BEYOND PESTICIDES
701 E Street, SE ■ Washington DC 20003
202-543-5450 phone ■ 202-543-4791 fax
info@beyondpesticides.org ■ www.beyondpesticides.org

April 1, 2015

Ms. Michelle Arsenault
National Organic Standards Board
USDA-AMS-NOP
1400 Independence Ave. SW.,
Room 2648-S, Mail Stop 0268
Washington, DC 20250-0268

Re. HS: §606 sunset 2017

These comments to the National Organic Standards Board (NOSB) on its Spring 2015 agenda are submitted on behalf of Beyond Pesticides. Founded in 1981 as a national, grassroots, membership organization that represents community-based organizations and a range of people seeking to bridge the interests of consumers, farmers and farmworkers, Beyond Pesticides advances improved protections from pesticides and alternative pest management strategies that reduce or eliminate a reliance on pesticides. Our membership and network span the 50 states and groups around the world..

These comments cover materials listed on §205.606 that sunset in 2017.

Materials listed on §205.606 are nonorganic agricultural ingredients that are allowed to be used as ingredients as part of the 5% of organic processed foods that is not required to be organic. OFPA allows such substances to be used in organic food under limited conditions, including this from §6517(c)(1):

> The National List may provide for the use of substances in an organic farming or handling operation that are otherwise prohibited under this chapter only if—
> (A) the Secretary determines, in consultation with the Secretary of Health and Human Services and the Administrator of the Environmental Protection Agency, that the use of such substances—
> (i) would not be harmful to human health or the environment;
> (ii) is necessary to the production or handling of the agricultural product because of the unavailability of wholly natural substitute products; and
> (iii) is consistent with organic farming and handling.

The materials on §205.606 are grouped into the following clusters for ease of discussion:

1. Colors
2. Thickeners
3. Fish and sea products

4. Dairy additives
5. Miscellaneous agricultural products

I. Common issues

1. Lack of adequate review.

Many of these materials have never been subject to a technical review or technical advisory panel review. In many cases, checklists, when present, gave no documentation for decisions. As noted below, the reviews have uniformly ignored environmental and health impacts of manufacture –in the case of the non-organic agricultural materials listed on §205.606, these are mainly the impacts of chemical-intensive agriculture.

Past recommendations have not taken into account the impacts of chemical-intensive agriculture from which these materials are derived.

Many people choose to eat organic food because organic production minimizes impacts on farmworkers, water resources, wildlife, and pollinators, in addition to producing more healthy food products. Here we summarize pesticide impacts of many of the nonorganic crops that supply the ingredients of these materials. More information, including lists of pesticides used on the crops, is available on the Beyond Pesticides Eating with a Conscience web page.[1]

2. Organic agriculture can now supply most, if not all, of these materials.

For example, several of the sources of organic fruit and vegetable extracts used as colors are easily available as juice concentrates[2] as well as fresh fruits and vegetables. Materials should not remain on §205.606 if they can be supplied organically. A lesson from the experience with hops is that the organic production may not sufficient until the demand is present. The Handling Subcommittee needs to ask the question of potential suppliers, "Could you supply the need if the organic form is required?"

II. Issues relating to some, but not all listings on §205.606

1. The manufacturing process of some materials raises questions about whether they are agricultural or even nonsynthetic, and they should be petitioned for inclusion on §205.605. In particular, some materials are products of fermentation, and the application of "fermentation" as a method of food processing to the manufacture of food ingredients is questionable because the resultant products meet the definition of "nonagricultural substance" in the regulations.

The *American Heritage Science Dictionary* defines fermentation as:

The process by which complex organic compounds, such as glucose, are broken down by the action of enzymes into simpler compounds without the use of oxygen. Fermentation results in

[1] http://www.beyondpesticides.org/organicfood/conscience/navigation.php.
[2] http://www.fruitjuiceconcentrate.org/our-products.

the production of energy in the form of two adenosine triphosphate (ATP) molecules, and produces less energy than the aerobic process of **cellular respiration**. The other end products of fermentation differ depending on the organism. In many bacteria, fungi, protists, and animals cells (notably muscle cells in the body), fermentation produces lactic acid and lactate, carbon dioxide, and water. In yeast and most plant cells, fermentation produces ethyl alcohol, carbon dioxide, and water.

Fermentation processes used for agricultural inputs and food processing are both in need of clarification, but the issues surrounding them are different.

Fermentation processes produce foods or food ingredients in several ways:

1. **Foods and ingredients that are organisms grown by fermentation—that is, the biomass produced by the fermentation process.**

These include nutritional yeast and baking yeast. Yeast may be certified organic when produced in compliance with an approved organic systems plan.[3] Marroquin International petitioned to have yeast reclassified as agricultural and listed on §205.606. It made the argument that yeast and mushrooms should be considered livestock under OFPA. "Microorganisms" are listed on §205.605(a).

2. **Food processing changes raw agricultural ingredients into new products defined by the products of fermentation**

These include wine, beer, vinegar, lactic acid pickles, yogurt, and miso.

3. **Production of food additives through fermentation of specific strains of microorganisms.**

These include nucleotides, various vitamins, etc. that are isolated from the products of fermentation:

a. **Primary metabolites** are substances produced by the fermenting organism that are essential to its growth, such as nucleotides, nucleic acids, amino acids, proteins, carbohydrates, lipids, etc.
b. **Secondary metabolites** have no obvious role in the metabolism of the cultured organisms. They include antibiotics and other drugs.

The regulations define "agricultural products" (following the OFPA definition) and "nonagricultural" (without a definition in OFPA) in §205.2:

> *Agricultural Products.* Any agricultural commodity or product, whether raw or processed, including any commodity of product derived from livestock that is marketing in the United States for human or livestock consumption" (§2103(1)).
> *Nonagricultural substance.* A substance that is not a product of agriculture, such as a mineral or a bacterial culture, that is used as an ingredient in an agricultural product. For the purposes of this part, a nonagricultural ingredient also includes any substance, such as gums, citric acid, or pectin, that is extracted from, isolated from, or a fraction of

[3] NOP, Certification of Organic Yeast. NOP 5014 issued March 2, 2010.

an agricultural product so that the identity of the agricultural product is unrecognizable in the extract, isolate, or fraction.

The draft materials classification guidance treats fermentation as a processing method that does not change the classification of the substrate from agricultural to non-agricultural or from nonsynthetic to synthetic. Yet fermentation processes vary widely from pickling, wine-making, and cheese-making to manufacture of substances that have no apparent relationship to the substrate. Glycerin made by fermentation of cornstarch is an example of the last. Whole algal flour and gellan gum are other examples. The processes vary in nutrients added, physical methods of isolating the product, solvents used, and ancillary substances added. The fact that all of these processes involve the growth of microorganisms does not seem to be sufficient to treat them the same.

We have written separate comments on fermentation, and we suggest that the Materials Subcommittee add to its workplan the classification of products of fermentation and criteria for including them on the National List.

2. **Some materials come from the ocean, with the possibility of carrying high levels of pollution.**

Fish and seaweeds concentrate some contaminants. These are discussed under the specific listings below for fish oil, kelp, Pacific kombu, and wakame.

3. **Essentiality –we don't need non-organic additives to produce fake foods –that is food with colors and flavors that have been manipulated.**

Colors, flavors, texturizers, and preservatives, whether synthetic or "natural" derivatives of non-organic crops, are not necessary for the production of organic food. Consumers expect that organic food will not have essential characteristics manipulated with the addition of ingredients otherwise prohibited.

4. **Use of non-organic materials as preservatives, flavors, colors, texturing agents, or to replace nutritive value lost in processing is incompatible with organic handling and processing.**

§205.600(b)(4) prohibits the use of synthetic processing aids or adjuvants whose primary use is as a preservative or to recreate or improve flavors, colors, textures, or nutritive value lost during processing, except where the replacement of nutrients is required by law. While the prohibitions in §205.600(b)(4) apply to synthetic substances, they are an indication of the incompatibility of creating exceptions for preservatives or materials not naturally occurring in the food that add flavors, colors, textures, or nutritive values.

III. Comments on specific materials

The following comments contain information about pesticide use on particular nonorganic crops. This information is derived from the Beyond Pesticides web-based database Eating with a Conscience.[4]

1. Colors

Beet juice extract color

Organic juice concentrate is available http://www.fruitjuiceconcentrate.org/our-products

California Farmworker Poisonings, 1992–2010: 3 reported (CA acreage: 25,100). These poisoning incidents only represent the tip of the iceberg because it only reflects reported incidents in one state. It is widely recognized that pesticide incidents are underreported and often misdiagnosed.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while beets grown with toxic chemicals show low pesticide residues on the finished commodity, there are 45 pesticides with established tolerance for beets, 19 are acutely toxic creating a hazardous environment for farmworkers,[5] 39 are linked to chronic health problems (such as cancer), 14 contaminate streams or groundwater, and 40 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 14 pesticides used on beets that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.[6]

- This crop is dependent on pollinators. ✓
- This crop is foraged by pollinators. ✓

The evaluation of beet juice color must take into consideration the use of pesticides in the non-organic production of beets and the availability of organic beets for this purpose, as well as the potential availability of the color if the demand existed.

Black currant juice color

Organic juice concentrate available http://www.fruitjuiceconcentrate.org/our-products
Pesticide Tolerances —Health and Environmental Effects: The database shows that while currants grown with toxic chemicals show low pesticide residues on the finished commodity, there are 38 pesticides with established tolerance for currants, of which 13 are acutely toxic creating a hazardous environment for **farmworkers**, 35 are linked to chronic health problems (such as cancer), eight contaminate streams or groundwater, and 35 are poisonous to wildlife.

---

[4] http://www.beyondpesticides.org/organicfood/conscience/index.php?pid=610.
[5] To learn more about farmworkers, see http://www.beyondpesticides.org/organicfood/conscience/farmworkers.php
[6] http://www.beeprotective.org/

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 11 pesticides used on currants that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' **BEE Protective webpage**.

- This crop is dependent on pollinators. ✔
- This crop is foraged by pollinators. ✔

The evaluation of black currant juice color must take into consideration the use of pesticides in the non-organic production of black currants and the availability of organic black currants for this purpose, as well as the potential availability of the color if the demand existed.

Black/Purple carrot juice color
Organic juice concentrate available http://www.fruitjuiceconcentrate.org/our-products

California Farmworker Poisonings, 1992–2010: 35 reported (CA acreage: 63,000). These poisoning incidents only represent the tip of the iceberg because it only reflects reported incidents in one state. It is widely recognized that pesticide incidents are underreported and often misdiagnosed.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while carrots grown with toxic chemicals show low pesticide residues on the finished commodity, there are 42 pesticides with established tolerance for carrots, 16 are acutely toxic creating a hazardous environment for farmworkers, 39 are linked to chronic health problems (such as cancer), 13 contaminate streams or groundwater, and 42 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 17 pesticides used on carrots that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is dependent on pollinators. ✔
- This crop is foraged by pollinators. ✔

The evaluation of black/purple carrot juice color must take into consideration the use of pesticides in the non-organic production of carrots and the availability of organic carrots for this purpose, as well as the potential availability of the color if the demand existed.

Blueberry juice color
Organic juice concentrate available http://www.fruitjuiceconcentrate.org/our-products

California Farmworker Poisonings, 1992–2010: 1 reported (CA acreage: 4,300). These poisoning incidents only represent the tip of the iceberg because it only reflects reported incidents in one state. It is widely recognized that pesticide incidents are underreported and often misdiagnosed.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while blueberries grown with toxic chemicals show low pesticide residues on the finished commodity, there are 40 pesticides with established tolerance for blueberries, 20 are acutely toxic creating a hazardous environment for farmworkers, 38 are linked to chronic health problems (such as cancer), 11 contaminate streams or groundwater, and 35 are poisonous to wildlife.


Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 11 pesticides used on blueberries that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is dependent on pollinators. ✔
- This crop is foraged by pollinators. ✔

The evaluation of blueberry juice color must take into consideration the use of pesticides in the non-organic production of blueberries and the availability of organic blueberries for this purpose, as well as the potential availability of the color if the demand existed.

Carrot juice color

Organic juice concentrate available http://www.fruitjuiceconcentrate.org/our-products

California Farmworker Poisonings, 1992–2010: 35 reported (CA acreage: 63,000). These poisoning incidents only represent the tip of the iceberg because it only reflects reported incidents in one state. It is widely recognized that pesticide incidents are underreported and often misdiagnosed.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while carrots grown with toxic chemicals show low pesticide residues on the finished commodity, there are 42 pesticides with established tolerance for carrots, 16 are acutely toxic creating a hazardous environment for farmworkers, 39 are linked to chronic health problems (such as cancer), 13 contaminate streams or groundwater, and 42 are poisonous to wildlife.


Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 17 pesticides used on carrots that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is dependent on pollinators. ✔
- This crop is foraged by pollinators. ✔

The evaluation of carrot juice color must take into consideration the use of pesticides in the non-organic production of carrots and the availability of organic carrots for this purpose, as well as the potential availability of the color if the demand existed.

Cherry juice color
Organic juice concentrate available http://www.fruitjuiceconcentrate.org/our-products

California Farmworker Poisonings, 1992–2010: 30 reported (CA acreage: 26,000). These poisoning incidents only represent the tip of the iceberg because it only reflects reported incidents in one state. It is widely recognized that pesticide incidents are underreported and often misdiagnosed.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while cherries grown with toxic chemicals show low pesticide residues on the finished commodity, there are 86 pesticides with established tolerance for cherries, 32 are acutely toxic creating a hazardous environment for farmworkers, 78 are linked to chronic health problems (such as cancer), 17 contaminate streams or groundwater, and 78 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 27 pesticides used on cherries that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is dependent on pollinators. ✔
- This crop is foraged by pollinators. ✔

The evaluation of cherry juice color must take into consideration the use of pesticides in the non-organic production of cherries and the availability of organic cherries for this purpose, as well as the potential availability of the color if the demand existed.

Chokeberry—Aronia juice color
Organic juice concentrate available http://www.fruitjuiceconcentrate.org/our-products

Pesticide Tolerances —Health and Environmental Effects: The database shows that while currants grown with toxic chemicals show low pesticide residues on the finished commodity, there are 38 pesticides with established tolerance for currants, 13 are acutely toxic creating a hazardous environment for **farmworkers**, 35 are linked to chronic health problems (such as cancer), eight contaminate streams or groundwater, and 35 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 11 pesticides used on currants that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' **BEE Protective webpage**.

- This crop is dependent on pollinators. ✔
- This crop is foraged by pollinators. ✔

The evaluation of Aronia berry juice color must take into consideration the use of pesticides in the non-organic production of Aronia berries and the availability of organic Aronia berries for this purpose, as well as the potential availability of the color if the demand existed.

Elderberry juice color

Pesticide Tolerances —Health and Environmental Effects: The database shows that while elderberries grown with toxic chemicals show low pesticide residues on the finished commodity, there are 49 pesticides with established tolerance for elderberries, 17 are acutely toxic creating a hazardous environment for **farmworkers**, 44 are linked to chronic health problems (such as cancer), 10 contaminate streams or groundwater, and 45 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 14 pesticides used on elderberries that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' **BEE Protective webpage**

- This crop is dependent on pollinators. ✔
- This crop is foraged by pollinators. ✔

The evaluation of elderberry juice color must take into consideration the use of pesticides in the non-organic production of elderberries and the availability of organic elderberries for this purpose, as well as the potential availability of the color if the demand existed.

Grape juice color

Organic juice concentrate available http://www.fruitjuiceconcentrate.org/our-products

California Farmworker Poisonings, 1992–2010: 1,234 reported (CA acreage: 796,000). These poisoning incidents only represent the tip of the iceberg because it only reflects reported incidents in one state. It is widely recognized that pesticide incidents are underreported and often misdiagnosed.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while grapes grown with toxic chemicals show low pesticide residues on the finished commodity, there are 124 pesticides with established tolerance for grapes, 36 are acutely toxic creating a hazardous environment for farmworkers, 109 are linked to chronic health problems (such as cancer), 20 contaminate streams or groundwater, and 99 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 31 pesticides used on grapes that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is dependent on pollinators. ✔
- This crop is foraged by pollinators. ✔

The evaluation of grape juice color must take into consideration the use of pesticides in the non-organic production of grapes and the availability of organic grapes for this purpose, as well as the potential availability of the color if the demand existed.

Grape skin extract color

California Farmworker Poisonings, 1992–2010: 1,234 reported (CA acreage: 796,000). These poisoning incidents only represent the tip of the iceberg because it only reflects reported incidents in one state. It is widely recognized that pesticide incidents are underreported and often misdiagnosed.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while grapes grown with toxic chemicals show low pesticide residues on the finished commodity, there are 124 pesticides with established tolerance for grapes, 36 are acutely toxic creating a hazardous environment for farmworkers, 109 are linked to chronic health problems (such as cancer), 20 contaminate streams or groundwater, and 99 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 31 pesticides used on grapes that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is dependent on pollinators. ✔
- This crop is foraged by pollinators. ✔

The evaluation of grape skin extract color must take into consideration the use of pesticides in the non-organic production of grapes and the availability of organic grapes for this purpose, as well as the potential availability of the color if the demand existed.

Pumpkin juice color (data for winter squash)

California Farmworker Poisonings, 1992–2010: 3 reported (CA acreage:). These poisoning incidents only represent the tip of the iceberg because it only reflects reported incidents in one state. It is widely recognized that pesticide incidents are underreported and often misdiagnosed.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while winter squash grown with toxic chemicals show low pesticide residues on the finished commodity, there are 75 pesticides with established tolerance for winter squash, 31 are acutely toxic creating a hazardous environment for farmworkers, 69 are linked to chronic health problems (such as cancer), 14 contaminate streams or groundwater, and 64 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 27 pesticides used on winter squash that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is dependent on pollinators. ✔
- This crop is foraged by pollinators. ✔

The evaluation of pumpkin juice color must take into consideration the use of pesticides in the non-organic production of pumpkins and the availability of organic pumpkins for this purpose, as well as the potential availability of the color if the demand existed.

Purple potato juice

California Farmworker Poisonings, 1992–2010: 162 reported (CA acreage: 36,600). These poisoning incidents only represent the tip of the iceberg because it only reflects reported incidents in one state. It is widely recognized that pesticide incidents are underreported and often misdiagnosed.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while potatoes grown with toxic chemicals show low pesticide residues on the finished commodity, there are 78 pesticides with established tolerance for potatoes, 30 are acutely toxic creating a hazardous environment for farmworkers, 69 are linked to chronic health problems (such as cancer), 21 contaminate streams or groundwater, and 70 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 28 pesticides used on potatoes that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is NOT dependent on pollinators.
- This crop is NOT foraged by pollinators.

The evaluation of purple potato juice color must take into consideration the use of pesticides in the non-organic production of purple potatoes and the availability of organic purple potatoes for this purpose, as well as the potential availability of the color if the demand existed.

Red cabbage extract color

Organic juice concentrate available http://www.fruitjuiceconcentrate.org/our-products

California Farmworker Poisonings, 1992–2010: 6 reported (CA acreage: 14,200). These poisoning incidents only represent the tip of the iceberg because it only reflects reported incidents in one state. It is widely recognized that pesticide incidents are underreported and often misdiagnosed.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while cabbage grown with toxic chemicals show low pesticide residues on the finished commodity, there are 49 pesticides with established tolerance for cabbage, 32 are acutely toxic creating a hazardous environment for farmworkers, 47 are linked to chronic health problems (such as cancer), 15 contaminate streams or groundwater, and 44 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 25 pesticides used on cabbage that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is dependent on pollinators. ✔
- This crop is NOT foraged by pollinators.

The evaluation of red cabbage extract color must take into consideration the use of pesticides in the non-organic production of red cabbages and the availability of organic red cabbages for this purpose, as well as the potential availability of the color if the demand existed.

Red radish extract color

California Farmworker Poisonings, 1992–2010: Not a major California crop.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while radishes grown with toxic chemicals show low pesticide residues on the finished commodity, there are 40 pesticides with established tolerance for radishes, 16 are acutely toxic creating a hazardous environment for farmworkers, 36 are linked to chronic health problems (such as cancer), 12 contaminate streams or groundwater, and 38 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 17 pesticides used on radishes that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is dependent on pollinators. ✔
- This crop is foraged by pollinators. ✔

The evaluation of red radish extract color must take into consideration the use of pesticides in the non-organic production of red radishes and the availability of organic red radishes for this purpose, as well as the potential availability of the color if the demand existed.

Saffron extract color

Pesticide Tolerances —Health and Environmental Effects: The database shows that while saffron grown with toxic chemicals show low pesticide residues on the finished commodity, there are five pesticides with established tolerance for saffron, five are linked to chronic health problems (such as cancer), two contaminate streams or groundwater, and five are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are two pesticides used on saffron that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' **BEE Protective webpage**.

The evaluation of saffron color must take into consideration the use of pesticides in the non-organic production of saffron and the availability of organic saffron for this purpose, as well as the potential availability of the color if the demand existed.

Turmeric extract color

Pesticide Tolerances —Health and Environmental Effects: The database shows that while turmeric grown with toxic chemicals show low pesticide residues on the finished commodity, there are 39 pesticides with established tolerance for turmeric. Of these, at least 12 are acutely toxic creating a hazardous environment for **farmworkers**, 31 are linked to chronic health problems (such as cancer), 5 contaminate streams or groundwater, and 32 are poisonous to wildlife. Four pesticides with tolerances on turmeric have not been studied enough to give any data with regard to these endpoints.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are at least 12 pesticides used on turmeric that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' **BEE Protective webpage**.

The evaluation of turmeric extract color must take into consideration the use of pesticides in the non-organic production of turmeric and the availability of organic turmeric for this purpose, as well as the potential availability of the color if the demand existed.

Paprika color (data for bell peppers)

California Farmworker Poisonings, 1992–2010: 28 reported (CA acreage: 22,900). These poisoning incidents only represent the tip of the iceberg because it only reflects reported incidents in one state. It is widely recognized that pesticide incidents are underreported and often misdiagnosed.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while bell peppers grown with toxic chemicals show low pesticide residues on the finished commodity, there are 96 pesticides with established tolerance for bell peppers, 36 are acutely toxic creating a hazardous environment for farmworkers, 88 are linked to chronic health problems (such as cancer), 21 contaminate streams or groundwater, and 82 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 34 pesticides used on bell peppers that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is NOT dependent on pollinators.
- This crop is NOT foraged by pollinators.

The evaluation of paprika color must take into consideration the use of pesticides in the non-organic production of paprika and the availability of organic paprika for this purpose, as well as the potential availability of the color if the demand existed.

2. Thickeners

Sweet potato starch
No TR or TAP has ever been produced for sweet potato starch.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while sweet potatoes grown with toxic chemicals show low pesticide residues on the finished commodity, there are 48 pesticides with established tolerance for sweet potatoes, 21 are acutely toxic creating a hazardous environment for farmworkers, 45 are linked to chronic health problems (such as cancer), 13 contaminate streams or groundwater, and 46 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 19 pesticides used on sweet potatoes that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is NOT dependent on pollinators.
- This crop is foraged by pollinators. ✓

The evaluation of sweet potato starch must take into consideration the use of pesticides in the non-organic production of sweet potatoes and the availability of organic sweet potatoes for this purpose, as well as the potential availability of the starch if the demand existed.

Arabic gum
Gum arabic, also known as acacia gum, *chaar gund*, *char goond*, or *meska*, is a natural gum made of hardened sap taken from wild trees of two species of acacia; *Senegalia (Acacia) senegal* and *Vachellia (Acacia) seyal*. The trees grow throughout the Sahel from Senegal to Somalia. The primary use of gum Arabic is as a stabilizer. Because it is harvested from wild trees, no pesticides are known to be used on gum Arabic.

The HS should investigate whether there is gum Arabic available that could be certified as wildcrafted organic, to ensure that harvesters comply with §205.207(b) A wild crop must be harvested in a manner that ensures that such harvesting or gathering will not be destructive to the environment and will sustain the growth and production of the wild crop.

Carob bean gum, Locust bean gum
Locust bean gum and carob bean gum both refer to gum extracted from carob (*Ceratonia silique*). Carob, which is used as a chocolate substitute, is derived from the pods in which the seeds are found.[7] Organic carob is available. There are only few pests known to cause severe damage in carob orchards therefore it has traditionally not been treated with pesticides.[8] No pesticide tolerances appear to exist for carob or locust bean gum.

[7] http://en.wikipedia.org/wiki/Ceratonia_siliqua.
[8] http://en.wikipedia.org/wiki/Ceratonia_siliqua.

Since the crop is not treated with pesticides, and organically produced carob is available, the HS should investigate the availability of organic carob/locust bean gum and for this purpose, as well as the potential availability of the gum if the demand existed.

Guar gum

In July 2007, the European Commission issued a health warning to its member states after high levels of dioxins were detected in a food additive - guar gum - used as thickener in small quantities in meat, dairy, dessert or delicatessen products. The source was traced to guar gum from India that was contaminated with pentachlorophenol, which contains dioxins as contaminants.[9]

In the United States, guar is grown in west Texas. Trifluralin and clethodim herbicides are used in guar production. In addition, paraquat, glyphosate, and sodium chlorate are used as harvest aids.[10]

Pesticide Tolerances —Health and Environmental Effects: The database shows that while guar grown with toxic chemicals shows low pesticide residues on the finished commodity, there are 5 pesticides used on guar, two are acutely toxic creating a hazardous environment for farmworkers, five are linked to chronic health problems (such as cancer), two contaminate streams or groundwater, and five are poisonous to wildlife.

The evaluation of guar gum must take into consideration the use of pesticides in the non-organic production of guar and the availability of organic guar for this purpose, as well as the potential availability of the gum if the demand existed.

Pectin (non-amidated forms only)

The technical review for non-amidated low methoxyl pectin (LMP) states repeatedly that LMP is the result of a chemical process that demethyates high methoxyl pectin. Therefore, a listing on §205.606 should be limited to high methoxyl pectin (HMP), which is extracted from citrus peel and apple pomace. In reviewing the impact of the manufacture of HMP, the HS must consider the impacts of raising the non-organic crops used to produce it.

Oranges

California Farmworker Poisonings, 1992–2010: 508 reported (CA acreage: 180,000). These poisoning incidents only represent the tip of the iceberg because it only reflects reported incidents in one state. It is widely recognized that pesticide incidents are underreported and often misdiagnosed.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while oranges grown with toxic chemicals show low pesticide residues on the finished commodity, there are 73 pesticides with established tolerance for oranges, 30 are acutely toxic creating a

[9] http://en.wikipedia.org/wiki/Guar_gum.
[10] http://lubbock.tamu.edu/files/2013/06/Guar-Production-Industry-Texas-May2013-Trostle.pdf.

hazardous environment for farmworkers, 66 are linked to chronic health problems (such as cancer), 19 contaminate streams or groundwater, and 60 are poisonous to wildlife.

 **Pollinator Impacts:** In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 25 pesticides used on oranges that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is dependent on pollinators. ✔
- This crop is foraged by pollinators. ✔

Apples

California Farmworker Poisonings, 1992–2010: 104 reported (CA acreage: 17,500). These poisoning incidents only represent the tip of the iceberg because it only reflects reported incidents in one state. It is widely recognized that pesticide incidents are underreported and often misdiagnosed.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while apples grown with toxic chemicals show low pesticide residues on the finished commodity, there are 109 pesticides with established tolerance for apples, 38 are acutely toxic creating a hazardous environment for farmworkers, 91 are linked to chronic health problems (such as cancer), 18 contaminate streams or groundwater, and 91 are poisonous to wildlife.

 **Pollinator Impacts:** In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 33 pesticides used on apples that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is dependent on pollinators. ✔
- This crop is foraged by pollinators. ✔

A listing on §205.606 should be limited to high methoxyl pectin (HMP), which is extracted from citrus peel and apple pomace. The evaluation of high methoxl pectin must take into consideration the use of pesticides in the non-organic production of apples and oranges and the availability of organic apples and oranges for this purpose, as well as the potential availability of organic pectin if the demand existed.

Cornstarch, native

Non-organic corn production is an intensive user of pesticides and synthetic fertilizers. Most of the non-organic corn is also genetically modified.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while field corn products grown with toxic chemicals show low pesticide residues on the finished commodity, there are 140 pesticides with established tolerance for field corn products,. Of these, at least 37 are acutely toxic creating a hazardous environment for **farmworkers**, 97 are linked to

chronic health problems (such as cancer), 31 contaminate streams or groundwater, and 87 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 29 pesticides used on field corn products that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' **BEE Protective webpage**.

- This crop is dependent on pollinators.
- This crop is foraged by pollinators. ✔

The evaluation of cornstarch must take into consideration the use of pesticides in the non-organic production of corn and ensure that GMO corn is not used in organic products. The NOSB must consider the availability of organic corn for this purpose, as well as the potential availability of cornstarch if the demand existed.

Gelatin

Non-organic gelatin is made from a variety of meat and fish sources. Conventional meat production and aquaculture rely on chemically-intensive grain production. Nonorganic meat production typically results in air and water pollution from feedlots. Disposal of hides used in manufacture may result in toxic chemical pollution. Other effluents create high biological oxygen demand (BOD). The issue of BSE (bovine spongiform encephalopathy) transmission is raised by the TAP review, and FDA guidance addresses the sourcing and processing of gelatin to avoid BSE. Organic gelatin would promise better control over environmental and health issues. The TAP review raises the question of whether any gelatin is essential, but the issue of essentiality of non-organic gelatin is raised by a simple internet search. The compatibility of some of the uses of gelatin with organic handling is questionable, particularly if organic gelatin is available.

Non-organic meat production is dependent on chemically-intensive production of corn and soybeans.

Corn

Non-organic corn production is an intensive user of pesticides and synthetic fertilizers. Most of the non-organic corn is also genetically modified.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while field corn products grown with toxic chemicals show low pesticide residues on the finished commodity, there are 140 pesticides with established tolerance for field corn products,. Of these, at least 37 are acutely toxic creating a hazardous environment for **farmworkers**, 97 are linked to chronic health problems (such as cancer), 31 contaminate streams or groundwater, and 87 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 29 pesticides used on field corn products that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' **BEE Protective webpage**.

- This crop is NOT dependent on pollinators.
- This crop is foraged by pollinators. ✔

Soybeans

California Farmworker Poisonings, 1992–2010: 1 reported. This poisoning incident represents only the tip of the iceberg because it only reflects reported incidents in one state. It is widely recognized that pesticide incidents are underreported and often misdiagnosed.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while soybeans grown with toxic chemicals show low pesticide residues on the finished commodity, there are 83 pesticides with established tolerance for soybeans, 37 are acutely toxic creating a hazardous environment for farmworkers, 76 are linked to chronic health problems (such as cancer), 28 contaminate streams or groundwater, and 75 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 31 pesticides used on soybeans that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is dependent on pollinators. ✔
- This crop is foraged by pollinators. ✔

The evaluation of gelatin must take into consideration the use of pesticides in the non-organic production of corn and soybeans and ensure that GMO grains are not used in organic products. The NOSB must consider the availability of organic meat byproduct for this purpose, as well as the potential availability of gelatin if the demand was enhanced by removal of this listing.

Konjac flour

No TR or TAP has ever been performed on Konjac flour.

Konjac is derived from the root of *Amorphophallus konjac*, which is native to warm subtropical to tropical eastern Asia. It is a perennial, growing from a large corm up to 10 inches in diameter, which is the source of konnyaku (yam cake) that cooked and consumed primarily in Japan. When the cake is pushed through a grid of sharp blades at the end of a wooden box shirataki noodles are produced.[11]

We have been unable to identify pesticides with tolerances in/on Konjac. However, a search of the literature finds mention of at least 12 pesticides used in Konjac production. Of these, five are acutely toxic creating a hazardous environment for farmworkers, 12 are linked to chronic health problems (such as cancer), eight contaminate streams or groundwater, 12 are poisonous to wildlife, and two are toxic to bees and other pollinators. This is an issue that the

[11] http://en.wikipedia.org/wiki/Konjac.

HS must investigate. *Amorphophallus konjac* has been genetically engineered to be resistant to rot,[12] and the NOSB must ensure that the GE konjac flour is not used in organic products.

3. Fish and sea products

Fish oil

Listed as §205.606(f) Fish oil (Fatty acid CAS #'s: 10417-94-4, and 25167-62-8)—stabilized with organic ingredients or only with ingredients on the National List, §§205.605 and 205.606.

Fish oil raises two major issues: depletion of fish in the ocean and the presence of persistent contaminants, including DDT, PCBs, mercury, and dioxins.

Fish are known to bioconcentrate a number of toxic substances. Several studies have examined contaminants in fish oil supplements. They have found a wide variation in contaminant levels, even in those products labeled "purified."[13] The Food and Drug Administration (FDA) says,

> In the case of components or extracts of whole fish (e.g., dietary supplements, dietary ingredients, and flavors), the component or extract may contain higher or lower concentrations of environmental chemical contaminants and pesticides than the whole fish from which it was derived. For example, organochlorine contaminants, such as PCBs, are oil soluble. When producing fish oil and fish meal, any PCBs present will become more concentrated in the oil fraction and less concentrated in the water fraction, as compared with the levels in the whole fish.[14]

FDA also gives guidance to those using fish for reducing contamination in their products.[15]

---

[12] Ban H, Chai X, Lin Y, Zhou Y, Peng D, Zhou Y, Zou Y, Yu Z, Sun M, 2009. Transgenic Amorphophallus konjac expressing synthesized acyl-homoserine lactonase (aiiA) gene exhibit enhanced resistance to soft rot disease. Plant Cell Reports [2009, 28(12):1847-1855].

[13] "Purified" -- http://www.webmd.com/diet/news/20111206/some-fish-oil-supplements-fishy-on-quality reporting on Consumers Reports study. Press release on ConsumerLab study: http://www.consumerlab.com/news/ReviewofFishOilandOmega-3SupplmentsbyConsumerLab.com/8_22_2012/ Also: Rawn DF, Breakell K, Verigin V, Nicolidakis H, Sit D, Feeley M., 2009. Persistent organic pollutants in fish oil supplements on the Canadian market: polychlorinated biphenyls and organochlorine insecticides. J Food Sci. Jan-Feb; 74(1):T14-9 http://onlinelibrary.wiley.com/doi/10.1111/j.1750-3841.2008.01020.x/pdf; Storelli MM, Storelli A, Marcotrigiano GO, 2004. Polychlorinated biphenyls, hexachlorobenzene, hexachlorocyclohexane isomers, and pesticide organochlorine residues in cod-liver oil dietary supplements. J Food Prot. Aug; 67(8):1787-91. Covaci, A., Voorspoels, S., Vetter, W., Gelbin, A., Jorens, P. G., Blust, R., & Neels, H., 2007. Anthropogenic and naturally occurring organobrominated compounds in fish oil dietary supplements. *Environmental science & technology*, *41*(15), 5237-5244.

[14] FDA Guidance: Environmental Chemical Contaminants and Pesticides. http://www.fda.gov/downloads/Food/GuidanceRegulation/UCM252404.pdf P. 1 (pdf numbering, p. 155 in original.)

[15] FDA Guidance: Environmental Chemical Contaminants and Pesticides. http://www.fda.gov/downloads/Food/GuidanceRegulation/UCM252404.pdf Pp. 4-23 (pdf; 158-177 in original.)

Currently, most fish oil for human consumption comes from marine pelagic oil fish, including mackerel, salmon, anchovy, sprat, pilchard, and herring, but the sought-after omega-3 oils are also found in deep sea fish and predators such as cod, swordfish, spearfish, marlin and tuna. Many people have expressed concerns over the depletion of populations of top-level predators, but extensive harvesting of marine fauna at lower trophic levels is also likely to have substantial impacts on the food supplies of predators.[16]

Given the inability of the NOSB to annotate a listing at sunset, the NOSB must consider whether organic consumers are adequately protected from contaminants in fish oil by the current listing. In addition, the NOSB must consider whether the allowance of fish oil from wild fish has a negative impact on fish populations.

Kelp

There is evidence that kelp concentrates heavy metals, and is used to monitor heavy metal contamination.[17] Arsenic poisoning has been documented from kelp supplements.[18] Although kelp itself recovers from intensive harvesting,[19] kelp harvesting can have significant impacts on other members of the ecosystem.[20]

Annotations requiring testing for heavy metals and prevention of overharvesting would protect organic consumers and the environment. Given the inability of the NOSB to annotate materials during sunset under the new sunset policy, the NOSB must consider the question of whether the allowance of the use of wild kelp is adequately protective. The HS should investigate whether there is kelp available that could be certified as wildcrafted organic, to ensure that harvesters comply with §205.207(b) "A wild crop must be harvested in a manner that ensures that such harvesting or gathering will not be destructive to the environment and will sustain the growth and production of the wild crop."

Seaweed, Pacific kombu

No TR or TAP has ever been produced for Pacific kombu.

---

[16] Brunner, E. J., Jones, P. J., Friel, S., & Bartley, M. ,2009. Fish, human health and marine ecosystem health: policies in collision. International journal of epidemiology, *38*(1), 93-100. http://ije.oxfordjournals.org/content/38/1/93.full.pdf+html.

[17] David A. Roberts, Emma L. Johnston, Alistair G.B. Poore, 2008. Contamination of marine biogenic habitats and effects upon associated epifauna. Marine Pollution Bulletin 56:1057–1065.

[18] Eric Amster, Asheesh Tiwary, and Marc B. Schenker, 2007. Case Report: Potential Arsenic Toxicosis Secondary to Herbal Kelp Supplement. Environmental Health Perspectives 115(4): 606-608.

[19] Rothman, M. D., Anderson, R. J., & Smit, A. J. (2006). The effects of harvesting of the South African kelp (Ecklonia maxima) on kelp population structure, growth rate and recruitment. *Journal of applied phycology*, *18*(3-5), 335-341.

[20] Lorentsen, S. H., Sjøtun, K., & Grémillet, D. (2010). Multi-trophic consequences of kelp harvest. *Biological Conservation*, *143*(9), 2054-2062.

Kombu is another brown seaweed, and like kelp, it concentrates heavy metals including arsenic[21] and cadmium.[22] Since seaweeds concentrate iodine (kombu by a factor of 1000x), those grown in water contaminated by radioactivity have high radioactive iodine concentrations.[23]

Annotations requiring testing for heavy metals and radioactivity and prevention of overharvesting would protect organic consumers and the environment. Given the inability of the NOSB to annotate materials during sunset under the new sunset policy, the NOSB must consider the question of whether the allowance of the use of wild kombu is adequately protective. The HS should investigate whether there is kombu available that could be certified as wildcrafted organic, to ensure that harvesters comply with §205.207(b) "A wild crop must be harvested in a manner that ensures that such harvesting or gathering will not be destructive to the environment and will sustain the growth and production of the wild crop."

Wakame seaweed (Undaria pinnatifida)
No TR or TAP has ever been produced for wakame.

Like other seaweeds, wakame concentrates heavy metals, including arsenic.[24]

Annotations requiring testing for heavy metals and prevention of overharvesting would protect organic consumers and the environment. Given the inability of the NOSB to annotate materials during sunset under the new sunset policy, the NOSB must consider the question of whether the allowance of the use of wild wakame is adequately protective. The HS should investigate whether there is wakame available that could be certified as wildcrafted organic, to ensure that harvesters comply with §205.207(b) "A wild crop must be harvested in a manner that ensures that such harvesting or gathering will not be destructive to the environment and will sustain the growth and production of the wild crop."

4. Dairy additives

The following two materials are listed on §205.606 because they are claimed to be products of fermenting (that is, processing) agricultural materials.
(h) Fructooligosaccharides (FOS) (CAS # 308066-66-2)
In 2009, the manufacturer of FOS announced that it was introducing an organic FOS product.[25]
(I) Inulin-oligofructose enriched (CAS # 9005-80-5).

---

[21] Sartal, C. G., del Carmen Barciela-Alonso, M., & Bermejo-Barrera, P. (2012). Effect of the cooking procedure on the arsenic speciation in the bioavailable (dialyzable) fraction from seaweed. *Microchemical Journal*, *105*, 65-71.
[22] Kikuchi, Y., Nomiyama, T., Kumagai, N., Uemura, T., & Omae, K. (2002). Cadmium concentration in current Japanese foods and beverages. *Journal of Occupational Health*, *44*(4), 240-247.
[23] Daiichi Weiss, D. (2011). Contamination of water, sediments and biota of the Northern Pacific coastal area in the vicinity of the Fukushima NPP. In *Paris, France, November: EUROSAFE Forum*.
[24] García-Sartal, C., Romarís-Hortas, V., del Carmen Barciela-Alonso, M., Moreda-Piñeiro, A., Dominguez-Gonzalez, R., & Bermejo-Barrera, P. (2011). Use of an in vitro digestion method to evaluate the bioaccessibility of arsenic in edible seaweed by inductively coupled plasma-mass spectrometry. *Microchemical Journal*, *98*(1), 91-96.
[25] http://www.nutraingredients-usa.com/Suppliers2/Beneo-Orafti-offers-organic-inulin-for-US-market.

Fructooligosaccharides (FOS)

Product of fermentation The TR describes FOS as a synthetic material manufactured by a fermentation that converts sucrose into short-chain fructooligosaccharides. It says (lines 148-150), "Although short-chain fructooligosaccharides is [*sic*] produced with a fungal enzyme b-fructofuranosidase on inulin (IOM 2001), commercial quantities are produced by a controlled process and combination of ingredients (sucrose, water, enzyme, hydrochloric acid, or sodium hydroxide) that does not occur in nature."

In this case, the fermentation does not appear to be "food processing," but a manufacturing process. Therefore the Handling Subcommittee was originally correct in saying that it is not eligible for listing on §205.606, but should be considered for §205.605. In addition, since the manufacture involves a chemical change that does not occur in nature, FOS should be petitioned for inclusion on §205.605(b).

Inulin-oligofructose enriched (IOF)

Product of fermentation According to the patent included in the petition, IOF consists of inulin extracted from chicory "co-processed" with FOS. The inulin is extracted with hot water followed by a purification process involving treatment with lime, in which the calcium hydroxide reacts with carbon dioxide and absorbs unwanted components, leaving a residue that is further treated with ion exchange and carbon filtration. Up to that stage, it could be called an agricultural product. However, the addition of FOS, a synthetic nonagricultural, creates a synthetic nonagricultural product. Therefore, IOF does not belong on §205.606, but should be petitioned for §205.605(b).

Whey protein concentrate

No annotation restricts the use of whey powder as a source of nonorganic milk protein added to organic milk products. If 80% protein whey powder is added at the rate of 4% (80% of the allowed 5% nonorganic ingredients) in organic yogurt, then approximately half of the protein in the yogurt would come from conventional dairy sources. It is not compatible with organic handling to provide half of a macronutrient in an organic product from non-organic sources.

As a product of nonorganic dairy production, the HS must consider the impacts of the dairy production system that is the source of the whey. Conventional dairy relies on chemically-intensive grain production. Nonorganic dairy typically results in air and water pollution from concentrated animal feeding operations.

Non-organic dairy is dependent on chemically-intensive production of corn and soybeans.

Corn

Non-organic corn production is an intensive user of pesticides and synthetic fertilizers. Most of the non-organic corn is also genetically modified.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while field corn products grown with toxic chemicals show low pesticide residues on the finished commodity, there are 140 pesticides with established tolerance for field corn products,. Of these,

at least 37 are acutely toxic creating a hazardous environment for **farmworkers**, 97 are linked to chronic health problems (such as cancer), 31 contaminate streams or groundwater, and 87 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 29 pesticides used on field corn products that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' **BEE Protective webpage**.

- This crop is dependent on pollinators.
- This crop is foraged by pollinators. ✔

Soybeans

California Farmworker Poisonings, 1992–2010: 1 reported. This poisoning incident represents only the tip of the iceberg because it only reflects reported incidents in one state. It is widely recognized that pesticide incidents are underreported and often misdiagnosed.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while soybeans grown with toxic chemicals show low pesticide residues on the finished commodity, there are 83 pesticides with established tolerance for soybeans, 37 are acutely toxic creating a hazardous environment for farmworkers, 76 are linked to chronic health problems (such as cancer), 28 contaminate streams or groundwater, and 75 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 31 pesticides used on soybeans that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is dependent on pollinators. ✔
- This crop is foraged by pollinators. ✔

The use of a non-organic source for a high percentage of a macronutrient in an organic product is not compatible with organic handling. The evaluation of whey protein concentrate must take into consideration the use of pesticides in the non-organic production of corn and soybeans and ensure that GMO grains are not used in organic products. The NOSB must consider the availability of organic milk for this purpose, as well as the potential availability of whey powder if the demand was enhanced by removal of this listing.

5. Miscellaneous agricultural products

Orange pulp, dried

No TR or TAP has ever been produced for dried orange pulp.

California Farmworker Poisonings, 1992–2010: 508 reported (CA acreage: 180,000). These poisoning incidents only represent the tip of the iceberg because it only reflects reported

incidents in one state. It is widely recognized that pesticide incidents are underreported and often misdiagnosed.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while oranges grown with toxic chemicals show low pesticide residues on the finished commodity, there are 73 pesticides with established tolerance for oranges, 30 are acutely toxic creating a hazardous environment for farmworkers, 66 are linked to chronic health problems (such as cancer), 19 contaminate streams or groundwater, and 60 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 25 pesticides used on oranges that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is dependent on pollinators. ✔
- This crop is foraged by pollinators. ✔

The evaluation of dried orange pulp must take into consideration the use of pesticides in the non-organic production of oranges and the availability of organic oranges for this purpose, as well as the potential availability of the dried pulp if the demand existed.

Peppers, chipotle chili (data on hot peppers)
No TR or TAP has ever been produced for peppers.

California Farmworker Poisonings, 1992–2010: Not a major California crop.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while hot peppers grown with toxic chemicals show low pesticide residues on the finished commodity, there are 91 pesticides with established tolerance for hot peppers, 35 are acutely toxic creating a hazardous environment for farmworkers, 83 are linked to chronic health problems (such as cancer), 18 contaminate streams or groundwater, and 76 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 34 pesticides used on hot peppers that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is NOT dependent on pollinators.
- This crop is NOT foraged by pollinators.

The evaluation of chipotle peppers must take into consideration the use of pesticides in the non-organic production of chipotle peppers and the availability of organic chipotle peppers for this purpose, as well as their potential availability if the demand existed.

Dillweed oil
No TR or TAP has ever been produced for dillweed oil.

California Farmworker Poisonings, 1992–2010: Not a major California crop.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while dill grown with toxic chemicals show low pesticide residues on the finished commodity, there are 20 pesticides with established tolerances for dill, 9 are acutely toxic creating a hazardous environment for farmworkers, 19 are linked to chronic health problems (such as cancer), 5 contaminate streams or groundwater, and 16 are poisonous to wildlife.


Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 9 pesticides used on dill that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is dependent on pollinators. ✔
- This crop is foraged by pollinators. ✔

The evaluation of dillweed oil must take into consideration the use of pesticides in the non-organic production of dill and the availability of organic dill for this purpose, as well as its potential availability if the demand existed.

Celery powder
No TR or TAP has ever been produced for celery powder.

California Farmworker Poisonings, 1992–2010: 70 reported (CA acreage: 26,400). These poisoning incidents only represent the tip of the iceberg because it only reflects reported incidents in one state. It is widely recognized that pesticide incidents are underreported and often misdiagnosed.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while celery grown with toxic chemicals show low pesticide residues on the finished commodity, there are 62 pesticides with established tolerance for celery, 27 are acutely toxic creating a hazardous environment for farmworkers, 57 are linked to chronic health problems (such as cancer), 15 contaminate streams or groundwater, and 56 are poisonous to wildlife.


Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 28 pesticides used on celery that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is dependent on pollinators. ✔
- This crop is foraged by pollinators. ✔

The evaluation of celery powder must take into consideration the use of pesticides in the non-organic production of celery and the availability of organic celery for this purpose, as well as its potential availability if the demand existed.

Chia (Salvia hispanica L.)
No TR or TAP has ever been produced for chia.

There are no tolerances for the use of any pesticides on chia, which is an indication that organic production is possible and on-going.

The HS must determine whether organic chia is now being produced or would be produced if the demand existed.

Galangal, frozen
No TR or TAP has ever been produced for galangal.

Galangal is the rhizome of one of the following four plant species all in the ginger family: *Alpinia galanga* or greater galangal, *Alpinia officinarum* or lesser galangal, *Kaempferia galanga*, also called *kencur*, aromatic or sand ginger, or *Boesenbergia rotunda*, also called Chinese ginger or fingerroot.

Galangal has a tolerance for glyphosate. Since galangal is closely related to ginger, it is possible that other pesticides used on ginger are also used on galangal. Glyphosate has documented health and environmental effects cancer, endocrine disruption, reproductive effects, kidney and liver damage, induction of antibiotic resistance, sensitization/irritation, and toxicity to aquatic organisms. Its overuse threatens pollinators, including monarch butterflies.

The HS must investigate other pesticides that might be used on galangal. It must also determine whether organic galangal is now being produced or would be produced if the demand existed.

Lemongrass, frozen
No TR or TAP has ever been produced for lemongrass.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while lemongrass grown with toxic chemicals show low pesticide residues on the finished commodity, there are 11 pesticides with established tolerance for lemongrass, four are acutely toxic creating a hazardous environment for **farmworkers**, ten are linked to chronic health problems (such as cancer), three contaminate streams or groundwater, and ten are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are six pesticides used on lemongrass that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' **BEE Protective webpage**.

The evaluation of lemongrass must take into consideration the use of pesticides in the non-organic production of lemongrass and the availability of organic lemongrass for this purpose, as well as its potential availability if the demand existed.

Turkish bay leaves (*Laurus nobilis*, sweet bay)
No TR or TAP has ever been produced for Turkish bay leaves.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while turkish bay (sweet bay) grown with toxic chemicals show low pesticide residues on the finished commodity, there are 11 pesticides with established tolerance for turkish bay (sweet bay), four are acutely toxic creating a hazardous environment for **farmworkers**, ten are linked to chronic health problems (such as cancer), three contaminate streams or groundwater, and ten are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are six pesticides used on turkish bay (sweet bay) that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' **BEE Protective webpage**.

The evaluation of Turkish bay leaves must take into consideration the use of pesticides in the non-organic production of Turkish bay leaves and the availability of organic Turkish bay leaves for this purpose, as well as their potential availability if the demand existed.

Orange shellac
Orange shellac is produced from the secretions of the lac insect (*Kerria lacca*), which sucks the sap of several host trees. As far as we can determine, there are few pests that harm host trees, so few pesticides are likely to be used in shellac production. However, this is an issue that the HS should address.

TAP reviewers and the TR raise issues associated with compatibility and ancillary substances. It appears that shellac is used as a preservative when applied as a coating to fruit, which is the major use addressed by the TAP and TR. It is used to provide a barrier preventing the loss of moisture and the movement of gases through the skin of the fruit. While the regulations permit the use of natural materials for this use, the reviewers point out that consumers do not expect organic produce to be waxed, especially without notifying consumers, some of whom may be allergic to shellac or its ancillary substances. The TR and TAP mention a number of possible ancillary substances, including the toxic antimicrobial morpholine. It is important to identify which of these ancillary substances are allowed in orange shellac used on organic produce.

The evaluation of orange shellac must investigate the use of pesticides in the non-organic production of the host species and the potential availability of organic orange shellac if the demand existed. The HS must identify allowed ancillary substances and ensure that toxic chemicals are not permitted. Finally, the NOSB must consider the question of whether orange shellac as formulated and applied to fruit meets consumer expectations for organic produce.

Lecithin, de-oiled
In May 2009, the listing for unbleached lecithin was replaced with a listing for de-oiled lecithin, to clarify which form of lecithin was not available in organic form. Lynn Clarkson, who testified in May 2009 that his company currently could not make organic de-oiled lecithin, heads a company that now offers for sale organic de-oiled lecithin.[26] This indicates that the listing on §205.606 is probably unnecessary.

The manufacture of non-organic lecithin depends on the production of non-organic soybeans. In evaluating the potential environmental hazards associated with non-organic lecithin production, the NOSB must consider, in addition to the use of volatile synthetic solvents, the environmental impacts of chemical-intensive production of soybeans.

Soybeans

California Farmworker Poisonings, 1992–2010: 1 reported. This poisoning incident represents only the tip of the iceberg because it only reflects reported incidents in one state. It is widely recognized that pesticide incidents are underreported and often misdiagnosed.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while soybeans grown with toxic chemicals show low pesticide residues on the finished commodity, there are 83 pesticides with established tolerance for soybeans, 37 are acutely toxic creating a hazardous environment for farmworkers, 76 are linked to chronic health problems (such as cancer), 28 contaminate streams or groundwater, and 75 are poisonous to wildlife.


Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 31 pesticides used on soybeans that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is dependent on pollinators. ✓
- This crop is foraged by pollinators. ✓

The evaluation of de-oiled lecithin must take into consideration the use of pesticides in the non-organic production of soybean and ensure that GMO soy is not used in organic products. The NOSB must consider the availability of organic soybean for this purpose, as well as the potential availability of de-oiled lecithin if the demand was increased by the removal of this listing.

Casings, from processed intestines
No TR or TAP has ever been produced for casings from processed intestines.

Non-organic casings are made from the intestines of non-organic livestock. As a product of nonorganic livestock production, the HS must consider the impacts of the livestock production

[26] http://clarksonsoy.com/organic-lecithins/.

system that is the source of the casings. Conventional livestock production relies on chemically-intensive grain production and typically results in air and water pollution from concentrated animal feeding operations.

Non-organic livestock production is dependent on chemically-intensive production of corn and soybeans.

Corn

Non-organic corn production is an intensive user of pesticides and synthetic fertilizers. Most of the non-organic corn is also genetically modified.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while field corn products grown with toxic chemicals show low pesticide residues on the finished commodity, there are 140 pesticides with established tolerance for field corn products,. Of these, at least 37 are acutely toxic creating a hazardous environment for **farmworkers**, 97 are linked to chronic health problems (such as cancer), 31 contaminate streams or groundwater, and 87 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 29 pesticides used on field corn products that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' **BEE Protective webpage**.

- This crop is dependent on pollinators.
- This crop is foraged by pollinators. ✔

Soybeans

California Farmworker Poisonings, 1992–2010: 1 reported. This poisoning incident represents only the tip of the iceberg because it only reflects reported incidents in one state. It is widely recognized that pesticide incidents are underreported and often misdiagnosed.

Pesticide Tolerances —Health and Environmental Effects: The database shows that while soybeans grown with toxic chemicals show low pesticide residues on the finished commodity, there are 83 pesticides with established tolerance for soybeans, 37 are acutely toxic creating a hazardous environment for farmworkers, 76 are linked to chronic health problems (such as cancer), 28 contaminate streams or groundwater, and 75 are poisonous to wildlife.

Pollinator Impacts: In addition to habitat loss due to the expansion of agricultural and urban areas, the database shows that there are 31 pesticides used on soybeans that are considered toxic to honey bees and other insect pollinators. For more information on how to protect pollinators from pesticides, see Beyond Pesticides' BEE Protective webpage.

- This crop is dependent on pollinators. ✔
- This crop is foraged by pollinators. ✔

The evaluation of casings from processed intestines must take into consideration the use of pesticides in the non-organic production of corn and soybeans and ensure that GMO grains are not used in producing organic products. The NOSB must consider the availability of organic intestines for this purpose, as well as the potential availability of casings if the demand was enhanced by removal of this listing.

We hope that the Handling Subcommittee will find the above information useful as it applies OFPA criteria in the consideration of these nonorganic ingredients in processed organic food. Thank you for your consideration of these comments.

Sincerely,

Terry Shistar, Ph.D.
Board of Directors