organic producers raising pineapples find this material to still be necessary to their farming, especially for the larger scale producers. There seems to be several options for the small scale organic pineapple producers, but ethylene gas appears to be the only viable material that can meet the needs of the larger scale organic producers in California, Hawaii, and Central America. While it would appear that there is not a functionally viable alternative for ethylene gas, especially for the larger producers, it is concerning that there was no more support for this material via the public comment period (both written and oral), by those that have supported it in the past, especially from the producers themselves.

It would assist the subcommittee and the full NOSB in our deliberations as to whether or not ethylene gas is necessary for continued use in organic crop production, if we could receive additional input from organic stakeholders.

#### **Motion to Remove**

This proposal to remove Ethylene Gas will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Ethylene Gas from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: Compatibility

#### **Vote in Crops Subcommittee**

Motion to remove Ethylene from 205.601(k)

Motion by: Harold V. Austin IV

Seconded by: Colehour Bondera

Yes: 4 No: 0 Abstain: 1 Absent: 0 Recuse: 0

## **Sodium silicate**

**Reference:** 205.601 (l) As floating agents in postharvest handling. (2) Sodium silicate—for tree fruit and fiber processing.

**Technical Report:** 1995 TAP; 2006 TR

**Petition(s):** N/A

**Past NOSB Actions:** 04/1995 NOSB minutes and vote; 11/2005 NOSB sunset recommendation; 10/2010 NOSB sunset recommendation

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### **Subcommittee Review**

Sodium silicate is referred to as “waterglass”. It can be produced in a rotary kiln or tank furnace by fusing quartz sand with potash or soda at temperatures between 1,100 – 1,300 C. Sodium silicate can be converted from solid glass to liquid solution at 100 C. Sodium silicate is considered synthetic due to the high temperature and sometimes high pressure required during the manufacturing process. The material is diluted and depolymerizes in the environment. It is used to raise water density in dump tank solutions to allow pears to float and to prevent damaging the pears during the post-harvest process. The material is also allowed for use in fiber processing. The TR stated that use of this material in a post-harvest setting has not been identified, however, examples of processing uses were provided including: used to process cotton and jute as a peroxide bleaching buffer; degumming agent of jute fibers; etc.

The Crops Subcommittee asked the following two questions in our Spring, 2015 NOSB meeting proposal: 1) Are there any emerging practices (mechanical or physical) for pear or other tree fruit handling during the packing process that would be a reasonable alternative to using this “waterglass” material for a “wet dump”? and 2) If lignin sulfonates are removed from the list, what impact would that have on your level of use of sodium silicate materials? There were a total of three public comments on this topic. Regarding question #1, one commenter indicated that there are viable alternatives to sodium silicate including the use of sodium carbonate, potassium carbonate and float less mechanized systems. The next substantive comment responded to question #2. The commenter stated the following, “the removal of Lignin Sulfonate from the National List will not directly result in the increased use of other floating agents because the few companies continuing to use wet packing lines have already made the switch to other allowed substances.”

There was no written comment provided in favor of relisting sodium silicate and there was no reference made to its use for fiber processing. One commenter solely mentioned its use as an alternative to Lignin Sulfonate and offered the singular response to question #1. The second commenter indicated that the material was unnecessary, incompatible with organic production and potentially poses environmental hazards and negative health effects on workers. No new information was provided to prevent renewal on the National List, however, in the absence of industry support for relisting, the Subcommittee recommends allowing this material to sunset.

### **Motion to Remove**

This proposal to remove will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Sodium Silicate from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: Compatibility with Organic Agriculture.

### **Vote in Subcommittee**

Motion to remove Sodium silicate from 205.601(j)

Motion by: Carmela Beck

Seconded by: Colehour Bondera

Yes: 5 No: 0 Abstain: 0 Absent: 0 Recuse: 0

## EPA List 4 - Inerts of Minimal Concern

**Reference:** 205.601(m) As synthetic inert ingredients as classified by the Environmental Protection Agency (EPA), for use with nonsynthetic substances or synthetic substances listed in this section and used as an active pesticide ingredient in accordance with any limitations on the use of such substances.

(1) EPA List 4 – Inerts of Minimal Concern.

**Technical Report:** [2015 Limited Scope TR: Nonylphenol ethoxylates \(NPEs\)](#)

**Petition(s):** N/A

**Past NOSB Actions:** 02/1999 NOSB minutes and vote; 11/2005 NOSB sunset recommendation; [04/2010 recommendation](#), [10/2010 NOSB sunset recommendation](#); [10/ 2012 NOSB recommendation](#)

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### Subcommittee Review

The Crops Subcommittee is working towards a solution to reviewing the inerts that were formerly on EPA List 4 by collaborating with the EPA Safer Choice Program (SCP) (formerly Design for the Environment Program). The NOSB will need to vote on this relationship before the reviews can start. So for this Sunset review we are proposing a renewal of the inerts listing while at the same time suggesting two annotation changes in separate proposals to be voted on at future meetings. The first and most key one will change this listing on the National List to remove the old List 4 terminology and replace it with Safer Choice reviews as well as room for individual petitioned inerts.

The Crops Subcommittee realizes that this is a slow process to work between two government agencies, and also there are a number of groups of inerts that may not pass the SCP review. Re-formulation is also a slow process. Therefore the CS had commissioned a Technical Report on the class of inerts known as Nonylphenol Ethoxylates (NPE). The US EPA is encouraging industry to eliminate the use of NPE (TR 2015, line 137) because of toxicity concerns and persistence in the environment. It is unlikely that the NPEs would pass favorably through the SCP screening process. Therefore a separate annotation proposal is put forward to remove NPEs. This will be voted on at a future meeting and then will go through rulemaking. This should give enough time for suppliers to re-formulate their products with safer choices.

In the Public Comment for the first meeting there were two questions posed concerning NPEs:

1. Commenters are urged to read the [TR for NPEs](#) linked here. Please comment on the suitability of the alternatives mentioned for specific types of generic product formulations in specific situations.
2. Would removing NPEs from use with 2 years notice (from now) be sufficient time? How would this affect your business?

As far as the first question, there was no specific feedback on individual alternatives, but there was feedback from a group representing manufacturers and formulators that noted the alternatives needed to be looked at individually for each unique product formulation. All substitutions have to go through safety and efficacy testing and extensive EPA review. This group also stated that these substances were reviewed already sufficiently by the EPA to keep them on List 4. Another trade association and a certifier questioned why we would move ahead with NPEs in particular instead of waiting for the SCP review to

be completed. They questioned how we could do an adequate review of alternatives because we do not have access to the confidential formulas. While most all of the commenters from this industry supported working with the SCP, they expressed frustration with the slowness of the process and pointed out that they have been held back on their research and development of new products because of the uncertainty over inert regulation.

Environmental and consumer groups provided comments that the review of inerts is moving too slowly. They suggested that the NOP immediately notify manufacturers to request information on current inert ingredients in use and proceed with Technical Reviews of other clusters of inerts. They would like a prompt action on the prohibition of NPEs as inert ingredients in organic materials. They pointed out the recommended language change to the inerts listing that was passed by the NOSB in 2012 (see annotation proposal). Some recommended a 2 or 3 year expiration date on the inerts listing renewal to put added pressure on the NOP.

We received very little response back from our second question about whether 2 years was enough time to make this change. We heard vaguely that it takes a long time and a few growers stated that two years was not enough time and growers would be left without tools that they need for pest control.

The Crops Subcommittee (CS) fully agrees with the frustration over how long it is taking to implement the NOSB recommendation to review inerts. The CS has also developed a separate proposal for an annotation change for inert ingredients. We sincerely hope that the vote to proceed will be taken soon so that the program to work with the Safer Choice Program can begin in 2016. Once it begins, the inerts manufacturers will have the option of submitting their products to Safer Choice to be reviewed. This will clearly favor those inerts that have the best chance of being approved, because the ones that are not likely to be approved will not apply until absolutely forced to do so. The CS believed that it would be better to put some of the inerts categories that are unlikely to end up on the SCIL list on notice sooner than the very end of the whole SCP project so that they could start moving towards reformulation sooner rather than later. That is why we started with NPE's and are considering Technical Report requests for other categories that will not pass the SCP. We are doing this expecting a long period of time before full implementation of this program so that everyone doesn't complain at the end that there wasn't enough notice.

The accompanying annotation discussion proposal to remove NPE's from organic products has one clear message from the NOSB: START REFORMULATING NOW! We may not even vote on the annotation for a few meetings, and the change will definitely not be sudden, but it is clear that eventually NPEs will not be allowed in organic. Unless all stakeholders communicate this in their messaging to their constituents, this will bog down the change even further.

### **Motion to Remove**

This proposal to remove will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of EPA List 4 Inerts from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: Compatibility.

### **Vote in Subcommittee**

Motion to remove EPA List 4 inerts from 205.601(m) based on compatibility with organic principles

Motion by: Zea Sonnabend

Seconded by: Harold Austin

Yes: 1 No: 4 Abstain: 0 Absent: 0 Recuse: 0

## **Microcrystalline cheesewax**

**Reference:** 205.601(o) - As production aids. Microcrystalline cheesewax (CAS #'s 64742-42-3, 8009-03-08, and 8002-74-2)-for use in log grown mushroom production. Must be made without either ethylene-propylene co-polymer or synthetic colors.

**Technical Report:** none

**Petition(s):** [2007 Petition](#); [2008 Petitioner response to questions](#)

**Past NOSB Actions:** [2008 NOSB recommendation](#)

**Recent Regulatory Background:** Federal Register rule amendment published 02/14/12 ([77 FR 8089](#))

**Sunset Date:** 3/15/17

### **Background:**

Microcrystalline cheesewax is used to seal the plug or sawdust spawn that is used to inoculate logs for growing mushrooms. It is a petroleum product and, though used in small quantities, does not biodegrade. There are many data gaps in the information concerning the allowed components of microcrystalline cheesewax. “Natural” soy wax from domestically-produced non-GMO soybeans—made by hydrogenating soy oil—is now available and was not considered when microcrystalline cheesewax was listed.

### **Subcommittee Review**

Input was sought to find more information from the public regarding non-synthetic materials for manufacturer;

1. Is soy wax nonsynthetic?
2. Is soy wax sufficiently available to meet the needs of producers who grow organic mushrooms on logs?

Little oral or written input was presented regarding re-listing of this material for the purpose used. Comment received stated that there exist soy-oil based alternatives that could replace the petroleum-based approved product.

### **Motion to Remove**

This proposal to remove will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Microcrystalline Cheesewax from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: OFPA criteria at 7 U.S.C. 6158(m), (7) its compatibility with a system of sustainable agriculture.

### **Vote in Subcommittee**

Motion to remove Microcrystalline cheesewax from 205.601(o)

Motion by: Colehour Bondera

Seconded by: Francis Thicke

Yes: 1 No: 2 Abstain: 2 Absent: 1 Recuse: 0

### **Ash from manure burning**

**Reference:** 205.602(a)

**Technical Report:** none

**Petition(s):** [2014](#)

**Past NOSB Actions:** 04/1995 NOSB minutes and vote; 11/2005 NOSB sunset recommendation; [10/2010 NOSB sunset recommendation](#)

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### **Background from Subcommittee**

Ash from manure burning was placed on §205.602 based on its incompatibility with organic production: “Burning these materials is not an appropriate method to use to recycle organic wastes and would not be considered a proper method in a manuring program because burning removes the carbon from these wastes and thereby destroys the value of the materials for restoring soil organic content. Burning as a disposal method of these materials would therefore not be consistent with section 2114(b)(1) of the OFPA (7 U.S.C. 6513(b)(1)).” (Preamble to proposed rule, December 16, 1997. 62 FR 241: 65874)

### **Subcommittee Review**

There have been no public comments on removing Ash from Manure Burning from the list of prohibited nonsynthetic substances. Comment was received in written form prior to the meeting in La Jolla, CA which stated that the material should remain on the prohibited list. The Crops Subcommittee believes that ash from manure burning does not meet the OFPA criteria and sees no reason to change the listing from its prohibited status on 205.602.

### **Motion to Remove**

This proposal to remove Ash from manure burning will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Ash from manure burning from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: OFPA criteria at 7 U.S.C. 6158(m), (7) its compatibility with a system of sustainable agriculture.

### **Vote in Subcommittee**

Motion to remove Ash from manure burning from 205.602(a)

Motion by: Francis Thicke

Seconded by: Zea Sonnabend

Yes: 0 No: 5 Abstain: 0 Absent: 1 Recuse: 0

## Arsenic

**Reference:** 205.602(b)

**Technical Report:** none

**Petition(s):** N/A

**Past NOSB Actions:** 04/1995 NOSB minutes and vote; 11/2005 NOSB sunset recommendation; [10/2010 NOSB sunset recommendation](#)

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### Background from Subcommittee:

Arsenic is prohibited by the Organic Foods Production Act (OFPA) 7 U.S.C. §6508(c)(1) CROP MANAGEMENT.—“For a farm to be certified under this title, producers on such farm shall not –

- (1) Use natural poisons such as arsenic or lead salts that have long-term effects and persist in the environment, as determined by the applicable governing State official or the Secretary.”

The Senate Committee report says, “The Committee recognizes that certain natural materials present environmental and health hazards. An example would be the use of arsenic which, although natural, is known to be extremely toxic, and which is therefore explicitly prohibited from use in organic production under this title.”

### Subcommittee Review

There were no public comments on arsenic. The Crops Subcommittee believes that arsenic does not meet the OFPA criteria and sees no reason to remove arsenic from its prohibited status on 205.602.

### Motion to Remove

This proposal to remove will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Arsenic from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: OFPA criteria at 7 U.S.C. 6158(m), (7) its compatibility with a system of sustainable agriculture.

### Vote in Subcommittee

Motion to remove Arsenic from 205.602(b)

Motion by: Francis Thicke

Seconded by: Zea Sonnabend

Yes: 0 No: 5 Abstain: 0 Absent: 1 Recuse: 0

## Lead salts

**Reference:** 205.602(d)

**Technical Report:** none

**Petition(s):** N/A

**Past NOSB Actions:** 04/1995 NOSB minutes and vote; 11/2005 NOSB sunset recommendation; [10/2010 NOSB sunset recommendation](#)

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### Subcommittee Review

There were no public comments on lead salts. The Crops Subcommittee believes that lead salts do not meet the OFPA criteria and sees no reason to remove lead salts from its prohibited status on 205.602.

### Motion to Remove

This proposal to remove will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of Lead salts from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: OFPA criteria at 7 U.S.C. 6158(m), (7) its compatibility with a system of sustainable agriculture.

### Vote in Subcommittee

Motion to remove lead salts from 205.602(d)

Motion by: Francis Thicke

Seconded by: Zea Sonnabend

Yes: 0 No: 5 Abstain: 0 Absent: 1 Recuse: 0

## Potassium chloride

**Reference:** 205.602(e) - unless derived from a mined source and applied in a manner that minimizes chloride accumulation in the soil.

**Technical Report:** [1995](#)

**Petition(s):** N/A

**Past NOSB Actions:** 04/1995 NOSB minutes and vote; 11/2005 NOSB sunset recommendation; [10/2010 NOSB sunset recommendation](#)

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### Subcommittee Review

Although this material continues to be used in organic agriculture, very few public comments were received with any concerns about its use or impacts of removing the annotation. One certifier asked

what the annotation means regarding what would be considered too much chloride accumulation. Materials Review Organizations have reviewed a number of products containing potassium chloride and several are blended fertilizers that would not indicate clearly on the label how much potassium chloride was in the product. No commenters asked for any change in the status of this material.

#### **Motion to Remove**

This proposal to remove potassium chloride will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of potassium chloride from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable:

**OFPA criteria at 7 U.S.C. 6158(m), (7) its compatibility with a system of sustainable agriculture.**

#### **Vote in Subcommittee**

Motion to remove potassium chloride from 205.602(e)

Motion by: Zea Sonnabend

Seconded by: Francis Thicke

Yes: 0 No: 5 Abstain: 0 Absent: 1 Recuse: 0

### **Sodium fluoaluminate (mined)**

**Reference:** 205.602(f)

**Technical Report:** none

**Petition(s):** N/A

**Past NOSB Actions:** 1996 NOSB meeting minutes and vote; 11/2005 sunset recommendation; [10/2010 NOSB sunset recommendation](#)

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

#### **Subcommittee Review**

This review of a prohibited non-synthetic material was brief. No public comment was received on this material either for or against its current status. The Crops Subcommittee believes that this material does not meet the OFPA criteria and sees no reason to remove it from its prohibited status on 205.602.

#### **Motion to Remove**

This proposal to remove will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of sodium fluoaluminate from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable:

**OFPA criteria at 7 U.S.C. 6158(m), (7) its compatibility with a system of sustainable agriculture.**

### Vote in Subcommittee

Motion to remove sodium fluoaluminate from 205.602(f)

Motion by: Zea Sonnabend

Seconded by: Francis Thicke

Yes: 0 No: 5 Abstain: 0 Absent: 1 Recuse: 0

## Strychnine

**Reference:** 205.602(h)

**Technical Report:** none

**Petition(s):** N/A

**Past NOSB Actions:** 04/1995 NOSB minutes and vote; 11/2005 NOSB sunset recommendation; [10/2010 NOSB sunset recommendation](#)

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

### Subcommittee Review

This review of a prohibited non-synthetic material was brief. No public comment was received on this material either for or against its current status. The Crops Subcommittee believes that this material does not meet the OFPA criteria and sees no reason to remove it from its prohibited status on 205.602.

### Motion to Remove

This proposal to remove strychnine will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of strychnine from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: **OFPA criteria at 7 U.S.C. 6158(m), (7) its compatibility with a system of sustainable agriculture.**

### Vote in Subcommittee

Motion to remove strychnine from 205.602(h)

Motion by: Zea Sonnabend

Seconded by: Francis Thicke

Yes: 0 No: 5 Abstain: 0 Absent: 1 Recuse: 0

## Tobacco dust (nicotine sulfates)

**Reference:** 205.602(i)

**Technical Report:** none

**Petition(s):** N/A

**Past NOSB Actions:** 04/1995 NOSB minutes and vote; 11/2005 NOSB sunset recommendation; [10/2010](#)

[NOSB sunset recommendation](#)

**Recent Regulatory Background:** Sunset renewal notice published 06/06/12 ([77 FR 33290](#))

**Sunset Date:** 6/27/17

**Subcommittee Review**

Tobacco dust (nicotine sulfate) refers to the raw material from tobacco processing as well as the extracted active substance, nicotine sulfate. Both can be very toxic to humans and the environment when used as fertilizer (tobacco dust) or pest control (nicotine sulfate). The production of tobacco requires high inputs of fertilizer and pesticides and results in water pollution. These pesticides, as well as fertilizers, end up in the soil, waterways, and the food chain. In 2008, EPA received a request from the registrant to cancel the registration of the last nicotine pesticide registered in the United States. This request was granted, and since January 1, 2014, this pesticide has not been available for sale.

There were no public comments on the need to remove tobacco dust from the National Listing at 205.602 as, “Nonsynthetic substances prohibited for use in organic crop production”.

In fact there was rationale provided as to why to maintain on the list in order to ensure that other means of using product (for example home-scale) are not pursued. The Crops Subcommittee believes that this substance does not meet many of the OFPA criteria and sees no reason to remove tobacco dust from its prohibited status on 205.602.

**Motion to Remove**

This proposal to remove will be considered by the NOSB at its public meeting.

The Subcommittee proposes removal of tobacco dust (nicotine sulfate) from the National List based on the following criteria in the Organic Foods Production Act (OFPA) and/or 7 CFR 205.600(b) if applicable: OFPA criteria at 7 U.S.C. 6158(m), (7) its compatibility with a system of sustainable agriculture.

**Vote in Subcommittee**

Motion to remove tobacco dust (nicotine sulfate) from 205.602(i)

Motion by: Francis Thicke

Seconded by: Zea Sonnabend

Yes: 0 No: 5 Abstain: 0 Absent: 1 Recuse: 0