

NOSB SPRING 2020 MEETING

SUMMARY OF PROPOSALS, DISCUSSION DOCUMENTS & SUNSET REVIEW

The [spring 2020 National Organic Standards Board \(NOSB\) Meeting](#) will be April 29 – 30 via live online webinar, instead of in-person.

The [Meeting Materials \(all proposals and discussion documents to be considered at the meeting\)](#) are posted, and the public comment period is open. The meeting materials have been voted on by subcommittees of NOSB, and the full Board will discuss and/or vote on the materials at the public in-person meeting. The final deadline to submit written comments and sign up for oral comments is **April 3** at midnight Eastern.

The primary purpose of NOSB meetings is to provide an opportunity for organic stakeholders to give input on proposed NOSB recommendations and discussion items. The meetings also allow NOSB to receive updates from USDA's National Organic Program (NOP) on issues pertaining to organic agriculture. The meetings are open to the public. Members of the public are invited to provide written and/or oral comments to the NOSB.

PUBLIC COMMENT OPPORTUNITIES

WRITTEN COMMENTS must be submitted in advance of the meeting **by April 3** via [Regulations.gov](#) (Docket AMS-NOP-19-0095).

WEBINAR COMMENTS may occur during one of two webinar sessions (April 21 & 23). Individual commenters may only sign up for one 3-minute comment, and [must register in advance by April 3](#).

AT-A-GLANCE LIST OF TOPICS

PROPOSALS (vote)

- **Paper-Based Planting Aids (Crops)** – *proposal to allow in crop production with restrictions on bio-based content*

DISCUSSION DOCUMENTS (no vote)

- **Liquid Fish Fertilizers (Crops)** – *evaluation of the impact of harvesting wild, native fish for use in crop fertilizers*
- **Biodegradable Bio-based Mulch Film (Crops)** – *evaluation of current definition and restrictions*
- **Fenbendazole (Livestock)** – *discussion on petitioned use in poultry production as parasiticide for laying hens*
- **L-Malic Acid (Processing)** – *evaluation of manufacturing process for potential reclassification as synthetic*
- **Ion exchange filtration (Processing)** – *evaluation of current uses and continued allowance in organic handling*
- **Fish oil (Processing)** – *proposed prohibition of fish caught directly for the sole use of its oil and from species and regions that are overfished or exploited*
- **2020 Research Priorities**

SUNSET REVIEW (no vote)

- *NOSB is collecting information on over 50 inputs currently included on the National List of Allowed and Prohibited Substances. The information will inform a proposal and vote at the fall 2020 meeting on whether the substances should continue to be listed or should be removed from the list. See Page 9 for details.*

SUMMARY OF PROPOSALS AND DISCUSSION DOCUMENTS

CROPS SUBCOMMITTEE

Paper-Based Crop Planting Aids (Proposal)

- **BACKGROUND:** Paper planting pots were **petitioned** by Small Farm Works for inclusion on the National List. Paper pots and other growing containers are used as a vessel for growing transplants intended to be planted directly in the ground. Nitten paper chain systems, which are the subject of the petition, are used to facilitate transplanting closely spaced crops such as onions, salad greens, herbs, and others crops. In addition to paper, the products are formulated with several adhesives. Newspapers and other recycled papers are already allowed as synthetic substances for use as mulch and as a compost feedstock. Certifiers have historically extended the allowance for paper to its use in transplant pots, even though paper isn't specifically on the National List for this use. This petition was submitted for NOSB to specifically address the use of paper as a production aid for transplants intended to be planted into soil. NOP has authorized continued use of paper pots while NOSB completes its deliberation on this petition.

At the **fall 2018** meeting, NOSB Crops Subcommittee (CS) presented a discussion document to solicit public comments on the necessity and environmental impact of the material and the availability of alternatives. At the **spring 2019** meeting, CS presented a discussion document that expanded the scope of its review to include a variety of paper-based production aids including pots, seed tape, collars, and hot caps. Out of concern for the use of synthetic fibers in paper-based planting aids, CS requested a Technical Report to evaluate the types of synthetic fibers and the biodegradability of the synthetic fibers used in these types of products. The [Technical Report](#) clarified that synthetic fibers in paper pots and containers are also found in other paper materials currently allowed in organic production as mulches and compost feedstocks. At the **fall 2019** meeting, the CS presented a new discussion document to request comments on a proposed listing and annotation that specified limits on bio-based content, synthetic polymer content, and biodegradability. Commenters provided feedback on these items as well as considerations regarding the scope of review for other paper-based planting aids that are left to decompose in the field. In response to comments, CS has narrowed the use from a "production aid" to a "planting aid" to limit the use of this paper to that time of crop production, and to those aids that would decompose into the soil.

- **PROPOSAL (Spring 2020):** The Crops Subcommittee is proposing a new definition and listing to allow the use of paper-based planting aids under certain conditions.

The proposed definition to be added to NOP regulations at §205.2:

Paper-based crop planting aid. A material that is comprised primarily of cellulose-based paper, including pots, seed tape, and collars that are placed in or on the soil and are intended to degrade into the soil. Contains no less than 85% biobased content with biobased content determined using ASTM D6866 (incorporated by reference; see §205.3).

The proposed listing to be added to the National List of allowed substances in organic crop production at §205.601(o) Production Aids:

Paper-based crop planting aids as defined in 205.2. Virgin or recycled paper without colored or glossy inks. If these paper-based crop planting aids are commercially available with 100% biobased fiber content, these must be used."

The proposed listing is informed by the Subcommittee's review of the petition, technical reviews, and public comment to confirm that the proposed use of paper complies with the National List criteria for not being harmful to the environment or human health, is necessary for production due to absence of natural alternatives, and is compatible with organic farming principles. The Subcommittee states this definition (no less than 85% bio-based content) meets the needs of current manufacturers of paper planting aids, while the encouraging the use of 100% bio-based content through the restrictive annotation.

- **SUBCOMMITTEE VOTE:** Motion to Add to 205.2 Terms Defined: Paper-based crop planting aid. A material that is comprised primarily of cellulose-based paper, including pots, seed tape, and collars that are placed in or on the soil and are intended to degrade into the soil. Contains no less than 85% bio-based content with biobased content determined using ASTM D6866 (incorporated by reference; see §205.3). And to add to 205.601 (o) Production Aids: Paper-based crop planting aids as defined in 205.2. Virgin or recycled paper without colored or glossy inks. If these paper-based crop planting aids are commercially available with 100% bio-based fiber content, these must be used." **MOTION PASSED: 6 Yes, 0 No, 1 Absent, 0 Abstain, 0 Recuse.**

Wild, Native Fish for Liquid Fish Products (Discussion Document)

- **BACKGROUND:** In response to public comments expressing concerns about the environmental impact of harvesting wild, native fish for use in fertilizers, NOSB is pursuing this work agenda item to ensure that liquid fish and other fish-based fertilizer products used in organic production are not harmful to the environment. At the **spring 2018** meeting, NOSB posed several questions for public comment regarding the harvesting of fish species for use in liquid fish fertilizer products. NOSB also requested a [Technical Report](#) that was published in July 2019. The Technical Report found that wild, native fish are not harvested solely for fertilizer production. [See **Appendix B** for more background on Seaweed and Fish-based Inputs]
- **DISCUSSION DOCUMENT (Spring 2020):** The Crops Subcommittee presents the following discussion questions for stakeholder feedback:
 1. Given the results of the Technical Report indicating that there are no species of wild, native fish harvested exclusively for use in liquid fish fertilizer products, please provide feedback on any next steps the subcommittee should take on this issue.
 2. The Technical Report outlines the wet reduction process for fish meal, oil, and solubles and states that solubles are a byproduct of meal (solid phase) and oil (liquid phase) production. Because of the multiple products derived, it did not consider fertilizers using them to be from fish harvested exclusively for fertilizer. Please comment.
 3. Please provide any additional information you may have to help answer the Technical Report questions, particularly:
 - a) During the spring 2018 public meeting, the Crops Subcommittee asked if there are manufacturers using exclusively wild-caught, native fish to manufacture liquid fish fertilizers and learned that there are. Public testimony suggested that other non-synthetic fish-based fertilizers, such as fish meal, may also be derived from wild fish harvested solely for fertilizer production. Is any new information available about the impact of fish fertilizer manufacturing on the sustainability and health of wild, native fish stocks harvested solely for fertilizer production?
 - b) Do different methods, locations, and/or frequencies of harvest pose different levels of risk for wild, native stocks?
 - c) Please provide examples of non-regulatory/practice-based approaches (e.g. training, guidance) that should be considered.
- **SUBCOMMITTEE VOTE:** Motion to accept the discussion document: 7 Yes, 0 No, 1 Absent.

Biodegradable Biobased Mulch Film (Discussion Document)

- **BACKGROUND:** Biodegradable biobased mulch film (BBMF) is currently listed on the National List of allowed materials for crop production as a weed barrier. The listing at §205.601(b)(iii) reads, “*Biodegradable biobased mulch film as defined in §205.2. Must be produced without organisms or feedstock derived from excluded methods.*” The definition at §205.2 reads, “*A synthetic mulch film that meets the following criteria: (1) Meets the compostability specifications of one of the following standards: ASTM D6400, ASTM D6868, EN 13432, EN 14995, or ISO 17088 (all incorporated by reference; see §205.3); (2) Demonstrates at least 90% biodegradation absolute or relative to microcrystalline cellulose in less than two years, in soil, according to one of the following test methods: ISO 17556 or ASTM D5988 (both incorporated by reference; see §205.3); and (3) Must be biobased with content determined using ASTM D6866 (incorporated by reference; see §205.3).*”

The final rule to add BBMF to the National List was published September 30, 2014, in response to an NOSB Recommendation in fall 2012. Following the final rule, NOP published a Policy Memo in January 2015 to specify that BBMFs must not contain any non-biobased content. NOP rescinded the Policy Memo in October 2019, but the requirement for 100% biobased content remains in effect because it is articulated in the preamble to the final regulations adding BBMF to the National List.

The issue that NOSB is addressing at this meeting is the conflict between the NOP terms of allowance and the commercially available forms of BBMFs. Commercially available BBMFs contain around 20% biobased content, therefore there are no products on the market that meet the terms of the NOP allowance. Since this conflict arose, the topic of BBMF has returned to the NOSB work plan to seek resolution. A [Technical Report](#) was commissioned in 2016 to evaluate long-term biodegradability, and was inclusive due to limited research available on BBMF. NOSB has continued to track new research by commissioning an expert panel at the **spring 2016** NOSB Meeting. NOP also commissioned a [new report](#) from Michigan State University, which was made available in October 2019.

- **[DISCUSSION DOCUMENT \(Spring 2020\):](#)** The Crops Subcommittee presents the following discussion questions for stakeholder feedback:
 1. Is the biodegradability of the mulch film the main issue, or should a future annotation include other issues?
 2. Is there information on the toxicity or effect of all secondary metabolite residues as the product breaks down?
 3. What is your opinion on mulch films that could be engineered to include macro- or micro-nutrients or pesticides that would then make the mulch film provide more benefits than just a mulch?
 4. Is the risk/benefit of keeping plastic mulches out of landfills part of the Organic Food Production Act criteria NOSB should consider when reviewing this material?
 5. Are there any studies that track the impact on livestock or wildlife (terrestrial, avian and aquatic) that might be attracted to consume pieces of the biodegradable plastic before it has completely degraded in two years or secondary metabolites that remain in the soil and are taken up by crops?
 6. Should a future annotation try to include consideration that different soils and climates might not be able to meet the biodegradability standard set in the annotation, and how would certifiers be able to verify that the use of the material met the biodegradability standard?
- **SUBCOMMITTEE VOTE:** Motion to accept the discussion document: 6 Yes, 0 No, 1 Absent.

HANDLING SUBCOMMITTEE

L-Malic Acid Reclassification (Discussion Document)

- **BACKGROUND:** L-malic acid is currently listed on the National List at §205.605(a) as an allowed non-synthetic substance and has been approved for use in organic processing and handling since 2006. It is used as a pH adjuster, food acidulant, flavor enhancer and flavoring agent in a wide variety of beverages and food products. In response to public comments during the last Sunset Review in 2019, NOSB is evaluating whether L-malic acid has been incorrectly classified as a non-synthetic and whether the common manufacturing process is more appropriately classified as synthetic based on NOP Instruction on Classification of Materials. To inform its evaluation, NOSB commissioned a [Technical Report](#) that became available last year. The Technical Report indicates that the major commercial source of L-malic acid is manufactured through a two-step procedure involving enzymatic conversion of synthetic fumaric acid to L-malic acid by immobilized microbes.
- **DISCUSSION DOCUMENT (Spring 2020):** The Handling Subcommittee presents the following discussion questions for stakeholder feedback:
 1. There still appears to be some disagreement whether the process described in this document results in a synthetic form of L-malic acid. Is the determination that the two-step process described in this document and in the 2019 Technical Report results in a synthetic form of L-malic acid accurate?
 2. Would classification of L-malic acid when manufactured from synthetic fumaric acid as a synthetic substance affect the classification of other substances currently on 205.605(a)?
 3. If the Subcommittee recommends an annotation that limits sources of fumaric acid used in the production of L-malic acid to non-petroleum sources, are there sufficient quantities to meet current demand in organic production?
 4. How much time would be required for the industry to meet current and expected commercial demand of non-synthetic L-malic acid produced using a one-step fermentation process through biological methods such as microbial fermentation using *Aureobasidium pullulans* and *Penicillium viticola*?
- **SUBCOMMITTEE VOTE:** Motion to accept the discussion document: 6 Yes, 0 No, 1 Absent.

Ion Exchange Filtration (Discussion Document)

- **BACKGROUND:** Ion exchange filtration is a food processing technique used to facilitate removal of impurities from a liquid using a chemical exchange process. The process uses a chemically charged solution within an ion-exchange resin or membrane to selectively remove unwanted molecules from the liquid. Based on NOP policy information in 2002, 2008, and 2010, ion exchange filtration has been allowed for use in organic processing provided that recharging materials are on the National List. Last year, the topic of ion exchange reappeared on NOP's radar as a result of a conflicting materials review decision among certifiers. NOP sent a [memo](#) to NOSB on August 27, 2019 requesting that NOSB provide recommendations related to ion exchange filtration for handling organic products to help NOP resolve the conflicting material review policies among certifiers. A new Technical Report has also been requested and is under development. [See **Appendix A** for more background on Ion Exchange Filtration]
- **DISCUSSION DOCUMENT (Spring 2020):** NOP seeks information from NOSB about the various ways ion exchange filtration is used by organic operations, the substances used in these processes, potential alternatives to ion exchange technology, and recommendation(s) on whether it is appropriate to include these substances on the National List. The Handling Subcommittee presents the following discussion

questions for stakeholder feedback:

1. What organic products are currently produced through the ion exchange process?
 2. Are there other processing methods used to produce these products?
 3. What materials are being used in the ion exchange process for current organic products? Please include resins, recharge materials, membranes and any other substances.
 4. If you do not agree that there is chemical change to the products run through the ion exchange process, please provide rationale for this belief.
- **SUBCOMMITTEE VOTE:** Motion to accept the discussion document: 6 Yes, 0 No, 1 Absent.

Fish Oil (Discussion Document)

- **BACKGROUND:** Fish oil is currently on the National List at §205.606(e) as an agricultural substance allowed for use in organic processed foods only when only when the product is not commercially available in organic form. It is used as a nutritional supplement to increase the content of omega-3 fatty acids in a variety of food products. Because there are no NOP standards for organic aquaculture, non-organic forms are the only option for organic processors. During the last Sunset Review of fish oil in 2019, concerns were raised about the environmental impacts of harvesting fish directly for their oil. NOSB is exploring additional restrictions on the sourcing of fish oil to ensure its use is not harmful to the environment. [See **Appendix B** for more background on Seaweed and Fish-based Inputs]
- **DISCUSSION DOCUMENT (Spring 2020):** The Handling Subcommittee is proposed new restrictions on fish oil that prohibits the use of fish caught directly for the sole use of its oil, and prohibits fish oil from species and regions that are overfished or exploited. The restrictions are informed by classifications used the National Oceanic and Atmospheric Administration (NOAA) and United Nations Food and Agricultural Organization (FAO).

The Handling Subcommittee proposes the following new annotation (bold text is new):

§205.606 (e) 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.
Sourced from fishing industry by-product only. Where within NOAA's jurisdiction, only from fish species and regions not listed on NOAA's current "Overfishing" or "Overfished" list. Where outside NOAA's jurisdiction, only from fish species and regions not listed on FAO's "Overexploited," "Depleted," or "Recovering".

The Handling Subcommittee presents the following discussion questions for stakeholder feedback:

1. Are these requirements sufficient, insufficient or overly burdensome to mitigate environmental concerns from the overexploitation of fishing?
 2. Are there conflicts between the FAO and NOAA classifications of fish stocks that would make using both lists difficult?
 3. Are these requirements clear and enforceable?
 4. What impacts would these requirements have on the availability of fish oil for organic products?
- **SUBCOMMITTEE VOTE:** Motion to accept the discussion document: 6 Yes, 0 No, 1 Absent.

LIVESTOCK SUBCOMMITTEE

Fenbendazole (Discussion Document)

- **BACKGROUND:** Fenbendazole is a parasiticide currently allowed in organic production for emergency treatment for dairy and breeder stock and fiber-bearing animals under the restrictions at §205.603(a)(23). A new **petition** has been submitted to expand its use in laying hens and replacement chickens intended to become laying hens. Birds that receive outdoor access and have contact with soil are more likely to come in contact with internal parasites. In poultry production, the substance is administered orally via drinking water and is effective in controlling internal parasites such as *A. galli* and *H. gallinarum*. If permitted in organic production, fenbendazole would only be allowed for emergency treatment when preventive management practices do not prevent infestation. A discussion document was presented at the **fall 2019** NOSB Meeting to solicit feedback on the necessity of the material, effectiveness of alternatives, and whether a withdrawal time is needed. NOSB has also requested a Technical Report that is currently under development.
- **DISCUSSION DOCUMENT (Spring 2020):** The Livestock Subcommittee presents the following discussion questions for stakeholder feedback:
 1. Is fenbendazole needed by organic poultry producers? If so, why?
 2. Do currently allowed alternatives work to control internal parasites? At what level of effectiveness?
 3. What would be some of the “emergency” events that would trigger use of this product? And how would producers determine those events?
 4. Is there a concern with the 2.4 ppm residue of fenbendazole in eggs? Please submit information that supports this concern, or lack of concern.
- **SUBCOMMITTEE VOTE:** No vote was recorded in the meeting materials.

MATERIALS SUBCOMMITTEE

NOSB Research Priorities 2020 (Discussion Document)

- **BACKGROUND:** Since adopting its Research Priorities Framework in 2012, NOSB has presented an annual list of research priorities for organic food and agriculture. The priorities are proposed by NOSB’s Livestock, Crops, Handling, and Materials/GMO Subcommittees and are revisited and updated each year to ensure accurate reflection of existing need for new knowledge.
- **DISCUSSION DOCUMENT (Spring 2020):** The Materials Subcommittee presents the following research priorities for stakeholder feedback:

Livestock

1. Evaluation of methionine in the context of a system approach in organic poultry production.
2. Prevention and management of parasites, examining breeds, geographical differences, alternative treatments, and pasture species.
3. Organic livestock breeding for animals adapted to outdoor life and living vegetation.

Crops

1. Examination of decomposition rates, the effects of residues on soil biology, and the factors that affect the breakdown of biodegradable bio-based mulch film.
2. Conduct whole farm ecosystem service assessments to determine the economic, social, and environmental impact of farming systems choices. (*new in 2020*)
3. Organic no-till practices for diverse climates, crops, and soil types.

4. Develop cover cropping practices that come closer to meeting the annual fertility demands of commonly grown organic crops. *(new in 2020)*
5. Development of systems-based plant disease management strategies are needed to address existing and emerging plant disease threats.
6. The demand for organic nursery stock far exceeds the supply. Research is needed to identify the barriers to expanding this market, then develop and assess organic methods for meeting the growing demand for organically grown nursery stock. *(new in 2020)*
7. Strategies for the prevention, management, and control of invasive insects and weeds.
8. Factors impacting organic crop nutrition, and organic/conventional nutrition comparisons.
9. Side-by-side trials of organic synthetic materials, natural materials, and cultural methods, with a request for collaboration with the IR4 project.
10. Impartial evaluation of microbial inoculants, soil conditioners, and other amendments is needed as there is little objective evidence upon which to assess their contribution to soil health.
11. More research, extension, and education are needed to fully understand the relationship between on-farm biodiversity and pathogen presence and abundance. *(new in 2020)*
12. Elucidate practices that reduce greenhouse gas emissions and that contribute to farming systems resilience in the face of climate change. *(new in 2020)*

Food Handling and Processing

1. Evaluation of alternatives to chlorine materials in processing: impact mitigation, best management practices, and potential for chlorine absorption by products.
2. Suitable alternatives to BPA (Bisphenol-A) for linings of cans used for various products.

Coexistence with GE and Organic Crops

1. Outcome of genetically engineered (GMO/GE) material in organic compost.
2. Evaluation of public germplasm collections of at-risk crops for the presence of GE traits, and ways to mitigate small amounts of unwanted genetic material in breeding lines.
3. Develop then implement methods of assessing the genetic integrity of crops at risk in order to quantify the current state of the organic and conventionally produced non-GMO seed. *(new in 2020)*
4. Techniques for preventing adventitious presence of GE material in organic crops, and evaluation of the effectiveness of current prevention strategies.
5. Testing for fraud by developing and implementing new technologies and practices.

General

1. Examination of the factors influencing access to organically produced foods.
2. Production and yield barriers to transitioning to organic production to help growers successfully complete the transition.

- **SUBCOMMITTEE VOTE:** Motion to accept the discussion document: 6 Yes, 0 No.

2022 SUNSET REVIEW

This year, NOSB will vote on whether to continue the allowance of several of the fertilizers, pest control products, livestock treatments, processing aids, and ingredients currently included on the National List of Allowed and Prohibited Substances to determine whether the substances should continue to be listed or should be removed from the list. These substances (listed below) are undergoing Sunset Review this year in advance of their expiration (sunset) date in 2022.

At the spring 2020 meeting, NOSB is accepting public comments on these inputs and has presented discussion questions for some of the substances. The information collected through this public comment period will inform a proposal and vote at the fall 2020 meeting on whether the substances should continue to be listed or should be removed from the list. These substances may not be renewed if new information indicates these substances are harmful to human health or the environment, not necessary or essential for production and processing, or incompatible with organic principles. Check out [OTA.com](https://www.ota.com) for more background on the Sunset Review process.

If you are using any of the inputs listed below or if you are aware of a commercial supply of organic or natural alternatives, please weigh in using [OTA's 2022 Sunset Review Surveys](#)! Our surveys help to facilitate a robust comment process by collecting feedback from certified organic farms and processors, and delivering the information in a summarized confidential format to NOSB. Each survey (one for each substance) has about 10 questions addressing the necessity or essentiality of each input and take about 5 minutes to complete. The surveys are open to any NOP certified organic operation.

CROPS 2022 SUNSET REVIEW

- **Soap-based algicide/demossers (Sunset Review)**
 - Used to control algae and moss build-up on irrigation systems. §205.601(a)(7)
- **Ammonium carbonate (Sunset Review)**
 - Used for bait in insect traps. §205.601(e)(1)
 - Additional information or questions requested by Subcommittee (Spring 2020):
 1. To what extent is ammonium carbonate used as a bait for trapping and thereby managing fly and other insect pest populations?
 2. How effective is the practice for managing flies?
 3. To what extent is the population or behavior of beneficial insects altered by the ammonium carbonate bait?
- **Insecticidal soaps (Sunset Review)**
 - Used for pest control. §205.601(e)(8)
 - Additional information or questions requested by Subcommittee (Spring 2020):
 1. Is this substance still necessary for the organic farming community?
- **Vitamin D3 (Sunset Review)**
 - Used for rodent control. §205.601(g)
 - Additional information or questions requested by Subcommittee (Spring 2020):
 1. Is this product still needed as a rodenticide in organic crop production?
 2. Are there any non-synthetic alternatives to this material with the same functionality?
 3. Please provide information on the ancillary substances that may be part of vitamin D3

formulations.

- **Aquatic plant extracts (Sunset Review)**

- Used as a fertilizer and soil amendment. §205.601(j)(1)
- There have been extensive discussions with the Crops Subcommittee and the Materials Subcommittee about the environmental impact of harvesting marine materials for use in seaweed-based (kelp) fertilizer products. [See **Appendix B** for more background on Seaweed and Fish-based Inputs]
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. Given the broad range of views on this topic, please describe if/or how aquatic plant extracts should be addressed during this Sunset Review.
 2. Are aquatic plant extracts still needed in organic crop production?
 3. The 2006 [Technical Report](#) states that aquatic plant extracts can be derived naturally by dehydrating seaweeds and grinding them into meal. Meal can be applied directly to the soil or diluted with water and used as a foliar spray or soil drench. Non-synthetic products also may be produced using mechanical disruption, or freezing, pulverization, and clarification of the thawed slurry. The relative efficacy of alkali-extracted versus non-alkali-extracted product has not been consistently demonstrated, perhaps partly as a result of a lack of understanding of the mechanism by which aquatic plant extracts exert any purported beneficial effect (lines 205-12). Do the non-synthetic alternatives to this material provide the same functionality?

- **Lignin sulfonate (Sunset Review)**

- Used as a chelating agent and dust suppressant. §205.601(j)(4)

- **Sodium silicate (Sunset Review)**

- Used as a floating agent in postharvest handling of tree fruit and fiber. §205.601(l)
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. Are there non-synthetic practices (mechanical, physical or chemical) for pear or other tree fruit handling during the packing process that would be a reasonable alternative to using sodium silicate?
 2. Is sodium silicate still used and should it remain on the National List?
 3. Is there any use of sodium silicate for organic fiber production?

- **EPA List 4 Inerts of Minimal Concern (Sunset Review)**

- Used as inactive ingredients or adjuvants formulated with allowed pesticide active ingredients. §205.601(m)
- In fall 2015, NOSB passed a [recommendation](#) to revise the listing of for inerts at §205.601(m) to remove the outdated reference to EPA List 4 and replace with a current reference to the EPA Safer Choice Program. This recommendation has not yet been implemented by NOP.
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. Can you provide examples of product development that have been stifled by the lack of clarity on the regulation and approval of inert ingredients in organically approved pesticide formulations?
 2. Are there specific inert ingredients used in organically approved pesticide formulations that raise human health or environmental concerns?

3. Are there any alternatives for updating this listing other than the review of each substance individually or adoption of the EPA Safer Choice Program?
 4. What would be the consequences of an NOSB recommendation to delist List 4 Inerts?
- **Arsenic (Sunset Review)**
 - Prohibited. §205.602(b)
 - **Strychnine (Sunset Review)**
 - Prohibited. §205.602(i)

LIVESTOCK 2022 SUNSET REVIEW

- **Butorphanol (Sunset Review)**
 - Used as a pre-operative treatment of pain before surgical procedures in livestock. §205.603(a)(5)
 - Additional information or questions requested by Subcommittee (Spring 2020):
 1. Is butorphanol considered the preferred choice for its use at this time, or are there other options?
 2. Are there nonsynthetic materials that would serve the same purpose as butorphanol?
- **Flunixin (Sunset Review)**
 - Used to treat inflammation and pyrexia. §205.603(a)(12)
 - Additional information or questions requested by Subcommittee (Spring 2020):
 1. Is flunixin, listed in §205.603(a), still deemed necessary for organic livestock production?
 2. Are there other non-synthetic materials that would serve the same purposes as flunixin?
- **Magnesium hydroxide (Sunset Review)**
 - Used as an antacid and laxative. §205.603(a)(18)
- **Poloxalene (Sunset Review)**
 - Used as an emergency bloat treatment. §205.603(a)(26)
 - Additional information or questions requested by Subcommittee (Spring 2020):
 1. Are organic approaches to dealing with bloat (e.g., use of oils) sufficient to address this healthcare issue or is poloxalene an essential tool for organic livestock production?
 2. Is poloxalene consistent with the OFPA criteria and the organic regulations?
- **Formic Acid (Sunset Review)**
 - Used to control Varroa mites in honeybee hives. §205.603(b)(3)
 - Additional information or questions requested by Subcommittee (Spring 2020):
 1. Are there natural sources of formic acid that are commercially available to beekeepers for use in their hives?
 2. Are there other natural products that are effective in controlling varroa and tracheal mites in honeybees that would make formic acid no longer necessary in organic production?
 3. When formic acid is used in the hive as a miticide, would there be higher than the natural levels of formic acid in the propolis, royal jelly, or beeswax?

- **EPA List 4 Inerts of Minimal Concern (Sunset Review)**

- Used as inactive ingredients or adjuvants formulated with allowed pesticide active ingredients. §205.603(e)
- In fall 2015, NOSB passed a [recommendation](#) to revise the listing of for inerts at §205.601(m) to remove the outdated reference to EPA List 4 and replace with a current reference to EPA Safer Choice Program. This recommendation has not yet been implemented by NOP.
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. How can the Safer Choice Program be used to evaluate inerts? How can the Board help facilitate this in moving forward?
 2. If the NOSB and NOP use the Safer Choice Program, would all inerts reviewed and approved by Safer Choice be allowed? Would only certain criteria established by Safer Choice or those criteria established by an MOU with the NOP be allowed?
 3. How should NOSB establish review criteria based on the Safer Choice Program while also ensuring it is consistent with OFPA criteria and the regulation?
 4. If Safer Choice is not the ideal path forward, or a formal relationship with EPA cannot be established, how should the Board proceed with addressing inerts?
 5. Should the Board focus on inerts of greatest toxicity? If so, how should the Board identify and prioritize these for review?

- **Excipients (Sunset Review)**

- Used as inactive ingredients formulated with allowed active medical treatment ingredients. Includes substances (1) Identified by FDA as Generally Recognized As Safe; (2) Approved by the FDA as a food additive; (3) Included in FDA review and approval of a New Animal Drug Application or New Drug Application; or (4) Approved by APHIS for use in veterinary biologics. §205.603(f)
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. Are excipients listed in §205.603(f) still deemed necessary for organic livestock production?
 2. How are excipients currently being reviewed in livestock health products by the certifiers?
 3. Since the previous [Technical Report](#) and NOSB Subcommittee reviews, has there been any further research completed to document environmental or health issues that would justify removing excipients used in organic production?
 4. Are there any specific excipients that cause more concern to the public than others? If so, how should the review of those excipients be addressed separately?

- **Strychnine (Sunset Review)**

- Prohibited. §205.604(a)

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- **Kaolin (Sunset Review)**

- Allowed as an ingredient or processing aid. Used as an anti-caking agent and filtering agent. §205.605(a)
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. Is this material essential to organic production?

2. Are there possible alternative materials?

- **Sodium bicarbonate (Sunset Review)**

- Used as a leavening agent (baking soda); common ingredient in baking powder. §205.605(a)
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. Is there any new information related to environmental concerns, human health, or use that would cause this substance to be considered for delisting?

- **Wood rosin (Sunset Review)**

- Used as a component of fruit wax, primarily for citrus. §205.605(a)
- Wood rosin is erroneously listed as “wood resin” on the National List.
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. Is this material essential to organic production?
 2. Are there possible alternative materials?

- **Ammonia bicarbonate (Sunset Review)**

- Used as a leavening agent. §205.605(b)
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. Is there any new information related to environmental concerns, human health, or use that would cause this substance to be considered for delisting?
 2. Are there any other organic uses that, in the future, should be considered for listing beyond the annotation for leavening?

- **Ammonia carbonate (Sunset Review)**

- Used as a leavening agent. §205.605(b)
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. Is there any new information related to environmental concerns, human health, or use that would cause this substance to be considered for delisting?
 2. Are there any other organic uses that, in the future, should be considered for listing beyond the annotation for leavening?

- **Calcium phosphates (Sunset Review)**

- Used as aluminum-free and reduced-sodium leavening agent, baking powder ingredient, and dough conditioner in a wide variety of baked goods. Monobasic calcium phosphate also used as firming agent in canned fruits and vegetables. Dibasic calcium phosphate also used in enriched flour, noodle products, breakfast cereals, and cheese products. Tribasic calcium phosphate also used as an anti-caking agent, buffering agent, and free-flow aid in finely powdered salt used in baking. §205.605(b)
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. Is calcium phosphate still in use and in what applications?

- **Ozone (Sunset Review)**

- Used as an equipment and food disinfectant and in post-harvest treatment of produce to reduce/control microorganisms for food safety purposes. §205.605(b)
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. Are there any commercially available alternatives to ozone that warrant its removal from the National List?

- **Sodium hydroxide (Sunset Review)**

- Used in pretzel manufacturing as caustic bath. Used as processing aid for cocoa manufacturing and for removing bitterness from olives. Prohibited for use in lye peeling of fruits and vegetables. §205.605(b)
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. Is this product still needed in the processing of organic products?
 2. Are there any non-synthetic alternatives to this material with the same functionality?

- **Carnauba wax (Sunset Review)**

- Used as a component of coatings for fruit, candy and nuts. Only permitted when organic forms are not commercially available. §205.606(a)
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. Since this material is available organically, does it need to remain on the National List?
 2. Are there barriers to obtaining organic carnauba wax in the needed form or quantity?

- **Colors (Sunset Review)**

- The following colors are individually listed §205.606(d) and only permitted when organic forms are not commercially available.
 - (1) Beet juice extract color—derived from *Beta vulgaris* L., except must not be produced from sugar beets.
 - (2) Beta-carotene extract color—derived from carrots (*Daucus carota* L.) or algae (*Dunaliella salina*).
 - (3) Black currant juice color—derived from *Ribes nigrum* L.
 - (4) Black/purple carrot juice color—derived from *Daucus carota* L.
 - (5) Blueberry juice color—derived from blueberries (*Vaccinium spp.*).
 - (6) Carrot juice color—derived from *Daucus carota* L.
 - (7) Cherry juice color—derived from *Prunus avium* (L.) L. or *Prunus cerasus* L.
 - (8) Chokeberry, aronia juice color—derived from *Aronia arbutifolia* (L.) Pers. or *Aronia melanocarpa* (Michx.) Elliott.
 - (9) Elderberry juice color—derived from *Sambucus nigra* L.
 - (10) Grape juice color—derived from *Vitis vinifera* L.
 - (11) Grape skin extract color—derived from *Vitis vinifera* L.
 - (12) Paprika color—derived from dried powder or vegetable oil extract of *Capsicum annuum* L.
 - (13) Pumpkin juice color—derived from *Cucurbita pepo* L. or *Cucurbita maxima* Duchesne.
 - (14) Purple sweet potato juice color—derived from *Ipomoea batatas* L. or *Solanum tuberosum* L.
 - (15) Red cabbage extract color—derived from *Brassica oleracea* L.
 - (16) Red radish extract color—derived from *Raphanus sativus* L.
 - (17) Saffron extract color—derived from *Crocus sativus* L.
 - (18) Turmeric extract color—derived from *Curcuma longa* L.
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. Why types of organic products are currently using each color listed, and are powdered or liquid forms used?
 2. Going color by color, have you been able to source organic forms of each color - if not, what has been the barrier?

3. Manufactures of colors: What colors can be readily produced organically today? For those that cannot, what are the barriers?
4. On a color by color basis, are both powdered and liquid forms of each color available organically if both forms are needed by processors?
5. Which colors are not available in sufficient organic quality or quantity and should be relisted?

- **Glycerin (Sunset Review)**

- Used as carrier, binder, humectant, and solvent for natural flavors and extracts. Only permitted when organic forms are not commercially available. §205.606(h)
- The manufacturing process of glycerin will determine if it can be classified as an agricultural substance and permitted in non-organic form under the listing at §205.606. The eligibility for glycerin to be certified organic depends on the organic certification status of the raw material and subsequent processing must be compliant with the NOP regulations and certified by an accredited certification agency.
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. What are the barriers to sourcing organic glycerin?
 2. Glycerin is often labeled as 99% pure. What is the 1%? Are ancillary substances present in glycerin? If so, what are they?

- **Inulin-oligofructose enriched (Sunset Review)**

- Used as a non-digestible carbohydrate to improve calcium bioavailability and absorption, to serve as soluble dietary fiber or a prebiotic ingredient, and to enhance the texture and consistency in a wide variety of foods. Only permitted when organic forms are not commercially available. §205.606(j)
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. Is inulin-oligofructose, enriched still in use in certified organic products, and if so what types of products?
 2. Are alternative organic forms available?
 3. Is organic inulin + conventional FOS (already listed at §205.606) an acceptable alternative in product formulations? If not, why?

- **Kelp (Sunset Review)**

- Used as a thickener and dietary supplement. Only permitted when organic forms are not commercially available. §205.606(k) [See **Appendix B** for more background on Seaweed and Fish-based Inputs]
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. Are there organic supplies of kelp available? If so, is there enough organic supply available to meet commercial demand?
 2. How is the use of organic kelp in livestock production different from uses for human consumption?
 3. Are there sufficient organic supplies of kelp available for human consumption?
 4. Is the availability of organic kelp enough to supply both livestock and human consumption demand in handling?
 5. What are the handling needs of kelp as a thickener and dietary supplement?

- **Orange shellac, unbleached (Sunset Review)**

- Used as a fruit and vegetable coating and confectionary glaze. Used as an ingredient in capsules and tablets. Only permitted when organic forms are not commercially available. §205.606(o)
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. Please provide any information on ancillary substances that may be part of organic shellac formulations used in organic products.
 2. Is this product still needed in the processing of organic products?
 3. What are the barriers to producing this agricultural product as organic?

- **Cornstarch, native (Sunset Review)**

- Used as thickener, formulation aid, bulking agent, diluent, fluidifying agent, and moisture-adsorbing agent in a wide variety of foods. Only permitted when organic forms are not commercially available. §205.606(s)(1)
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. Are there adequate organic sources of all types of cornstarch for food processing and production so this material can be removed from §205.606?
 2. If not, please identify which types of cornstarch are not available organically and describe their use and the impact of removal from §205.606?
 3. If any types of essential cornstarch are not available organically, please describe barriers to producing this material and any steps to promote organically sourced product.
 4. Is there a risk of cornstarch derived from GMO corn contaminating materials used for producing organic products?

- **Sweet potato starch (Sunset Review)**

- Used for bean thread production to give organic processed foods such as soups and pot stickers the texture of authentic Asian cooking. Only permitted when organic forms are not commercially available. §205.606(s)(2)
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. Please provide more detail on the manufacturing steps to produce sweet potato starch.
 2. What organic products is this material being used in?
 3. Are there adequate sources of organic sweet potato starch to meet existing market demands?
 4. What are the barriers to obtaining organic sweet potato starch and how can these barriers be overcome?

- **Turkish bay leaves (Sunset Review)**

- Uses as an herb for flavor development. Only permitted when organic forms are not commercially available. §205.606(u)
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. The Handling Subcommittee requests that the public provide comment regarding the current use of and commercial demand for Turkish bay leaves in organic products and provide comments on the impact that removing it from 205.606 would have on organic business and/or organic products.
 2. Has the industry made progress in its efforts to locate organic sources of whole and ground Turkish bay leaves? What specific efforts have been made and what degree of success has the industry had?

3. Are there other ingredients with suitable flavor profiles that could be used in place of Turkish bay leaves, given adequate transition time for ingredient inventory and label depletion?
4. In what organic products are non-organic Turkish bay leaves currently used, and what are the specific reasons for its necessity in these products?

- **Whey protein concentrate (Sunset Review)**

- Used as a protein source, fat replacer, and as a texturizer in a wide variety of dairy products, protein bars, and infant formulas. Only permitted when organic forms are not commercially available. §205.606(w)
- Additional information or questions requested by Subcommittee (Spring 2020):
 1. Are there any forms of whey protein concentrate that are not available organically beyond what has been found in the NOP Organic Integrity Database?
 2. If yes, what are the barriers to producing that whey protein concentrate or other whey products in an organic form, since it appears there are many manufacturers of raw liquid whey from both cow and goat suppliers, and numerous manufacturers are currently certified and capable of making a variety of organic whey products?

APPENDIX A: ION EXCHANGE FILTRATION

Ion exchange filtration is a food processing technique used to facilitate removal of the salts, proteins, colors, flavors, odor compounds, acids, heavy metals, and other impurities using a chemical exchange process. The process uses a chemically charged solution within an ion exchange resin or membrane to selectively remove unwanted molecules from the liquid.

Term	Definition
Ion Exchange Resin	<p>An adsorbent material in an ion exchange column. Holds charged molecules available for exchange with mobile molecules in a fluid.</p> <p><i>Examples: Polymeric resin beads, Zeolite minerals, Activated carbon, Polystyrene resins, Acrylic resins</i></p>
Recharging Material	<p>Chemical solution used for flushing or regenerating the ion-exchange resin. Returns the resin to its original ion-exchange capacity after it becomes saturated with unwanted ions from repeated use.</p> <p><i>Examples: Sodium chloride, Potassium chloride, Hydrochloric acid, Hydrogen peroxide</i></p>

Ion exchange technology is commonly used in the food and beverage industry.

- **Starch sweeteners** (to produce purified colorless sucrose, glucose, maltodextrins, etc. so that the raw starch material is no longer identifiable)
- **Sugar** (to decolorize and purify sugar beet and sugar cane extracts)
- **Fruit juice** (to decolorize and clarify for use in fruit canning industry; to remove bitter-tasting flavor components in citrus juices; to prevent haze formation)
- **Rice syrup** (to remove heavy metals naturally taken up by rice)
- **Soy sauce** (desalination)
- **Wine** (for enrichment of musts, sweetening of wines)
- **Beer** (protein and phenol stabilization to prevent haze formation)
- **Whey** (demineralized)
- **Coffee** (decaffeination)
- **Milk** (reducing lactose content)
- **Water** (removes calcium carbonate residues from water and other liquids)

ION EXCHANGE FILTRATION USED IN ORGANIC PROCESSING & HANDLING

Ion exchange filtration has been allowed in USDA-certified organic processing since the organic regulations were first established. **Based on USDA National Organic Program (NOP) policy information in 2002, 2008, and 2010, ion exchange filtration is allowed provided that recharging materials are on the National List.** The ion exchange resin itself is allowed provided it is FDA approved as a food contact substance.

NOP Policy References

- In a policy statement issued on December 12, 2002, NOP clarified which substances are subject to review and recommendation by NOSB for inclusion on the National List. According to the policy, **substances that are listed in 21 CFR Part 173 as secondary direct food additives are subject to review, unless the substances are classified by the FDA as food contact substance.** FDA classifies ion exchange resins as food contact substances, therefore ion exchange resins are exempt from NOSB review and the National List process.

FDA references are as follows:

- Ion exchange resins and membrane are listed in 21 CFR Part 173 as *secondary direct food additives*, which are substances that have a technical effect in food during processing but not in the finished food.
- According to [FDA guidance](#), some secondary direct food additives also meet the definition of a *food contact substance*, which are any substance that is intended for use as a component of materials used in manufacturing, packing, packaging, transporting, or holding food if such use is not intended to have any technical effect in such food.
- FDA maintains a [database](#) of approved Food Contact Substances which includes ion exchange resins that have been classified and approved by FDA as food contact substances.
- The NOP Q&A dated May 14, 2008, included the question, “Is ion exchange allowed for processing organic products?” with the answer, “**Yes, ion exchange is allowed under the NOP regulations as a processing technology. Any synthetic associated with the use of such technology would still need to be on the National List as an allowed synthetic.**”
- NOP addressed the topic of ion exchange in its annual training to certifiers in 2010. In the training slides (Dated August 8, 2010), NOP reiterated its existing policy that ion exchange technology. According to the training slides, **ion exchange technology is allowed, as long as materials used are on the National List.** NOP also gave examples of what materials may be used to charge the ion exchange columns based on this policy. Sodium hydroxide and sodium chlorite are examples of “Listed” items. Hydrochloric acid is an example of a “Not Listed” item. (Note: These materials are compounds used to recharge the exchange resins, not the exchange resins themselves. It is the exchange resins that FDA has historically declared to be food contact substances.)
- This topic was added to the NOSB work agenda at the beginning of 2012. From the NOSB Materials Subcommittee notes, they were waiting for more information on ion exchange resins from NOP before they could do any work on it. Eventually the topic was removed from the work plan by NOP.

Last year, the topic of ion exchange reappeared on NOP’s radar as a result of a conflicting materials review decision among certifiers. NOP published a policy notice on May 7, 2019, to resolve the issue with a new policy on ion exchange. The notice stated that **“all nonagricultural substances used in the ion-exchange process must be on the National List. This includes but is not limited to resins, membranes, and recharging materials.”** In response to the policy notice, several stakeholders and certifiers submitted requests for NOP to clarify the rationale, extend the timeframe for implementation, and/or provide opportunities for input from stakeholders.

Concerns regarding the 2019 NOP Policy Notice

- The 2019 NOP Policy Notice states that FDA does *not* consider ion-exchange resins or ion-exchange membranes to be food contact substances, which is a departure from FDA references (see above).
- The 2019 NOP Policy Notice states that ion-exchange resins must be on the National List, which is a departure from the 2002, 2008, and 2010 NOP policy statements (see above).
- If ion-exchange resins were to be prohibited without suitable alternatives, currently certified operations will not be able to produce certified organic product. This will have a significant impact on the industry at large. The prohibition could also affect the classification of many non-synthetic materials that are processed using ion exchange (e.g. citric acid, pullulan).

After reviewing the new information from stakeholders and certifiers, NOP notified certifiers on July 3, 2019, that it is delaying the implementation date of the new policy while it gathers more information and seeks advice from the National Organic Standards Board (NOSB) given the complexity of the issue.

NOP sent a [memo](#) to NOSB on August 27, 2019, requesting that NOSB provide recommendations related to ion exchange filtration for handling organic products. NOP seeks information about the various ways ion exchange filtration is used by organic operations, the substances used in these processes, potential alternatives to ion exchange technology, and recommendation(s) on whether it is appropriate to include these substances on the National List. NOP has also commissioned a Technical Report per NOSB's request to obtain third-party technical information about ion exchange technology.

NOSB DISCUSSION DOCUMENT (SPRING 2020)

The NOSB Handling Subcommittee presented a [discussion document](#) for the spring 2020 NOSB Meeting. In the document, the Subcommittee summarizes NOP's policy history on this topic and cites several items from the 2019 NOP Policy Notice regarding chemical processing and the effects of ion-exchange in foods. The Subcommittee is specifically seeking answers to the following questions to help inform a future proposal:

- 1. What organic products are currently produced through the ion exchange process?**
- 2. Are there other processing methods used to produce these products?**
- 3. What materials are being used in the ion exchange process for current organic products? Please include resins, recharge materials, membranes and any other substances.**
- 4. If you do not agree that there is chemical change to the products run through the ion exchange process, please provide rationale for this belief.**

Please see instructions on OTA.com for submitted comments by the **April 3, 2020** deadline.

As stakeholders prepare comments in response to the specific questions above, please also be aware of the broader regulatory requirements and evaluation criteria that may impact the NOSB deliberation on materials and processes used in organic processing and handling.

- **Organic processing requirements** – Mechanical or biological methods may be used to process an organically produced agricultural product. Substances used in or on processed products are permitted only in accordance with the National List. Ionizing radiation, genetic modification, and sewage sludge are prohibited across all substances, methods, and ingredients in organic production and handling.
- **Compatibility with organic principles** – NOSB evaluates substances used in organic production and processing based on whether the substance is compatible with a system of sustainable agriculture and consistent with organic farming and handling. Albeit subjective, this criteria may encompass issues of resource efficiency, operational viability, promotion of environmental and human health, consumer expectations, and international harmonization.
- **Essentiality for organic processing and handling** – NOSB evaluates substances used in organic processing and handling based on whether the substance is essential for organic processed products because of the unavailability of natural or organic alternatives, substitutes or practices. Substances classified as synthetic processing aids are also evaluated to ensure that the nutritional quality of the food is maintained when the substance is used, and also that the substance's primary use is not as a preservative or to recreate qualities lost during processing.

APPENDIX B: SEAWEED & FISH-BASED INPUTS

The ocean is a vast resource where seaweeds, fish, and other natural resources are harvested for use in a wide range of agricultural inputs and food ingredients. Seaweed-based soil conditioners and liquid fish fertilizers are common crop production inputs on organic farms. Kelp and fish meal feed additives are a common nutritional mineral supplement for livestock. Food for human consumption also relies on fish-based oils, edible seaweeds, and seaweed derivatives like agar, alginates, and carrageenan.

Extracting natural resources (including terrestrial resources like mined minerals and forest products) will impact the environment to some extent. The Organic Foods Production Act authorizes the National Organic Standards Board to recommend the allowance and prohibition of substances to ensure that use of materials in organic production and processing is not harmful to the environment.

REQUIREMENTS FOR USE IN ORGANIC PRODUCTION AND PROCESSING

Inputs used in organic crop, livestock and food processing and handling are subject to the requirements of NOP regulations. In general, natural (non-synthetic) substances are permitted in organic crop and livestock production, and synthetic (chemically synthesized) substances are prohibited. Exceptions to this general rule are codified on the National List (§205.601-205.606). Livestock feed additives have an additional requirement that agricultural ingredients must be certified organic. Ingredients and processing aids used in further manufacture of food for human consumption must be certified organic unless there is a specific exemption on National List.

	SEAWEED (including kelp and any agricultural derivatives)	FISH (including any agricultural derivatives)
CROP INPUTS (e.g. fertilizers, soil amendments, pest and disease controls)	Seaweed is allowed provided that it has not been synthetically processed and no prohibited additives. Seaweed extracts may be extracted with potassium hydroxide or sodium hydroxide per §205.601(j)(1).	Fish is allowed provided that it has not been synthetically processed and no prohibited additives. Liquid fish products may be pH adjusted with sulfuric, citric or phosphoric acid per §205.601(j)(8).
LIVESTOCK INPUTS (e.g. feed additives, medical treatments, external pest control)	For feed ingredients, supplements and additives, seaweed (e.g. kelp meal) must be certified organic. For other uses, non-organic seaweed allowed provided that it has not been synthetically processed and no prohibited additives.	Fish is allowed provided that it has not been synthetically processed and no prohibited additives.
FOOD INGREDIENTS & PROCESSING AIDS	Must be certified organic except for certain non-organic seaweed ingredients and derivatives that are listed on §205.605-205.606 (e.g., agar-agar, carrageenan, alginates, alginic acid, kelp, pacific kombu seaweed, Wakame seaweed).	Must be certified organic except for certain non-organic fish-based ingredients and derivatives that are listed on §205.605-205.606 (e.g. fish oil, gelatin).

CAN SEAWEED BE CERTIFIED ORGANIC? YES! The NOP regulations for crop production or wild crop production are applicable to any plant or non-animal species (e.g., macroalgae, fungi) harvested from terrestrial or aquatic areas.

CAN FISH BE CERTIFIED ORGANIC? NO! The NOP regulations for livestock production specifically exclude aquatic animals. NOSB has passed recommendations for new aquaculture standards but NOP has not yet implemented them. Until aquaculture standards are codified in the NOP regulations, fish and other seafood are not eligible for certification.

NOSB AGENDA TOPICS (SPRING 2020)

Several topics on the spring 2020 NOSB Agenda are related to the harvesting of seaweed and fish for use as inputs in organic agriculture production and food processing. Although these topics are presented as independent agenda items from different NOSB Subcommittees, the underlying issues are interrelated.

Please see instructions at OTA.com for submitting comments on these topics by the **April 3, 2020** deadline.

- **[Wild, Native Fish for Liquid Fish Products \(Discussion Document\)](#)** – The NOSB Crops Subcommittee is pursuing a work agenda item to ensure that **liquid fish and other fish-based fertilizer products** used in organic crop production are not harmful to the environment, specifically regarding harvesting of wild, native fish. A 2019 [Technical Report](#) found that wild, native fish are not harvested solely for fertilizer.

The Subcommittee presents the following questions for stakeholder feedback:

1. Given the results of the Technical Report indicating that there are no species of wild, native fish harvested exclusively for use in liquid fish fertilizer products, please provide feedback on any next steps the subcommittee should take on this issue.
 2. The Technical Report outlines the wet reduction process for fish meal, oil, and solubles and states that solubles are a byproduct of meal (solid phase) and oil (liquid phase) production. Because of the multiple products derived, it did not consider fertilizers using them to be from fish harvested exclusively for fertilizer. Please comment.
 3. Please provide any additional information you may have to help answer the Technical Report questions, particularly:
 - a) During the spring 2018 public meeting, the Crops Subcommittee asked if there are manufacturers using exclusively wild-caught, native fish to manufacture liquid fish fertilizers and learned that there are. Public testimony suggested that other non-synthetic fish-based fertilizers, such as fish meal, may also be derived from wild fish harvested solely for fertilizer production. Is any new information available about the impact of fish fertilizer manufacturing on the sustainability and health of wild, native fish stocks harvested solely for fertilizer production?
 - b) Do different methods, locations, and/or frequencies of harvest pose different levels of risk for wild, native stocks?
 - c) Please provide examples of non-regulatory/practice-based approaches (e.g. training, guidance) that should be considered.
- **[Fish Oil \(Discussion Document\)](#)** – The NOSB Handling Subcommittee is pursuing a work agenda item to ensure that **fish oil used as an ingredient in organic food** is not harmful to the environment, specifically regarding fish caught directly for the sole use of its oil and/or harvesting from overfished regions.

The Subcommittee proposes the following new annotation (bold text is new):

§205.606 (e) 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. **Sourced from fishing industry by-product only. Where within NOAA's jurisdiction, only from fish species and regions not listed on NOAA's current "Overfishing" or "Overfished" list. Where outside NOAA's jurisdiction, only from fish species and regions not listed on FAO's "Overexploited," "Depleted," or "Recovering".**

The Subcommittee also presents the following discussion questions for stakeholder feedback:

1. Are these requirements sufficient, insufficient or overly burdensome to mitigate environmental concerns from the overexploitation of fishing?
 2. Are there conflicts between the FAO and NOAA classifications of fish stocks that would make using both lists difficult?
 3. Are these requirements clear and enforceable?
 4. What impacts would these requirements have on the availability of fish oil for organic products?
- **[Aquatic Plant Extracts \(Sunset Review\)](#)** – The NOSB Crops Subcommittee is accepting public comments to determine whether the current allowance of aquatic plant extracts at §205.601 as **crop fertilizers and soil amendments** should continue or if it should be removed from the list.

The Subcommittee presents the following questions for stakeholder feedback:

1. Given the broad range of views on this topic, please describe if/how aquatic plant extracts should be addressed during this Sunset Review.
 2. Are aquatic plant extracts still needed in organic crop production?
 3. The 2006 [Technical Report](#) states that aquatic plant extracts can be derived naturally by dehydrating seaweeds and grinding them into meal. Meal can be applied directly to the soil or diluted with water and used as a foliar spray or soil drench. Non-synthetic products also may be produced using mechanical disruption, or freezing, pulverization, and clarification of the thawed slurry. The relative efficacy of alkali-extracted versus non-alkali-extracted product has not been consistently demonstrated, perhaps partly as a result of a lack of understanding of the mechanism by which aquatic plant extracts exert any purported beneficial effect (lines 205-12). Do the non-synthetic alternatives to this material provide the same functionality?
- **[Kelp \(Sunset Review\)](#)** – The NOSB Handling Subcommittee is accepting public comments to determine whether the current allowance of kelp at §205.606 as **an ingredient or processing aid in organic processed foods** should continue or if it should be removed from the list.

The Subcommittee presents the following questions for stakeholder feedback:

1. Are there organic supplies of kelp available? If so, is there enough organic supply available to meet commercial demand?
2. How is the use of organic kelp in livestock production different from uses for human consumption?
3. Are there sufficient organic supplies of kelp available for human consumption?
4. Is the availability of organic kelp enough to supply both livestock and human consumption demand in handling?
5. What are the handling needs of kelp as a thickener and dietary supplement?

OTHER TOPICS REVENTLY WORKED ON BY NOSB

Seaweed and fish-based inputs have been addressed under different work agenda topics at past meetings:

- **Marine Materials as Crop Inputs** – Discussion Document, Fall 2019, Materials Subcommittee
- **Liquid Fish Products as Crop Inputs** – Sunset Review, Fall 2018
- **Wakame Seaweed as Food Ingredients/Processing Aids** – Sunset Review, Fall 2019
- **Pacific Kombu Seaweed Food Ingredients/Processing Aids** – Sunset Review, Fall 2019
- **Fish Oil as Food Ingredients/Processing Aids** – Sunset Review, Fall 2019
- **Alginates Food Ingredients/Processing Aids** – Sunset Review, Fall 2018