

## SPRING 2021 NOSB MEETING

### SUMMARY OF PROPOSALS, DISCUSSION DOCUMENTS & SUNSET REVIEWS

The spring 2021 National Organic Standards Board (NOSB) Meeting will be held April 28-30 via live online webinar. The [Meeting Agenda](#) and [Meeting Packet](#) (all proposals, discussion documents, and sunset reviews to be considered at the meeting) are posted, and the public comment period is open. The deadline to submit written comments and/or sign up for oral comments is **April 5<sup>th</sup>** at midnight Eastern. The full Board will vote on the proposals at the meeting. Check out [OTA's NOSB Meeting Webpage](#) for more information.

#### PUBLIC COMMENT OPPORTUNITIES

**WRITTEN COMMENTS** may be submitted via [Regulations.gov](#) (Docket AMS-NOP-20-0089) **by April 5<sup>th</sup>**

**ORAL COMMENTS** (3-minute slot) may occur during one of two webinar sessions on April 20 & 22 between Noon – 5:00 pm Eastern. [Click here to register](#) **by April 5<sup>th</sup>**

#### AT-A-GLANCE LIST OF TOPICS [USE THE PDF BOOKMARKS TO NAVIGATE BETWEEN TOPICS]

##### PROPOSALS (vote)

- **Paper-Based Planting Aids (Crops)** – *proposal to allow with restrictions on biobased and cellulose content*
- **Biodegradable Biobased Mulch (Crops)** – *proposal to allow biodegradable mulches that are not 100% biobased*
- **Ion Exchange Filtration (Handling)** – *proposal on the use of resins, membranes, and recharge materials*
- **Human Capital: Strategy for Recruitment and Talent Management of Organic Inspectors and Reviewers** – *evaluation of the causes and potential solutions for addressing the decline in qualified personnel*

##### DISCUSSION (no vote)

- **Ammonia Extract (Crops)** – *discussion on a petition to prohibit nonsynthetic ammonia extract fertilizer*
- **Kasugamycin (Crops)** – *discussion on a petition to allow kasugamycin (antibiotic) for control fire blight control*
- **Zein (Handling)** – *discussion on a petition to allow zein (corn protein) as food coating on organic foods*
- **Fish Oil (Handling)** – *options for restricting sources of fish oil to minimize environmental harm*
- **2023 Sunset Review (Crops, Livestock, Handling)** – *NOSB is will review over 30 inputs 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 in advance of its sunset date in 2023*
- **Excluded Methods** – *identifying emerging technologies in the food sector and determining whether they will be considered excluded methods (thereby prohibited) in organic production and processing*
- **2021 Research Priorities** – *discussion on NOSB's annual list of research priorities for organic food and agriculture*
- **Human Capital: Supporting the Work of NOSB** – *exploring opportunities to obtain outside assistance for NOSB, as appropriate, to help alleviate some of the workload*

## **COMPLIANCE, ACCREDITATION, & CERTIFICATION SUBCOMMITTEE**

### **Human Capital: Strategy for Recruitment and Talent Management - Organic Inspectors and Reviewers (PROPOSAL)**

- **BACKGROUND:** Human capital refers to the skills, knowledge, and experience held by an individual or population, and is generally considered one of the most important intangible assets that contribute value to an organization or community. NOP sent a [memo](#) to NOSB on July 31, 2020, requesting that the Board facilitate a public discussion related to Human Capital Strategy for Organic Inspectors and Reviewers. NOSB posted its first [discussion document](#) at the fall 2020 meeting to initiate discussion.
- **PROPOSAL:** The Compliance, Accreditation & Certification Subcommittee is evaluating the causes and potential solutions for addressing the decline in qualified individuals who desire to be organic inspectors and certification reviewers. The Subcommittee's proposal includes aggregated responses to interview questions about specific challenges related to travel time, professionalism, compensation, continuing education, cost of insurance, and lack of consistency between expectations of certifiers.

Several proposed strategies are identified that could help alleviate the potential crisis of a shortage of organic inspectors and reviewers, such as:

- Develop working groups between organic industry leaders and organizations
- Collaborate with secondary education and other governmental entities to provide organic inspector training and apprenticeship programs
- Solicit funding from the federal Workforce Innovation and Opportunity Act (WIOA) to support inspector training
- Utilize virtual/web-based platforms for organic inspector trainings
- Support development and funding of one-on-one mentoring programs
- Promote awareness of the value of experienced inspectors

The Subcommittee seeks stakeholder comments in response to the following questions:

- 1. What have you experienced or witnessed that contributes to the shortage of organic inspectors/reviewers?**
- 2. What are some additional strategies that can be employed to increase the numbers of organic inspectors and reviewers?**
- 3. Are there appropriate ways for the National Organic Program to assist with the financial burdens of?:**
  - a. Initial cost of becoming a trained organic inspector.**
  - b. Costs of continuing education for existing experienced inspectors, and**
  - c. Compensation for organizations and/or experienced inspectors to provide qualified one-on-one mentorships to beginning inspector/reviewers.**

Read the full discussion document in the [NOSB Meeting Packet](#) (p. 1-5)

- **SUBCOMMITTEE VOTE:** Motion to adopt the proposal: **6 Yes**, 0 No, 1 Absent

## Human Capital: Supporting the Work of the NOSB (DISCUSSION)

- **BACKGROUND:** Human capital refers to the skills, knowledge, and experience held by an individual or population, and is generally considered one of the most important intangible assets that contributes value to an organization or community. NOP sent a [memo](#) to NOSB on July 31, 2020, requesting that the Board facilitate a public discussion related to Human Capital Strategy for Organic Inspectors and Reviewers. NOSB posted its first [discussion document](#) at the Fall 2020 meeting to initiate discussion.
- **DISCUSSION DOCUMENT:** The Compliance, Accreditation & Certification Subcommittee is exploring opportunities to obtain outside assistance for Board work, as appropriate, to help alleviate some of the workload without compromising the integrity of the process or the independent nature of the production and deliberation of its proposals.

The Subcommittee seeks stakeholder comments in response to the following questions:

1. **Please provide any general comments on the remark the following remark by a public commenter:** *“In addition to those fields noted in the memo, other expertise such as those in chemistry, ecology, biological sciences, plant pathology, and biological engineering would be particularly helpful, especially when considering many of the topics discussed and debated by the NOSB. We have long wondered what it would look like if each NOSB member had a research assistant (a co-op position for a graduate student, for example) to help conduct and provide literature reviews, write drafts, and otherwise support the work of NOSB members. What better way to expose young people to the organic community than through service to its leadership board!?”*
2. **Is the organic community comfortable with the Board getting support to “to help conduct and provide literature reviews, write drafts, and otherwise support the work of NOSB members”?**
3. **If so, what areas are appropriate for the Board to get support?**
4. **For which areas should the Board not use outside support?**

Read the full discussion document in the [NOSB Meeting Packet](#) (p. 7-8)

- **SUBCOMMITTEE VOTE:** Motion to adopt the discussion document: **5 Yes**, 0 No, 1 Absent

## CROPS SUBCOMMITTEE

### Paper-Based Crop Planting Aids (PROPOSAL)

- **BACKGROUND:** Paper planting pots have been [petitioned](#) for inclusion on the National List as an allowed input. Paper pots and other growing container and production aids are used to support seeding, growing and/or transplanting in the field and are intended to remain in the soil. NOP has authorized continued use of these materials while NOSB completes its deliberation.

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. Throughout the course of NOSB deliberation, the scope has expanded to include other paper-based planting aids such as seed tapes that are incorporated into the soil.

Several discussion documents have previously been presented by the Crop Subcommittee in fall 2018, spring 2019, and fall 2019. A [Technical Report](#) was commissioned in 2019 to provide information about the range of synthetic fibers and adhesives used in these types of paper-based crop planting aids. The Board continues to collect and evaluate information to distinguish between synthetic paper fibers and synthetic fibers that are not strictly paper, also whether such fibers are biobased and/or biodegradable.

The first [proposal](#) was presented by the Subcommittee in spring 2020 for a new definition and listing to be added to the NOP regulations to allow the use of paper-based planting aids under certain conditions. That proposal did not pass, and a new [proposal](#) was presented in fall 2020 that also did not pass. The Subcommittee continues to work diligently to craft an annotation that captures the detailed composition metrics of paper-based planting aids that meet the needs of organic producers and product manufacturers, while complying with Organic Food Production Act criteria for the National List.

- **PROPOSAL:** The Crop Subcommittee presents its third proposal that reflects the comments and suggestions received from the past two meetings with respect to nutrient and pesticide limitations, inclusion of biodegradable biobased mulch under this definition, composition of the non-cellulose portion of products, and methods of verifying biobased or cellulose-based content.

The Subcommittee is proposing a minimum requirement for cellulose-based fiber content (no less than 60%) and a minimum requirement for biobased content (no less than 80%). These limits prevent products from being made primarily from petroleum-based or non-biodegradable sources, while still allowing a minimal amount of synthetic fibers and adhesives needed for structure and functionality of products currently in the market. The Subcommittee also proposes restrictions on the types of materials allowed to make up the 40% of the product that is not cellulose based. The Board acknowledges that these specific percentages should be reviewed by future Boards and made more stringent as technology and materials change.

The Subcommittee's evaluation of environmental and human health impacts did not find evidence of harmful effects from the use of these paper-based planting aids. In terms of necessity for production, the Subcommittee finds these materials to be critical for a segment of organic growers where mechanical or hand planting is not a suitable alternative. The Subcommittee has thoughtfully customized a proposal that ensures the use of paper-based planting aids is compatible with a system of sustainable agriculture, and addresses the environmental concerns that might be associated with some types of paper.

The Subcommittee proposes to:

Add the following definition to §205.2 Terms Defined:

***Paper-based crop planting aid.* A material that is comprised of at least 60% cellulose-based fiber by weight, including, but not limited to, pots, seed tape, and collars that are placed in or on the soil and later incorporated into the soil, excluding biodegradable mulch film. Up to 40% of the ingredients can be non-synthetic, other permitted synthetic ingredients at §205.601(j), or synthetic strengthening fibers, adhesives, or resins. Contains no less than 80% biobased**

**content as verified by a qualified third-party assessment (e.g. laboratory test using ASTM D6866 or composition review by qualified personnel). Added nutrients must comply with §205.105, 205.203, and 205.206.**

And add the following listing to §205.601(p) Production Aids:

**Paper-based crop planting aids as defined in 205.2. Virgin or recycled paper without glossy paper or colored inks.**

Read the full proposal in the [NOSB Meeting Packet](#) (p. 11-16)

- **SUBCOMMITTEE VOTE:** Motion to adopt the proposal: **6 Yes**, 0 No, 1 Absent

## **Biodegradable Biobased Mulch Film (PROPOSAL)**

- **BACKGROUND:** Biodegradable biobased mulch film is currently listed on the National List of allowed materials for crop production as a weed barrier. The final rule to add BBMF to the National List was published September 30, 2014, in response to an NOSB Recommendation in fall 2012.

NOP published a Policy Memo in January 2015 to specify that biodegradable biobased mulch films must not contain any non-biobased content (i.e., no petroleum). 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 this material to the National List.

However, products that might meet the 100% biobased requirement are either not biodegradable or are not used in production due to brittleness or other production issues. Most biodegradable mulch films only contain about 20% biobased content (or less) with the remaining portion petroleum-derived. Therefore, there are no commercially viable products on the market that meet the NOP requirement for 100% biobased content. Since this conflict arose, the topic has returned to the NOSB work plan for possible resolution.

A [Technical Report](#) was commissioned in 2016 to evaluate long-term biodegradability of petroleum-derived biodegradable mulch films, and was inconclusive due to limited research available at the time. 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. A [discussion document](#) was presented at the spring 2020 meeting, and [reissued](#) in fall 2020, with questions for stakeholder feedback regarding a potential future annotation amendment that would allow biodegradable mulch films that are not 100% biobased. In the meantime, NOSB has renewed this listing at sunset review to allow time to identify a suitable solution.

- **PROPOSAL:** The Crops Subcommittee has weighed the risks and benefits of using biodegradable mulch films as an alternative to plastic mulch and proposes an allowance for biodegradable biobased mulch film that are not 100% biobased. The Subcommittee is proposing a minimum requirement of 80% biobased content for biodegradable mulch (BDM) films, which is the same minimum requirement being proposed for paper-based planting aids. The Subcommittee recognizes that this limit is aspirational in the sense that no commercially viable products current meet this criteria. Nevertheless, the Subcommittee sees this as a realistic goal, and also recommends that 100% be required if and when these materials become available.

The Subcommittee proposes to:

Revise the definition at §205.2 Terms Defined (bold text added):

*Biodegradable biobased mulch film.* 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) **Biodegradable plastic mulch films must be at least 80%** biobased with content determined using ASTM D6866 (incorporated by reference; see §205.3).

And revise the listing to §205.601(a)(2) Mulches (bold text added):

(iii) Biodegradable biobased mulch film as defined in §205.2. Must be produced without organisms or feedstock derived from excluded methods. **When 100% biobased biodegradable plastic films become available, producers are required to use 100% biobased content BDM plastic films.**

Read the full proposal in the [NOSB Meeting Packet](#) (p. 17-21)

- **SUBCOMMITTEE VOTE:** Motion to adopt the proposal: **5 Yes, 1 No, 2 Absent**

## Crops 2023 Sunset Review

- **BACKGROUND:** NOSB is reviewing whether to continue the allowance of several substances currently included on the National List of Allowed and Prohibited Substances to determine whether the substances should continue to be listed or should be relisted or removed from the list. These substances are undergoing Sunset Review this year in advance of their sunset date in 2023. These inputs may not be renewed if new information indicates they are harmful to human health or the environment, are not necessary because natural or organic alternatives are available, and/or are incompatible with organic production.

Public comments should clearly indicate the commenter's position on the allowance or prohibition of the substance and explain the reasons for the position. Comments should focus on providing relevant new information about a substance since its last NOSB review, including research or data that may inform NOSB's determination (e.g., scientific, environmental, manufacturing, industry impact information, etc.). Comments should also address the continuing need for the substance, and if there are viable alternatives such as: alternative management practices or natural substances that would eliminate the need for the specific substance; other substances that are nonsynthetic or are on the National List that are better alternatives, which could eliminate the need for this specific substance. Comments should address when alternatives have a function and effect equivalent to or better than the substance under review.

Please complete [OTA's Sunset Surveys](#) to provide information about the necessity of these inputs.

- **DISCUSSION SUMMARIES:** The Crops Subcommittee has provided discussion summaries for each substance undergoing sunset review and has indicated specific areas where additional information is requested from stakeholders. Read the full discussion in the [NOSB Meeting Packet](#) (p. 23-51)

**Copper sulfate – §205.601(a)(3) & (e)(4)**

- Allowed for use as an algicide and tadpole shrimp control in aquatic rice systems. One application per field during any 24-month period. Application rates are limited to those which do not increase baseline soil test values for copper over a time frame agreed upon by the producer and accredited certifying agent.
- The Subcommittee indicates that it may be time to reconsider copper sulfate as an algicide and means of controlling tadpole shrimp. It appears there is sufficient evidence to conclude that:
  - use of copper sulfate in rice fields is environmentally detrimental,
  - alternative seeding practices could eliminate the need for the chemical as both algae and tadpole shrimp cease to be problematic once seedlings are established, and
  - international standards do not allow for spraying of copper sulfate for organic rice production.
- Additional information requested by Subcommittee:
  1. **What are the roadblocks to transitioning to a dry-seeding or transplanting of rice seedlings in US rice production?**
  2. **Are there viable practices that can be used to offset the toxic build-up of copper in the soil and water (i.e. crop rotation, phytoremediation with plants that draw copper from the soil)?**

**Oxone gas – §205.601(a)(5)**

- Allowed for use as an irrigation system cleaner

**Peracetic acid – §205.601(a)(6) & (i)(8)**

- Allowed for use in control fire blight bacteria and for disinfecting equipment, seed, and asexually propagated planting material.
- Also allowed in hydrogen peroxide formulations at a concentration of no more than 6% as indicated on the pesticide product label.
- Additional information requested by Subcommittee: NOSB, through its various Subcommittees is engaging in a critical assessment of how it reviews the full suite of sanitizers either available in organic or petitioned for use in organic. As part of that assessment, the following draft framework has been suggested as a means of polling stakeholders to determine the appropriateness of certain materials in organic production:
  1. **Base Process: How does the material fit into an adequate system of cleaning (contact time, scrubbing effort and force, water source, etc.), rinsing, and sometimes testing, as the essential first step in sanitation?**
  2. **Use: Is it a direct food contact material or a surface contact material?**
  3. **Need: Has the material met the need addressed by its original petition?**
  4. **Efficacy: How well does the material work for the specific need identified?**

5. **Alternatives: Are existing alternatives adequate? Are there materials already on the list that can be employed in a new use, rather than adding or a new material or continuing to allow use of a less appropriate older material?**
6. **Rotation: How does this material fit into rotations and/or the need for back up materials?**
7. **Other Regulatory Reviews: How can we look to FDA and EPA to help us assess risk while, also evaluating against the OFPA criteria (particularly environmental fate and human contact impacts)?**

**EPA List 3 Inerts of Unknown Toxicity – §205.601(m)(2)**

- Allowed for use only in passive pheromone dispensers used for insect management, either to trap and monitor insect populations or to control a pest through pheromone mating disruption.
- EPA List 3 is outdated and no longer maintained by EPA. An alternative review system has not yet been implemented by NOP.
- Additional information requested by Subcommittee:
  1. **Are there any new health or environmental concerns with the use of the List 3 inerts in passive pheromone dispensers?**
  3. **Are there any natural alternatives to the use of List 3 inerts in passive pheromone dispensers?**
  4. **What percent of ingredients in passive pheromones do List 3 inerts represent?**
  5. **Do the List 3 ingredients in the passive dispensers diffuse into the environment or do they remain in the dispensers?**

**Chlorine materials – §205.601(a)(2)**

- Includes Calcium hypochlorite, Chlorine dioxide, Hypochlorous acid, Sodium hypochlorite
- Allowed for use as a sanitizer and disinfectant. For pre-harvest use, residual chlorine levels in the water in direct crop contact or as water from cleaning irrigation systems applied to soil must not exceed the maximum residual disinfectant limit under the Safe Drinking Water Act, except that chlorine products may be used in edible sprout production according to EPA label directions.
- The Crops Subcommittee acknowledges that chlorine materials have been judged essential to ensure food safety and to comply with food-safety regulations under the Food Safety Modernization Act (FSMA) and generally support continued listing of chlorine materials. The Subcommittee also supports research priorities that investigate alternatives to chlorine compounds and encourages the use of alternative, less toxic materials, when their use can meet strict food safety standards.
- Additional information requested by Subcommittee: NOSB, through its various Subcommittees, is engaging in a critical assessment of how it reviews the full suite of sanitizers either available in organic or petitioned for use in organic. As part of that assessment, the following draft



framework has been suggested as a means of polling stakeholders to determine the appropriateness of certain materials in organic production:

1. **Base Process:** How does the material fit into an adequate system of cleaning (contact time, scrubbing effort and force, water source, etc.), rinsing, and sometimes testing, as the essential first step in sanitation?
2. **Use:** Is it a direct food contact material or a surface contact material? Do stakeholders see any distinction in the use of this material in this crop production context versus a food handling/processing context?
3. **Efficacy:** How well does the material work for the specific need identified?
4. **Alternatives:** Are existing alternatives adequate? Are there materials already on the list that can be employed in a new use, rather than adding or a new material or continuing to allow use of a less appropriate older material?
6. **Rotation:** How does this material fit into rotations and/or the need for back up materials?
7. **Other Regulatory Reviews:** How can we look to FDA and EPA to help us assess risk while also evaluating against the OFPA criteria (particularly environmental fate and human contact impacts)?

#### **Magnesium oxide – §205.601(j)(5)**

- Allowed for use only to control the viscosity of a clay suspension agent for humates in order to prevent crystallization of any fertilizer or micronutrient salts that may be in solution and prevent the plugging of spray nozzles during spray applications.
- Additional information requested by Subcommittee:
  1. **Has magnesium oxide been used for the purposes of suspending humates in a clay solution as described in the original petition?**
  2. **Are there any commercially available, non-synthetic alternatives that achieve the same purpose as magnesium oxide?**
  3. **Is there still a need for liquid humates in organic agriculture?**
  4. **Can non-synthetic acids be used in place of sulfuric acid in the manufacture of magnesium oxide?**
  5. **Are there environmental or human health issues that should be noted in the decision to retain magnesium oxide on the National List?**

#### **Calcium chloride – §205.602**

- Prohibited for use except as a foliar spray to treat a physiological disorder associated with calcium uptake such as bitter pit in apples, fruit cracking on developing figs, and blossom end rot on tomatoes.
- The restrictions on nonsynthetic calcium chloride produced through the brine process is for the purpose of preventing potential overuse of high solubility materials.
- Additional information requested by Subcommittee:

1. On which crops and for what physiological disorders associated with calcium uptake is calcium chloride used by producers?
2. The 2007 TAP states: "Since bitter pit of apples is a calcium deficit disorder, an alternate form of calcium, such as limestone, gypsum, or rock phosphate, could be used". Please comment.

#### Rotenone – §205.602

- Prohibited.
- Rotenone is a potent botanical pesticide that is prohibited in organic production due to adverse health effects.

### Ammonia Extract (DISCUSSION)

- **BACKGROUND:** Ammonia extract has been [petitioned](#) for inclusion on the National List as a [prohibited](#) nonsynthetic input in organic crop production. The petitioner identifies concerns that these types of ammonia fertilizers do not align with organic production principles, pose risks to the integrity of organic products, and increase the risk of fertilizer fraud. The petition also raises concerns about uncertainty and inconsistent determinations of material review organizations regarding the classification of ammonia extract technologies as nonsynthetic or synthetic.

A [discussion document](#) was presented in fall 2020 to solicit stakeholder input on a series of questions about the ability to distinguish synthetic ammonia sources from non-synthetic sources through testing, the impacts on soil health, and other questions about the classification and other issues related to ammonia extract. A third-party Technical Report is under development.

- **DISCUSSION DOCUMENT:** The Crops Subcommittee presents a second discussion document that builds on comments received from the last meeting on the topics of soil health and the potential for fraud. The Subcommittee indicates it received conflict data as to whether the use of ammonia extract promotes or degrades soil health.

The Subcommittee seeks stakeholder comments in response to the following questions:

1. Given the conflicting comments on the effects of ammonia on soil health, please provide further information that would help to resolve this conflict. Provide scientific citations so that the NOSB can have primary references as to the effect of ammonia extract on soil health.
2. Is there a range of concentrations in the soil solution in which ammonia is beneficial, while outside that range it is not?
3. Please provide additional information as to how the fraudulent use of synthetic ammonia could be prevented while at the same time allowing for the use of natural ammonia extract.
4. Should the use of natural ammonia extract be limited to a certain percent of nitrogen use in crops (similar to the Chilean nitrate restriction)?
5. If natural ammonia extract is limited to a certain percentage of nitrogen use, how can that amount be verified and separated from synthetic ammonia?

6. **In mixed organic and conventional operations, how can the use of natural ammonia extract used in the organic crops be verified as opposed to synthetic ammonia used in the conventional crops?**
7. **Is there additional information about the effects of highly soluble organic fertilizers on soil health that the NOSB should be aware of?**

Read the full discussion document in the [NOSB Meeting Packet](#) (p. 53-58)

- **SUBCOMMITTEE VOTE:** Motion to adopt the discussion document: **6 Yes**, 0 No, 2 Absent

## **Kasugamycin (DISCUSSION)**

- **BACKGROUND:** Kasugamycin is an aminoglycosidic antibiotic (bactericide) that has been [petitioned](#) for allowance to control fire blight in apples, pears, and other pome fruits. Kasugamycin is manufactured through fermentation and isolated as hydrochloride. Kasugamycin hydrochloride hydrate is the technical grade active ingredient in EPA-registered products Kasumin 2L and Kasumin 4L. These products were registered with a number of restrictions including: applications are prohibited where animals are grazing or in areas where crops have been fertilized with animal or human waste; users are also required to follow a resistance management plan; applications are limited to four per year with California limiting applications to two per year.

A third-party [Technical Report](#) was commissioned to support the NOSB review of this petitioned material. The Report identifies some level of resistance which is why EPA-registered labels require a resistance management plan and limits on frequency of applications.

- **DISCUSSION DOCUMENT:** The Crops Subcommittee presents a discussion document to collect information from stakeholders on this petition. The Subcommittee recognizes that other antibiotics previously permitted in organic production have resulted in widespread resistance (e.g., streptomycin) and therefore were prohibited.

The Subcommittee seeks stakeholder comments in response to the following questions:

1. **Is the use of kasugamycin necessary for the control of fire blight or are other integrated programs sufficient?**
2. **Would the use of kasugamycin decrease the need for other synthetic products used in organic agriculture such as coppers and lime sulfur?**
3. **Is the limitation to 4 applications (2 in California) sufficient to reduce or eliminate the chances for fire blight resistance?**
4. **If approved, should the use be annotated only for fire blight control in apples and pears?**
5. **Are there variable results of the efficacy of kasugamycin depending on region where it is used?**

Read the full discussion document in the [NOSB Meeting Packet](#) (p. 59-60)

- **SUBCOMMITTEE VOTE:** Motion to adopt the discussion document: **8 Yes**, 0 No, 0 Absent

## HANDLING SUBCOMMITTEE

### Ion Exchange Filtration (PROPOSAL)

- **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 recharge 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 information about the various ways ion exchange filtration is used by organic operations, the substances used in these processes, and potential alternatives to ion exchange technology. In 2020, a [Technical Report](#) was published and a [discussion document](#) was presented to seek information about the uses of ion exchange filtration in organic processing. Stakeholder comments indicated that there is widespread use of ion exchange filtration in organic processing, whether it be for removal of off-tastes, heavy metals, or clarification of the final product, and that alternatives to ion exchange filtration are not generally available.

The 2019 NOP Memo also asked NOSB to provide a recommendation on whether it is appropriate to include substances used in ion exchange filtration on the National List. A [proposal](#) was presented in fall 2020 that the recharge materials, but not the resins or membranes themselves, must be reviewed and included on the National List. The proposal nearly passed but was ultimately sent back to Subcommittee for further discussion about the potential for degradation of resins into food after repeat use.

- **PROPOSAL:** The Handling Subcommittee presents an updated proposal to address NOP’s question of whether it is appropriate to include substances used in ion exchange filtration on the National List.

The Subcommittee continues to support the longstanding policy that recharge materials need to be reviewed and included on the National List.

However, the Subcommittee is challenged to make a determination on whether the resins and membranes need to be on the National List. Based on past NOP guidance, substances that are classified by FDA as *secondary direct food additives* must be included on the National List in order to be used in organic processing, whereas substances classified as *food contact substance* can be used without reference to the National List unless explicitly prohibited. Stakeholder comments indicate that ion exchange resins appear to be classified by FDA as *both* secondary food additives and food contact substances. Legal expertise is needed to interpret FDA regulations defining secondary food additives and food contact substances, and how the FDA regulations legally relate to the Organic Foods Production Act. The Subcommittee states that these legal issues are beyond the capability of NOSB.

The Subcommittee’s proposal also explores procedural issues regarding the allowance of ion exchange filtration without resins needing to be included on the National List. Requiring resins to be included on the National List could cause significant economic impact and disruption of current organic supply chains, and raises questions about how exactly these substances would appear on the National List

(categorically, or each specific resin). However, not requiring listing could leave an unintentional loophole to the requirements of OFPA and could cause issues in the future with resins that would be less acceptable for use in organic production systems. The Subcommittee states that these technical and procedural issues are best left to legal interpretations and procedural interpretations that are beyond the capabilities of NOSB.

Read the full proposal in the [NOSB Meeting Packet](#) (p. 61-66)

- **SUBCOMMITTEE VOTE:** Motion to adopt the proposal: **6 Yes**, 0 No, 1 Absent

## Handling 2023 Sunset Review

- **BACKGROUND:** NOSB is reviewing whether to continue the allowance of several substances currently included on the National List of Allowed and Prohibited Substances to determine whether the substances should continue to be listed or should be relisted or removed from the list. These substances are undergoing Sunset Review this year in advance of their sunset date in 2023. These inputs may not be renewed if new information indicates they are harmful to human health or the environment, are not necessary because natural or organic alternatives are available, and/or are incompatible with organic production.

Public comments should clearly indicate the commenter's position on the allowance or prohibition of the substance and explain the reasons for the position. Comments should focus on providing relevant new information about a substance since its last NOSB review, including research or data that may inform NOSB's determination (e.g., scientific, environmental, manufacturing, industry impact information, etc.). Comments should also address the continuing need for the substance, and if there are viable alternatives such as: alternative management practices or natural substances that would eliminate the need for the specific substance; other substances that are on the National List that are better alternatives, which could eliminate the need for this specific substance; and/or other organic or nonorganic agricultural substances. Comments should address when alternatives have a function and effect equivalent to or better than the substance under review.

Please complete [OTA's Sunset Surveys](#) to provide information about the necessity of these inputs.

- **DISCUSSION SUMMARIES:** The Handling Subcommittee has provided discussion summaries for each substance undergoing sunset review and has indicated specific areas where additional information is requested from stakeholders. Read the full discussion in the [NOSB Meeting Packet](#) (p. 67-103)

### Agar-Agar – §205.605(a)

- Allowed for use in food processing as a stabilizer, thickener, gelling agent, texturizer, moisturizer, emulsifier, flavor enhancer, and absorbent. Used in various foods including bakery products, confections, jellies and jams, dairy products, canned meat and fish products, and vegetarian meat substitutes.
- Agar-agar has the ability to withstand high temperatures and doesn't interfere with taste profiles.
- Additional information requested by Subcommittee:

#### 1. Have there been any new developments with natural alternatives to agar-agar?

**2. Are there sufficient quantities of agar-agar produced using non-synthetic extraction methods to exclude agar-agar produced using synthetic methods?**

**Animal enzymes – §205.605(a)**

- Includes: Rennet—animals derived; Catalase—bovine liver; Animal lipase; Pancreatin; Pepsin; and Trypsin
- Used as catalysts for biological processes that are useful in the processing of food products or ingredients, e.g. as a coagulant to curdle milk to be made into cheese or sour cream.
- Additional information requested by Subcommittee:
  - 1. Since the last review, have organic animal enzymes become commercially available?**
    - a. If so, is there sufficient supply that meets the needs of the organic industry?**
    - b. If not, what are the barriers?**
  - 2. Are there ancillary substances used in animal enzymes that are not found on the chart below, or are there ancillary substances on the chart that you think should not be allowed? Please submit public comment explaining which substance and why.**

**Ancillary Substances by Food Additive Functional Class**

Anti-caking & anti-stick agents	Magnesium stearate, calcium silicate, silicon dioxide, calcium stearate, magnesium silicate/talc, magnesium sulfate.
Carriers and fillers	Lactose, maltodextrins, sucrose, dextrose, potato starch, non-GMO soy oil, rice protein, grain (rice, wheat, corn, barley) flour, milk, autolyzed yeast, inulin, cornstarch, sucrose, glycerol, potassium chloride, ammonium sulfate, calcium phosphate, calcium acetate, calcium carbonate, calcium chloride, calcium sulfate, dextrin, dried glucose syrup, ethyl alcohol, glucose, glycol, lactic acid, maltose, mannitol, mineral oil, palm oil, purity gum (starch), saccharose, sorbitol, soy flour, sunflower oil, trehalose, vegetable oil, microcrystalline cellulose, propylene glycol, stearic acid, dicalcium phosphate.
Preservatives	Sodium benzoate, potassium sorbate, ascorbic acid, alpha (hops) extract, benzoic acids and their salts, calcium propionate, citric acid, potassium chloride, potassium phosphate, sodium acetate, sodium chloride, sodium propionate, sodium sulfate, sorbic acid and its salts, stearic acid, tannic acid, trisodium citrate, zinc sulfate.
Stabilizers	Maltodextrin, betaine (trimethylglycine), glucose, glycerol, sodium chloride, sodium phytate, sorbitol, sucrose.
pH control, buffers	Acetic acid, citric acid anhydrous, sodium citrate, sodium phosphate, trisodium citrate.

**Calcium sulfate – §205.605(a)**

- Allowed for various uses in food processing such as: coagulate in tofu manufacturing (soft and silky tofu types), yeast food and dough conditioner, water conditioner, firming agent (in canned foods), jelling ingredient, and baking powder ingredient.
- Mined sources only.
- Additional information requested by Subcommittee:
  - 1. Is there clear evidence of unacceptable environmental impacts from the mining of calcium sulfate?**

**2. Is there clear evidence of unacceptable human health impacts from calcium sulfate mining?**

**Carrageenan – §205.605(a)**

- Allowed for use in food processing as a gelling agent, emulsifier, and thickener. Used primarily in meat and dairy products, and also is a vegan alternative to animal-sources gelatin.
- Also known as Irish Moss. Sourced from seaweed (red algae).
- Additional information requested by Subcommittee:
  1. **Should there be an effort to outline best management practices for seaweed farming and harvesting?**
  2. **Do seaweed farming practices for carrageenan production conflict with the proposed Marine Materials guidelines passed by the NOSB last year?**
  3. **Is carrageenan essential for production of organic products? Which products?**
  4. **Are carrageen alternatives available to replace all current uses?**
  5. **Would lack of carrageenan availability limit opportunities to produce vegan products?**
  6. **Is there new information on the safety of carrageenan?**

**Glucono delta-lactone – §205.605(a)**

- Allowed for use in food processing. Primarily used as a coagulant in the production of silken tofu. Also used as a curing or pickling agent, leavening agent, pH control agent and sequestrant.
- Production by the oxidation of D-glucose with bromine water is prohibited
- Additional information requested by Subcommittee:
  1. **How widespread is the use of GDL in organic applications?**
  2. **Is there evidence that GDL being used in organic applications may derive from genetic modification of any kind?**
  3. **Have alternatives to GDL emerged in recent years that deliver the same product quality and functionality?**
  4. **Is the lack of International acceptance significant?**
  5. **How is organic silken tofu produced in the EU, Japan, etc. without the use of GDL?**

**Tartaric acid – §205.605(a)**

- Allowed for various uses in food processing including as an acidulant, pH control agent, preservative, emulsifier, chelating agent, flavor enhancer and modifier, stabilizer, anti-caking agent, and firming agent. Used in the preparation of baked goods and confectionaries, dairy products, edible oils and fats, tinned fruits and vegetables, seafood products, meat and poultry products, juice beverages and soft drinks, sugar preserves, chewing gum, cocoa powder, and alcoholic drinks.
- Sourced from grape wine.
- Includes tartaric acid and its salts (i.e. potassium acid tartrate, sodium potassium tartrate acid)

- Additional information requested by Subcommittee:
  1. **Is tartaric acid still an essential ingredient for organic processing?**
  2. **Are there any organic/natural alternatives for wine making?**
  3. **Is there a sufficient supply of organic grapes to make tartaric acid from organic grapes?**
  4. **Are there any ancillary substances that are associated with tartaric acid?**

#### **Cellulose – §205.605(b)**

- Allowed for use in regenerative casings (peelable/non-edible hot dog and sausage casings).
- Powdered cellulose is allowed for use as an anti-caking agent (e.g. for use in shredded cheese) and filtering aid (e.g. for filtration of juices). Non-chlorine bleached only.
- Microcrystalline cellulose is prohibited.
- Additional information requested by Subcommittee:
  1. **Is cellulose still essential to organic production?**
  2. **Are there ancillary substances in use that are not identified in the table in this document?**
  3. **Are there alternative sources of cellulose to those from virgin forests that might minimize concerns regarding impact on primary forests?**
  4. **What percentage of cellulose in use is derived from grain and vegetable products vs. from wood/forestry?**

#### **Chlorine materials – §205.605(b)**

- Includes: Calcium hypochlorite, Chlorine dioxide, Hypochlorous acid, Sodium hypochlorite
- Allowed for use in disinfecting and sanitizing food contact surfaces, equipment and facilities may be used up to maximum labeled rates. Chlorine materials in water used in direct crop or food contact are permitted at levels approved by the FDA or EPA for such purpose, provided the use is followed by a rinse with potable water at or below the maximum residual disinfectant limit for the chlorine material under the Safe Drinking Water Act. Chlorine in water used as an ingredient in organic food handling must not exceed the maximum residual disinfectant limit for the chlorine material under the Safe Drinking Water Act.
- The Handling Subcommittee acknowledges that chlorine materials have been judged essential to ensure food safety and to comply with food-safety regulations under the Food Safety Modernization Act (FSMA) and generally supports continued listing of chlorine materials. The Subcommittee also supports research priorities that investigate alternatives to chlorine compounds and encourages the use of alternative, less toxic materials, when their use can meet strict food safety standards.
- Additional information requested by Subcommittee: NOSB, through its various subcommittees, is engaging in a critical assessment of how it reviews sanitizers either approved for organic or petitioned for use in organic. As part of that assessment, the questions below have been suggested as a framework to evaluate the appropriateness of sanitizers and disinfectants used in



in organic production and handling. We invite members of the organic community to address these questions in light of the current sunset review of **these chlorine materials -- calcium hypochlorite, sodium hypochlorite, chlorine dioxide, and hypochlorous acid:**

1. **Are each of these chlorine materials essential for organic food production and handling?**
2. **How well does each of these chlorine materials work for the specific need identified?**
3. **Since each of these chlorine materials was last reviewed, have additional commercially available alternatives emerged that would negate the need for this compound in organic handling?**
4. **How does each of these chlorine materials fit into an adequate system of cleaning (contact time, scrubbing effort and force, water source, etc.), rinsing, and sometimes testing, as the essential first step in sanitation?**
5. **Are each of these chlorine materials a direct food contact material or a surface contact material? If it is a food contact material, how is it used in food processing and handling?**
6. **How does each of these chlorine materials fit into rotations and/or the need for back up materials?**
7. **How can we look to FDA and EPA to help us assess the risks of chlorine sanitizers while also evaluating against the OFPA criteria (particularly environmental fate and human health impacts)?**

**Potassium hydroxide – §205.605(b)**

- Allowed for various uses in food processing including as a pH adjuster, cleaning agent, stabilizer, thickener, and poultry scald agent.
- Prohibited for use in lye peeling of fruits and vegetables.
- Additional information requested by Subcommittee:
  1. **Is potassium hydroxide still critical for the lye peeling of peaches?**
  2. **Are there alternatives to potassium hydroxide for cleaning/sanitizing?**
  3. **For what other purposes is potassium hydroxide currently being used in organic processing?**
  4. **Are there any ancillary substances that are used with potassium hydroxide?**

**Potassium lactate – §205.605(b)**

- Allowed for use as an antimicrobial agent and pH regulator only.
- Additional information requested by Subcommittee:
  1. **What distinguishes potassium lactate from sodium lactate in terms of functionality? Is that difference important?**

**Silicon dioxide – §205.605(b)**

- Allowed for use as a defoamer.
- Allowed for other uses when organic rice hulls are not commercially available in the appropriate quality, quantity, and form. Past stakeholder feedback indicated that organic rice hulls were not viable alternatives for use:
  - As an anticaking agent in organic powders, including organic cheese powders
  - In organic dry flavors in which rice hulls have not adequately or evenly disbursed flavor actives and have taken up moisture
  - As an anticaking agent at a recommended 2% application rate, when instead the rice hull rate has been 15-50%
  - As a flow agent for rice syrup solids
  - As a clarifier in the production of beer
- Additional information requested by Subcommittee:
  1. **Are there organic alternatives to silicon dioxide that are more suitable to the uses described above, in which rice hulls are not viable?**
  2. **Is there reliable, consistent commercial availability of rice hulls for the applications in which it performs well?**
  3. **How prevalent is the use of silicon dioxide as a defoamer?**
  4. **How prevalent is the use of silicon dioxide for other allowed purposes, e.g. anticaking agent, flow agent, flavor disbursement?**

**Sodium lactate – §205.605(b)**

- Allowed for use as an antimicrobial agent and pH regulator only.
- Additional information requested by Subcommittee:
  1. **Why do JAS, IFOAM, and the Canadian standard prohibit the use of sodium lactate?**

**Zein (DISCUSSION)**

- **BACKGROUND:** Zein (corn protein) has been [petitioned](#) for allowance as a non-organic ingredient for use in organic food processing as a food coating. Zein is applied to foods as an alcohol solution; once the alcohol evaporates, the zein layer acts as protective moisture barrier. It is used as a confectioner's glaze or a coating on nuts and fruit, among other applications. Zein is derived from corn gluten meal. The petitioner states sourcing from certified organic corn gluten meal for the production of organic zein is not currently possible. A [technical report](#) was commissioned to support the NOSB review if this petitioned material.
- **DISCUSSION DOCUMENT:** The Handling Subcommittee present a discussion document to summarize its review to date of the petitioned material. The Subcommittee highlights three main areas of focus regarding zein's suitability for inclusion on the National List:

- a) the environmental impacts of the corn wet-milling process used to create the corn gluten meal (sulfur dioxide released and reacts with air and water to form sulfuric acid and becomes one of the major contributors to acid rain)
- b) whether the zein product can be considered non-synthetic (NOSB has [previously evaluated](#) this question of whether the end products of the corn wet-milling process can be considered non-synthetic and precedent has been established to consider these end products as non-synthetics)
- c) whether zein fills a unique functionality not already filled by currently allowed substances (beeswax, shellac, vegetable proteins, carnauba wax)

The Subcommittee seeks stakeholder comments in response to the following questions:

1. **If zein is made from cornmeal that is wet-milled, how much (if any) sulfur residue is left in the final product?**
2. **What are the hurdles to achieving organic zein?**
3. **What sectors of the organic food market would benefit the most significantly from the addition of zein to the National List and how much will shelf-life be improved?**
4. **Do we need to revisit the classification as a non-synthetic, or is the established precedence sufficient rationale?**

Read the full discussion document in the [NOSB Meeting Packet](#) (p. 105-108)

- **SUBCOMMITTEE VOTE:** Motion to adopt the discussion document: **6 Yes**, 0 No, 1 Absent

## Fish Oil Annotation (DISCUSSION)

- **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 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.

The Handling Subcommittee presented a [discussion document](#) in spring 2020 to explore new restrictions on fish oil that would prohibit the use of fish caught directly for the sole use of its oil, and prohibit fish oil from species and regions that are overfished or exploited.

- **DISCUSSION DOCUMENT:** The Handling Subcommittee is presenting an updated discussion document with new information requesting additional stakeholder inputs on possible options. In response to previously submitted public comments and further discussions with scientists and groups involved in marine fishery ecology and policy, the Subcommittee developed three possible fish oil annotations and requests input from organic stakeholders on the merits and feasibility of each approach. Each option would be added to the existing listing for fish oil which reads *§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.

- Option 1: **Sourced from fishing industry by-product only and certified as sustainable by a third-party certifier.**
- Option 2: **Sourced from fishing industry by-product only and certified as sustainable against a third-party certification that is International Social and Environmental Accreditation and Labeling (ISEAL) Code Compliant or Global Seafood Sustainability Initiative (GSSI) recognized with full utilization of said scheme.**
- Option 3: **Sourced from fishing industry by-product only and has either a green or yellow Seafood Watch rating or is eco-certified to a standard recommended by Seafood Watch (<https://www.seafoodwatch.org/>).**

The Subcommittee seeks stakeholder comments in response to the following questions:

- 1. Which is the best option to mitigate environmental concerns about the over-exploitation of fisheries used to produce fish oil sourced for organic products?**
- 2. Are these requirements clear and enforceable?**
- 3. What impacts would these requirements have on the availability of fish oil for organic products?**

Read the full discussion document in the [NOSB Meeting Packet](#) (p. 109-114)

- **SUBCOMMITTEE VOTE:** Motion to adopt the discussion document: **6 Yes**, 0 No, 1 Absent

## **LIVESTOCK SUBCOMMITTEE**

### **Livestock 2023 Sunset Review**

- **BACKGROUND:** NOSB is reviewing whether to continue the allowance of several substances currently included on the National List of Allowed and Prohibited Substances to determine whether the substances should continue to be listed or should be relisted or removed from the list. These substances are undergoing Sunset Review this year in advance of their sunset date in 2023. These inputs may not be renewed if new information indicates they are harmful to human health or the environment, are not necessary because natural or organic alternatives are available, and/or are incompatible with organic production.

Public comments should clearly indicate the commenter's position on the allowance or prohibition of the substance and explain the reasons for the position. Comments should focus on providing relevant new information about a substance since its last NOSB review, including research or data that may inform NOSB's determination (e.g., scientific, environmental, manufacturing, industry impact information, etc.). Comments should also address the continuing need for the substance, and if there are viable alternatives such as: alternative management practices or natural substances that would eliminate the need for the specific substance; other substances that are nonsynthetic or are on the National List that are better alternatives, which could eliminate the need for this specific substance.

Comments should address when alternatives have a function and effect equivalent to or better than the substance under review.

Please complete [OTA's Sunset Surveys](#) to provide information about the necessity of these inputs.

- **DISCUSSION SUMMARIES:** The Livestock Subcommittee has provided discussion summaries for each substance undergoing sunset review and has indicated specific areas where additional information is requested from stakeholders. Read the full discussion in the [NOSB Meeting Packet](#) (p. 115-142)

**Activated charcoal – §205.603(a)(6)**

- Allowed only from vegetative sources and may be used as an antidote to poisons and other toxic substances and for removing various mycotoxins.
- Additional information requested by Subcommittee:
  1. **Is activated charcoal essential to organic livestock health care and production?**

**Calcium borogluconate – §205.603(a)(7)**

- Allowed only for treatment of milk fever in cattle, sheep, and goats.
- Additional information requested by Subcommittee:
  1. **The National List references multiple substances for the treatment of ketosis and milk fever, including propylene glycol, calcium propionate, calcium borogluconate and electrolytes. Are they equally necessary and effective? Do organic producers have the correct tools for treatment of all stages of the development of these related conditions?**
  2. **Calcium borogluconate also appears on the National List under allowed electrolytes. Please describe the history and the importance of calcium borogluconate's consideration by organic systems as a stand-alone substance.**

**Calcium propionate – §205.603(a)(8)**

- Allowed only for treatment of milk fever in cattle, sheep, and goats.
- Additional information requested by Subcommittee:
  1. **Are there any new practices or non-synthetic materials that would make the use of calcium propionate unnecessary?**
  2. **Do our livestock stakeholders think the listing for calcium propionate is necessary at §205.603(a)(8) since electrolytes are listed as a group at §205.603(a)(11) *Electrolytes—without antibiotics*?**

**Chlorine materials – §205.603(a)(10)**

- Includes: Calcium hypochlorite, Chlorine dioxide, Hypochlorous acid, Sodium hypochlorite
- Allowed for disinfecting and sanitizing facilities and equipment. Residual chlorine levels in the water shall not exceed the maximum residual disinfectant limit under the Safe Drinking Water Act.

- The Livestock Subcommittee acknowledges that chlorine materials are an essential part for maintaining hygiene in livestock facilities and generally supports continued listing of chlorine materials. The Subcommittee supports research priorities that investigate alternatives to chlorine compounds and encourages the use of alternative, less toxic materials, when their use can meet strict food safety standards.
- Additional information requested by Subcommittee:
  1. **Are there alternatives to chlorine materials that are less toxic sanitizer options in livestock operations?**
  2. **Should we be considering chlorine materials through a more holistic point of view and, as per the sanitizer panel during the Fall 2020 NOSB meeting, are there practices we should look to prior to using chlorine materials in livestock operations?**
  3. **Are there practices we should look to prior to using chlorine materials in livestock operations?**
  4. **Are there any new recommendations for how to rotate sanitizers to maintain maximum efficacy?**

#### **Kaolin pectin – §205.603(a)(17)**

- Allowed for use as an adsorbent, antidiarrheal, and gut protectant.
- Additional information requested by Subcommittee:
  1. **How widely used is kaolin pectin in organic livestock production?**
  2. **Are there any equally effective non-synthetic/natural substances available that serve the same functions as kaolin pectin?**
  3. **What problems/issues, if any, are there associated with the use of kaolin pectin in organic livestock production?**
  4. **Is there any concern that organic livestock producers may be using kaolin pectin on a routine, prophylactic basis, rather than solely to address livestock illness?**

#### **Mineral oil – §205.603(a)(20)**

- Allowed for treatment of intestinal compaction. In organic livestock production, operators orally administer mineral oil to lubricate the intestinal tract and dislodge intestinal obstructions in cattle and other ruminants.
- Prohibited for use as a dust suppressant.
- Additional information requested by Subcommittee:
  1. **Are there new studies that indicate that the use of mineral oil as a treatment of intestinal compaction is no longer necessary?**
  2. **Are there differences in interpretations by certifiers for allowed use of mineral oil as a treatment of intestinal compaction in livestock (7 CFR 205.603(a)(20))?**
  3. **If there are differences in interpretations amongst certifiers for the use of mineral oil as a treatment of intestinal compaction in livestock, what clarification or guidance could be provided that would eliminate the differences in interpretation?**

**Nutritive supplements – §205.603(a)(21)**

- Includes injectable supplements of trace minerals, vitamins, and electrolytes per §205.603, with excipients per §205.603(f).
- Must be used in accordance with FDA and restricted to use by or on the order of a licensed veterinarian.
- Additional information requested by Subcommittee:
  1. **Do advances in organic ration formulations change the need for injectable nutritive supplements?**

**Propylene glycol – §205.603(a)(27)**

- Allowed for use only for treatment of ketosis in ruminants.
- Additional information requested by Subcommittee:
  1. **When preventative measures do not work, are there natural/non-synthetic alternative treatments for ketosis in ruminants since approval of the petition? Are there any alternative synthetic treatments on the NL that make this listing redundant?**
  2. **Are there developments in manufacturing of propylene glycol that would require new evaluation of source materials?**

**Acidified sodium chlorite – §205.603(a)(28) & (b)(9)**

- Allowed for use only as a disinfecting pre-milking and post-milking teat dip for the purpose of preventing mastitis.
- Additional information requested by Subcommittee:
  1. **Are there preferred alternatives to acidified sodium chlorite for preventative care in dairy cows?**
  2. **Have there been changes in the availability of iodine that would reduce the need for acidified sodium chlorite?**

**Zinc sulfate – §205.603(b)(11)**

- Allowed only for use in hoof and foot treatments for the control of foot rot in dairy cattle, sheep, and goats.
- The Livestock Subcommittee seeks public comments regarding the effectiveness of alternative methods for controlling foot rot, including management practices, and the use of hydrogen peroxide, peracetic acid or other materials. Further, the Subcommittee seeks feedback on whether the availability of zinc sulfate for use in organic livestock production would likely reduce the use of copper sulfate for treatment of foot rot.
- Additional information requested by Subcommittee:
  1. **Has the use of zinc sulfate reduced the use of copper sulfate in treating foot disease in livestock?**

## MATERIALS SUBCOMMITTEE

### Research Priorities 2021 (DISCUSSION)

- **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:** The Materials Subcommittee presents the following list of research priorities. The [NOSB Meeting Packet](#) (p. 143-154) contains full descriptions of each research priority.

#### **Livestock**

1. Determine the efficiency of natural parasiticides and methodologies, including but not limited to, nutritional programs, use of herbs, essential oils, homeopathic remedies, Diatomaceous Earth, and the genetic pool of laying hens in controlling *A. galli* and *H. gallinarum* in laying and replacement chickens intended to become hens.
2. Evaluate natural alternatives to DL-Methionine in a system approach for organic poultry feed program.
3. Evaluate ways to prevent and manage parasites in livestock, examining breeds, geographical differences, alternative treatments, and pasture species.
4. Research and develop livestock breeding programs resulting in livestock that are 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.
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.
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.
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.
12. Elucidate practices that reduce greenhouse gas emissions and that contribute to farming systems resilience in the face of climate change.

#### ***Food Handling & Processing***

1. Evaluation of alternatives to chlorine materials in processing: impact mitigation, best management practices, and potential for chlorine absorption by produce.
2. Suitable alternatives to BPA (Bisphenol-A) for linings of cans used for various products.
3. Chlorine sanitizers pose potential occupational health risks in food handling and processing environments. Given anecdotal reports of health problems associated with exposure to chlorine sanitizers by food workers, the Handling Subcommittee recommends additional research, including monitoring for chlorine breakdown products, chlorine gas, and chloroform in organically certified food handling and processing facilities to quantify worker exposures and health risks.

#### ***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 to quantify the current state of the organic and conventionally produced non-GMO seed.
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.

The Subcommittee seeks stakeholder comments in response to the following questions: During the Fall 2020 comment period, stakeholders identified several additional items for consideration as research priorities, on which, the Materials Subcommittee is seeking further input from the community. **Should the following items be considered by the NOSB for inclusion in its proposal on 2021 research priorities?**

- **Research into the economics of organic livestock more broadly as producers continue to face difficult economic circumstances, including challenges with access to meat processing, varying price premiums, and high cost of feed**
- **Research into the effects of organic crop production on water**
- **Research into novel ammonia inputs, their field-level impact in organic systems, and their traceability and vulnerability to fraud**
- **Benefits and risks of livestock integration into crop rotations**
- **Nutritional value of organic animal products (such as dairy, meat, and eggs)**

- **Comparisons of pesticide, antibiotic, and synthetic growth hormone residues in organic and conventional products**

Read the full discussion document in the [NOSB Meeting Packet](#) (p. 143-154)

- **SUBCOMMITTEE VOTE:** Motion to adopt the discussion document: **6 Yes**, 0 No, 0 Absent

## Excluded Methods Determinations (DISCUSSION)

- **BACKGROUND:** The NOP regulations require that organic products must be produced and handled without the use of *excluded methods*, defined at §205.2: “A variety of methods used to genetically modify organisms or influence their growth and development by means that are not possible under natural conditions or processes and are not considered compatible with organic production. Such methods include cell fusion, microencapsulation and macroencapsulation, and recombinant DNA technology (including gene deletion, gene doubling, introducing a foreign gene, and changing the positions of genes when achieved by recombinant DNA technology). Such methods do not include the use of traditional breeding, conjugation, fermentation, hybridization, in vitro fertilization, or tissue culture.”

In 2016, NOSB passed a [recommendation](#) that would establish guidance for interpreting the excluded methods provision of the organic regulations. The recommendation includes definitions, principles, criteria that help address the increased diversity in types of genetic manipulations performed on seed, livestock and other inputs used in agriculture. The criteria that NOSB uses to evaluate individual technologies are:

1. The genome is respected as an indivisible entity and technical/physical insertion, deletions, or rearrangements in the genome is refrained from (e.g. through transmission of isolated DNA, RNA, or proteins). *In vitro* nucleic acid techniques are considered to be invasion into the plant genome.
2. The ability of a variety to reproduce in species-specific manner has to be maintained and genetic use restriction technologies are refrained from (e.g. Terminator technology).
3. Novel proteins and other molecules produced from modern biotechnology must be prevented from being introduced into the agro-ecosystem and into the organic food supply.
4. The exchange of genetic resources is encouraged. In order to ensure farmers have a legal avenue to save seed and plant breeders have access to germplasm for research and developing new varieties, the application of restrictive intellectual property protection (e.g., utility patents and licensing agreements that restrict such uses to living organisms, their metabolites, gene sequences or breeding processes are refrained from.

Subsequent recommendations identify specific technologies and whether they are prohibited under the existing regulatory definition of excluded methods. The [2016 recommendation](#) identified these prohibited methods: Targeted genetic modification including CRISPR; Gene silencing; Accelerated plant breeding techniques; Synthetic biology; Cloned animals and offspring; Plastid Formation. And it also identified Marker assisted selection and Transduction as allowed. The [2017 recommendation](#) identifies cisgenesis, intragenesis, and agro-infiltration as prohibited under the regulatory definition of excluded methods. The [2018 recommendation](#) identifies embryo rescue in plants as not prohibited under the regulatory definition of excluded method. The [Spring 2019 recommendation](#) identifies transposons developed via use of in-vitro nucleic acid techniques as prohibited under the regulatory definition of

excluded methods. This recommendation also clarifies definitions of cisgenesis and intragenesis. The [Fall 2019 recommendation](#) identified induced mutagenesis as prohibited under the regulatory definition of excluded methods, and allows embryo transfer in livestock (not prohibited under the regulatory definition of excluded methods). Other technologies remain as “to be determined” (TBD) for future consideration by NOSB.

- **DISCUSSION DOCUMENT:** The Materials Subcommittee presents a discussion document that continues the work of identifying emerging technologies in the food sector and determining whether they will be considered excluded methods in the organic system.

The Subcommittee is seeking answers to the following questions to aid in creating guidance and/or regulation on excluded methods:

1. **What new emerging methods in biotech should be added to the TBD list? Please also describe the primary purpose and how far from commercialization for use in food processing and/or agriculture the method is in its development.**
2. **Please prioritize the remaining TBD list methods according to the definitions, principles and criteria established in the 2016 Proposal (see Appendix A)**
  - a. **Would methods newly determined to be excluded by the NOSB/NOP be retroactive for commercial varieties already in the marketplace?**
  - b. **Should the NOSB grandfather in methods that have long been used in organic plant breeding (e.g., double haploids) and focus its energy entirely on new and emerging technologies?**
  - c. **How do we regulate technologies used to develop new seed varieties that companies are otherwise under no obligation to disclose?**
3. **Are unintentional excluded methods hiding in organic systems when the actual material produced and used has no trace of excluded method in the final organic product? Do we have the inspection, testing, and enforcement tools to keep prohibited methods out of the organic marketplace?**
4. **Given the lack of transparency around emerging technology entering food and agricultural systems, how can Organic producers, handlers, certifiers, and this Board, etc. stay educated on emerging methods and the potential for contamination?**

Read the full discussion document in the [NOSB Meeting Packet](#) (p. 155-172)

- **SUBCOMMITTEE VOTE:** Motion to adopt the discussion document: **6 Yes**, 0 No, 0 Absent