

RULEMAKING PETITION TO DEPARTMENT OF AGRICULTURE

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**PETITION SEEKING RULEMAKING EXCLUDING ORGANIC CERTIFICATION OF
HYDROPONIC AGRICULTURAL PRODUCTION SYSTEMS AND PRODUCTS**

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PETITION SEEKING RULEMAKING PROHIBITING ORGANIC CERTIFICATION OF HYDROPONIC AGRICULTURAL PRODUCTION SYSTEMS AND PRODUCTS

Organic certification of hydroponics reveals an alarming and growing trend in organic production: the shift to production in industrial settings using a liquid fertilizer solution instead of production in fertile soil, as federal law requires.¹ Hydroponic production systems are fundamentally different from organic production systems as defined by federal law—they do not promote soil health or conserve biodiversity.² Organic certification of hydroponics thus misleads consumers, because these products are indistinguishable from truly organically produced products with the same label.³ Yet, the United States Department of Agriculture (USDA) continues to allow inconsistent production standards for organic certification.

The USDA regulates the National Organic Program (NOP) and issues regulations in regard to organic certification. However, USDA has not issued a final rule with regard to organic certification of hydroponics. Accordingly, pursuant to section 553(e) of the Administrative Procedure Act (APA) and Section 1.28 of Title Seven of the Code of Federal Regulations, Center for Food Safety (CFS or the Center) hereby petitions USDA's Agricultural Marketing Service (AMS) to issue a formal rulemaking prohibiting organic certification of hydroponic agricultural production systems. The requested actions are necessary because organic certification of hydroponic agricultural production systems is inconsistent with the Organic Foods Production Act (OFPA) and its implementing regulations. Organic certification of hydroponics results in an ongoing violation of the mandatory NOP organic standards through failing to improve soil health and preserve biodiversity.

ACTIONS REQUESTED

Petitioner CFS requests that USDA, through its component agency AMS, carry out the following specific actions:

1. Issue regulations excluding certification of hydroponic agricultural production, implementing and based on the National Organic Standards Board (NOSB)'s April 29, 2010 expert recommendation on *Production Standards for Terrestrial Plants in Containers and Enclosures*.⁴
2. Specifically, amend 7 C.F.R. 205.105, Allowed and prohibited substances, methods, and ingredients in organic production and handling, to prohibit hydroponic systems.

¹See, e.g., *Weeding the Organic Garden: Ferreting Out Corruption*, CORNUCOPIA INSTITUTE (Dec. 11, 2018), available at <https://www.cornucopia.org/2018/12/weeding-the-organic-garden-ferreting-out-corruption>.

² *Id.*

³ *Id.*

⁴ NOSB, *Formal Recommendation by NOSB to NOP for Rulemaking for Production Standards for Terrestrial Plants in Containers and Enclosures* (April 29, 2010), available at <https://www.ams.usda.gov/sites/default/files/media/NOP%20Final%20Rec%20Production%20Standards%20for%20Terrestrial%20Plants.pdf>.

3. Ensure that ecologically integrated organic production practices are maintained as a requirement for organic certification as defined by OFPA and its regulations.⁵
4. Revoke any existing organic certifications previously issued to hydroponic operations.

PETITIONER

Center for Food Safety is a nationwide public interest, nonprofit membership organization that has offices in San Francisco, CA; Portland, OR; Honolulu, Hawai'i; and Washington, D.C. Since its founding in 1997, CFS's overarching mission has been to protect our food, farms, and the environment. CFS seeks to safeguard organic and other forms of regenerative agriculture, while addressing the adverse impacts of industrial agriculture. As part of its mission, CFS has long had a flagship program on protecting the integrity of the organic label. CFS has nearly a million consumer and farmer members, in every state in the country, many of whom support and participate in the organic marketplace.

CFS was at the forefront of USDA's initial creation of organic regulations and has safeguarded them ever since. As a representative of all organic stakeholders—consumers, farmers, producers, certifiers, and retailers—CFS has a strong vested interest in maintaining the integrity of the National Organic Program and ensuring that consistent principles and standards of organic certification apply to all products labeled organic. USDA's failure to prohibit hydroponic crop production systems' eligibility for organic certification injures CFS members by weakening organic integrity and creating inconsistent organic production standards. CFS members, like many organic stakeholders, know that organic production is defined to mean farming in a manner that benefits the soil. They are injured by the continued certification, labeling, and sale of hydroponic products as "organic," as they cannot distinguish between organically produced products and hydroponically produced products. These organic marketplace inconsistencies implicate CFS members' rights to know how their food is produced. Organic farmer members are undercut by hydroponic systems and injured economically. All these injuries would be remedied by a rulemaking properly excluding hydroponic systems from organic.

INTRODUCTION AND SUMMARY

The National Organic Program developed standards for organic certification based on consistent management methods which foster soil health, biodiversity, and ecological balance.⁶ Hydroponic growing operations represent a drastic departure from soil-based systems, which have been central to organic principles from the inception of the organic farming movement. Consumers expect organic products to adhere to these organic principles and meet ecological standards set out by federal law, yet some organic participants continue to ignore these legal

⁵ 7 U.S.C. § 6501 et seq.

⁶ 7 C.F.R. § 205.2.

requirements and permit hydroponics as organic.⁷ This allowance results in an inconsistent and unequal marketplace, and ongoing violations of production practices required under OFPA and its regulations.

Accordingly, the Center requests that USDA issue new OFPA implementing regulations prohibiting the certification of hydroponic operations as organic. This action is compelled because hydroponic production systems do not meet NOP standards, and violate OFPA and its regulations mandating soil improvement and conservation of biodiversity. Because OFPA grants USDA the duty to promulgate regulations concerning the NOP, it is the responsibility of the USDA to uphold the OFPA's purpose of ensuring marketplace consistency and organic integrity, and thus issue new regulations concerning hydroponic crop production systems and products.

STATEMENT OF LAW

I. ADMINISTRATIVE PROCEDURE ACT, 5 U.S.C. § 500 *et seq.* (summarized in pertinent part)

Under the APA, CFS has the right to petition, as agencies must “give an interested person the right to petition for the issuance, amendment, or repeal of a rule.”⁸ Agency decisions “that [are] inconsistent with a statutory mandate or that frustrate the congressional policy underlying a statute” are impermissible.⁹ The APA establishes the applicable standard for review of agency actions, which is whether the agency’s decision was arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law.¹⁰ The APA requires an agency to “conclude a matter presented to it” “within a reasonable time.”¹¹ Judicial review under the APA requires that “the reviewing court shall compel agency action unlawfully withheld or unreasonably delayed.”¹²

II. ORGANIC FOODS PRODUCTION ACT, 7 U.S.C. § 6501.

Regulations mandating soil-focused organic production practices fall under the Organic Foods Production Act.¹³ The Secretary and the USDA are responsible for standards of organic certification and protection of the organic label.¹⁴

⁷ 7 C.F.R. § 205.2.

⁸ 5 U.S.C. § 553(e).

⁹ *See, e.g., Ocean Advocates v. U.S. Army Corps of Eng’rs*, 402 F.3d 846, 858–59 (9th Cir. 2005).

¹⁰ 5 U.S.C. § 706(2)(A).

¹¹ 5 U.S.C. § 555(b) (“[W]ithin a reasonable time, each agency shall proceed to conclude a matter presented to it.”); *id.* § 706(1) (“The reviewing court shall . . . compel agency action unlawfully withheld or unreasonably delayed.”); *id.* § 555(e) (“Prompt notice shall be given of the denial in whole or in part of a written application, petition, or other request of an interested person made in connection with any agency proceeding.”).

¹² 5 U.S.C. § 706(1).

¹³ 7 U.S.C. § 6501.

¹⁴ *Id.*

A. Description of the Act

Three overarching purposes govern OFPA: “(1) to establish national standards governing the marketing of certain agricultural products as organically produced products; (2) to assure consumers that organically produced products meet a consistent standard; and (3) to facilitate interstate commerce in fresh and processed food that is organically produced.”¹⁵ OFPA requires the Secretary to establish an organic certification program, consult with the National Organic Standards Board, implement the program through certifying agents, and promulgate regulations to carry out the standards and directives of the statute.¹⁶

Hydroponic production systems violate the purpose of OFPA, as they do not meet the standards for production under the national organic program. Specific to crop production and planting practices, OFPA states that “[f]or a farm to be certified under this chapter, producers on such farm shall not apply materials to, or engage in practices on, seeds, or seedlings that are contrary to, or inconsistent with, the applicable organic certification program.”¹⁷ With this requirement, the statute mandates that certification and the associated use of the organic label be dependent not only on organically-approved materials used, but on farming practices as well.¹⁸

The 1990 Organic Foods Production Act and its implementing regulations established the baseline requirements for organic production and handling systems within a framework of continuous improvement.¹⁹ The drafters recognized that additional standards would emerge as needed to further define specific commodities as organic (e.g., livestock, apiaries), or to account for emerging agricultural innovations. The hydroponics debate provides another application of the continuous improvement framework. Ultimately these systems can comply with basic principles and requirements of organic certification.

B. The National Organic Standards Board Consultation Requirements

Under OFPA, USDA must “establish a National Organic Standards Board (in accordance with the Federal Advisory Committee Act) . . . to advise the Secretary on any other aspects of the implementation of this chapter.”²⁰ NOSB is charged with providing general recommendations on the implementation of OFPA as well as evaluating and approving synthetic substances for use in organic production.²¹ When evaluating whether a synthetic substance may be included as an exception on the National List, NOSB must consider, among other factors, a substance’s “compatibility with a system of sustainable agriculture” and “the effects of the substance on biological and chemical interactions in the agroecosystem, including the physiological effects of the substance on soil organisms . . . , crops and

¹⁵ 7 U.S.C. § 6501.

¹⁶ 7 U.S.C. § 6503.

¹⁷ 7 U.S.C. § 6508(a).

¹⁸ *Id.*

¹⁹ 7 U.S.C. § 6501 et seq.

²⁰ 7 U.S.C. § 6518(a).

²¹ 7 U.S.C. § 6518(k).

livestock.”²² This NOSB responsibility goes hand in hand with NOSB’s duty to provide recommendations to the Secretary regarding implementation of OFPA as whole.²³

STATEMENT OF FACTUAL GROUNDS

I. HYDROPONIC SYSTEMS GENERALLY

The term “hydroponics” is a catch-all for a diverse array of systems which incorporate, to some degree, containers that house plant roots in either a liquid solution or various solid substrates, including coconut coir, soil, compost, vermicompost, peat moss, bark, sawdust, rice hulls, potting soil and a number of other growing media.²⁴ Some variations, known as aeroponics, suspend the roots in air and continually mist the roots with nutrient solution.²⁵ In both of these scenarios, a normally terrestrial, vascular plant is removed from its soil-based support system to be nourished exclusively through manufactured nutrient solutions.²⁶

The nutrients most commonly used in hydroponic nutrient solutions are synthetic salts, most of which are not permitted in products labeled organic.²⁷ Hydroponic solutions, however, can be made using only natural materials, including natural mineral salts and organic residuals.²⁸ It is hydroponic systems employing these “natural” materials that have in some cases been certified as organic.²⁹

STATEMENT OF LEGAL GROUNDS

I. “Organic” Hydroponics Violate OFPA

USDA’s failure to issue a rule prohibiting organic certification of hydroponics results in organically labeled products that were not organically produced in and for the benefit of the soil, as OFPA and its regulations require. Soil has always been a critical part of organic production:

²² 7 U.S.C. § 6518(m).

²³ 7 U.S.C. § 6518(k)(1).

²⁴ USDA, Agricultural Marketing Service, *NOSB Hydroponic and Aquaponic Task Force Report* 56 (July 21, 2016), at <https://www.ams.usda.gov/sites/default/files/media/2016%20Hydroponic%20Task%20Force%20Report.PDF>.

²⁵ *Id.* at 49.

²⁶ *Id.*

²⁷ *Id.* at 46.

²⁸ *Id.*

²⁹ USDA, Agricultural Marketing Service, *NOSB Hydroponic and Aquaponic Task Force Report* 46 (July 21, 2016), at <https://www.ams.usda.gov/sites/default/files/media/2016%20Hydroponic%20Task%20Force%20Report.PDF>; A more detailed description of the various activities that fall under the umbrella hydroponics are available at:

<https://www.ams.usda.gov/sites/default/files/media/2016%20Hydroponic%20Task%20Force%20Report.PDF>.

OFPA itself mentions the word “soil” seven separate times. The NOP final rule implementing the statute mentions it *fifty* times. In contrast neither the statute nor the regulations mention “hydroponic” or “soilless” anywhere.

OFPA itself teaches repeatedly that organic production must be soil-based. Under OFPA, “a person may sell or label an agricultural product as organically produced only if such product is produced and handled in accordance with this title.”³⁰ First, the statute establishes that no product shall be labeled or sold as organic unless it meets certain standards, including that it was “produced and handled in compliance with an organic plan.”³¹ Second, the very first provision of the statutory provision enumerating such required organic plans is “soil fertility,” that the farming plan must contain provisions designed to benefit the soil: “An organic plan *shall* contain provision designed to foster soil fertility, primarily through the management of the organic content of the soil through proper tillage, crop rotation, and manuring.”³² Third, the same statutory section gives an express limitation on organic plans, instructing that an organic plan “shall not include any production or handling practices that are inconsistent with” OFPA.³³

Soilless hydroponic production systems cannot meet these statutory mandates. They do not foster soil fertility nor build soil organic matter content, as required by OFPA. Organic plans for soilless operations, by definition, include production practices that are inconsistent with OFPA, since such systems rely exclusively on inputs for fertility, instead of implementing a soil fertility program that builds soil organic matter, as required by OFPA.

Without a final rule or an amendment to the regulations properly excluding hydroponic systems, USDA NOP continues to facilitate interstate commerce of products labeled “organic” that were not actually produced organically in the soil. This violates the basic purpose of OFPA: “to facilitate interstate commerce in fresh and processed food that is organically produced.”³⁴ It also perpetuates and fosters a system of growing that is inconsistent, and places actual organic farmers at a huge production disadvantage to “organic” hydroponic entities. This violates yet another basic purpose of OFPA: to “assure consumers that organically produced products meet a consistent standard.”³⁵

The centrality of soil quality to organic production has been critical to OFPA from its very inception. When Senator Leahy first introduced OFPA in 1989, he described its purpose as supporting “farmers who protect the soil and water.”³⁶ The authors of OFPA made clear that soil, and the maintenance of soil fertility, are essential components of an organic system of production. In the Senate Report on Food, Agriculture, Conservation, and Trade Act of 1990, Congress wrote “a crop production farm plan must detail the procedures that the farmer will

³⁰ 7 U.S.C. § 6505.

³¹ 7 U.S.C. § 6504(3); *see also* 7 U.S.C. § 6513(a).

³² 7 U.S.C. § 6513(b)(1) (emphasis added).

³³ *Id.* § 6513(g).

³⁴ 7 U.S.C. 6501(3).

³⁵ *Id.* § 6501(2).

³⁶ Organic Foods Production Act, The National Organic Law at 20: Sowing Seeds for a Bright Future, U.S. Senate S. Hrg. 111-1027, September 15, 2010, p. 5.

follow in order to foster soil fertility, provide for crop rotations, and prohibit certain manuring practices in appropriate to the crop being raised and the land in use.”³⁷

Additionally, in a 2010 Senate Hearing before the Committee on Agriculture, Nutrition, and Forestry on the implementation of OFPA, many senators and witnesses discussed building healthier soils as an objective of OFPA. Several other witnesses also praised the ways in which the organic program improves soil quality, focusing not on the product, but on the production methods which build healthier soils.³⁸

II. Hydroponic production is not Organic

“Organic production” itself is defined as:

A production system that is managed in accordance with the Act and regulations in this part to respond to site-specific conditions by integrating cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity.³⁹

This definition conveys the necessity of a system of balance between agricultural inputs and natural resource-minded and ecologically-integrated practices. Soils are valuable for the multiple functions a biologically diverse soil-food web provides, not just as a substrate for holding plant roots so the plant grows upright. As one Congressional Research Service report describes, “This definition [of organic production] indicates that organic agriculture is both an approach to food production based on biological methods that avoid the use of synthetic crop or livestock production inputs . . . and a broadly defined philosophical approach to farming that puts value on resource efficiency and ecological harmony.”⁴⁰

III. Hydroponic Systems Violate OFPA’s Implementing Regulations

OFPA regulations reflect the Congressional intent under OFPA and statutory language to keep soil as a focus in organic production. Hydroponic production systems cannot comply with OFPA mandates to improve soil quality and conserve biodiversity. Hydroponic systems merely feed the crops with simple inputs of ‘required’ nutrients and through exclusion and isolation, not biodiversity and ecological balance, as OFPA and its regulations require. Since hydroponic production systems do not conserve soil diversity and overall biodiversity as required, organic certification of hydroponic production is unlawful. OFPA implementing regulations underscore the necessary connection between organic production and mandatory soil-based agricultural practices for organic certification.

³⁷ S. Rept. No. 101-357, at 292 (1990), *available at* <https://www.congress.gov/bill/101st-congress/senate-bill/2830/text>.

³⁸ Organic Foods Production Act, The National Organic Law at 20: Sowing Seeds for a Bright Future, U.S. Senate S. Hrg. 111-1027, September 15, 2010, at 16, 17.

³⁹ 7 C.F.R. § 205.2.

⁴⁰ Jean M. Rawson, *Organic Foods and the USDA National Organic Program*, CRS Report for Congress, January 31, 2011, 1-2.

One of the starkest examples involves the specific responsibilities that organic producers must include in a required organic plan:

- (a) The producer *must* select and implement tillage and cultivation practices that maintain or improve the physical, chemical, and biological condition of *soil* and minimize *soil* erosion.
- (b) The producer must manage crop nutrients and *soil fertility* through rotations, cover crops, and the application of plant and animal materials.
- (c) The producer must manage plant and animal materials to maintain or improve *soil organic matter* content in a manner that does not contribute to contamination of crops, soil, or water by plant nutrients, pathogenic organisms, heavy metals, or residues of prohibited substances.⁴¹

If an organic producer does not fulfill these duties, then organic certification cannot be obtained. Thus, OFPA regulations provide no equivocation about the important connection between organic production and the soil-based agricultural practices that form a critical component of any certified organic product. Neither OFPA nor its supporting regulations carve out exceptions or alternative practices for hydroponic agricultural systems.

A. *Hydroponics Do Not Improve Natural Resources, Which Must Include Soil Quality*

Organic production practices must improve the soil of the operation site, which hydroponics cannot accomplish. The NOP final rule, Section 205.200 “General,” overarching requirement itself spells out expressly that “Production practices implemented in accordance with this subpart *must* maintain or improve the natural resources of the operation, including *soil* and water quality.”⁴² The mandatory, express language in this provision (“*must*”) plainly requires organic production practices to maintain or improve the soil, neither of which occurs on the operation site of a hydroponic production facility. Hydroponic production systems do not comply with this provision since they do not maintain or improve the soil quality of the operation site.⁴³

B. *Hydroponics Do Not Manage Soil Fertility or Improve Soil Organic Matter Content*

⁴¹ 7 C.F.R. § 205.203.

⁴² 7 C.F.R. § 205.2 (emphases added).

⁴³ In a 2016 Subcommittee proposal, NOSB agreed that hydroponic operations lack the requisite on-site soil improvement required to be certified organic under OFPA and its implementing regulations. NOSB explained that “[t]he USDA/NOP regulations require proper stewardship toward improving and maintaining the soil ecology within an organic farming system for terrestrial plant production.” NOSB, *National Organic Standards Board Crops Subcommittee Proposal: Hydroponic/Aquaponics/Bioaponics* (Sept. 6, 2016), <https://www.ams.usda.gov/sites/default/files/media/CSHydroponicsBioaponicsProposalNov2016.pdf>. Hydroponic systems do not meet this requirement, as any benefits that hydroponic operations offer in terms of resource conservation are outside the purview of the operator. The conservation benefits are not realized or guaranteed by the actions of the operator but depend entirely on the decisions of others.

Hydroponic systems also do not comply with OFPA and its implementing regulations requiring producers to foster soil fertility. Under OFPA regulations, “An organic plan shall contain provisions designed to foster soil fertility, primarily through the management of the organic content of the soil through proper tillage, crop rotation, and manuring.”⁴⁴ Additionally, a producer “must” manage soil fertility and “manage plant and animal materials to maintain or improve soil organic matter content.”⁴⁵ In light of these unconditional mandates, hydroponic production systems are plainly inconsistent with organic production standards. At a minimum, soil must be present in any organic production system, and managed by the producer, in order to fit into the organic category under OFPA regulations.

C. Hydroponics Do Not Fulfill Organic Crop Rotation Requirements

Hydroponic systems also cannot comply with the organic crop rotation requirements. 7 C.F.R. § 205.205 mandates that producers rotate crops to “maintain or improve soil organic matter content,” “provide for pest management in annual and perennial crops,” “manage deficient or excess plant nutrients,” or “provide erosion control.”⁴⁶ None of these can be accomplished in soil-less production. This mandate likewise necessitates a decision from USDA establishing that hydroponics are prohibited from organic.

D. Hydroponics Fail the Biodiversity Conservation Requirements

Additionally, the definition of “organic production” is not compatible with hydroponic production, because hydroponic production does not conserve on-site biodiversity. This definition specifies that organic production systems “respond to site-specific conditions by integrating cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity.”⁴⁷ However, similar to the issue of maintaining or improving natural resources, hydroponic systems lack the capacity to conserve biodiversity. Indoor, fully enclosed production systems do not conserve or promote biodiversity within the system itself. Therefore, hydroponics fail to conserve and promote biodiversity, especially in contrast to organic production on cropland.

NOP’s Guidance 5020 from January 2016 on Natural Resources and Biodiversity Conservation further supports this shortcoming of hydroponics in conserving biodiversity. This Guidance clarifies that “Compliance with the requirement to conserve biodiversity requires that a producer incorporate practices in his or her organic system plan that are beneficial to biodiversity on his or her operation.”⁴⁸ From this, it is again underscored that organic producers must actively implement practices that benefit biodiversity on the operation itself, which cannot occur in an enclosed hydroponic production system.

⁴⁴ 7 U.S.C. § 6513.

⁴⁵ 7 C.F.R. § 205.203.

⁴⁶ 7 C.F.R. § 205.205.

⁴⁷ 7 C.F.R. § 205.2.

⁴⁸ 65 FR 80548, 80563.

E. Hydroponics Do Not Use Soil Nutrient Management Practices to Prevent Crop Pests, Weeds, and Diseases

Hydroponic production systems also do not use crop rotation or soil nutrient management practices to control crop pests, weeds, and diseases.⁴⁹ The OFPA regulations specify that organic producers “must use management practices to prevent crop pests, weeds, and diseases including but not limited to: (1) Crop rotation and soil and crop nutrient management practices...”⁵⁰ Since hydroponic growing systems are removed from the soil, such mandatory management practices do not occur in hydroponic growing systems. Therefore hydroponic systems fail to meet this requirement under the OFPA regulations.

F. Hydroponic Growing Systems do not Provide Soil Samples as a Measure of Testing Compliance

The OFPA regulations consistently suggest soil samples as a measure for testing compliance.⁵¹ Certifying agents “must conduct periodic residue testing of agricultural products,” with soil samples suggested as a method for testing.⁵² Many hydroponic systems would not contain soil for sampling, as suggested in the OFPA regulations.

IV. NOSB’s Expert Recommendations Support that Hydroponics are Not Organic

In 1995, NOSB agreed with the centrality of soil to organic production practices in its *Standards for Greenhouses*.⁵³ The Board qualified that all provisions of the OFPA must be met by these systems. At that time, the Board stated that, “Hydroponics production in soilless media to be labeled organically produced shall be allowed if *all provisions* of the OFPA have been met.”⁵⁴ However as this statement indicates, an analysis had not yet been made as to whether or not hydroponics met the provisions of OFPA.

In 2010, NOSB, by a vote of 14 to 1, determined that all provisions of OFPA *cannot* be met by hydroponic systems, issuing a formal recommendation to that effect, stating:

“Observing the framework of organic farming based on its foundation of sound management of soil biology and ecology, it becomes clear that systems of crop production that *eliminate soil from the system*, such as hydroponics and aeroponics, *cannot* be considered as examples of acceptable organic farming practices. Hydroponics...*cannot* be classified as certified organic growing

⁴⁹ 7 C.F.R. § 205.206.

⁵⁰ *Id.*

⁵¹ 7 C.F.R. § 205.670.

⁵² *Id.*

⁵³ NOSB, *Standards for Greenhouses* (1995).

⁵⁴ *Id.* (emphasis added).

methods due to their exclusion of the soil-plant ecology intrinsic to organic farming systems and USDA/NOP regulations governing them.⁵⁵

This language demonstrates NOSB's clear and express expert opinion that hydroponic systems are not organic and cannot be certified due to the lack of soil-plant ecology. As the OFPA-mandated federal advisory committee, NOSB makes the recommendations to the National Organic Program regarding substances that may be allowed or prohibited for use in organic and to advise the board on any other aspects of implementation of the OFPA.⁵⁶ Historically, the Board has made formal recommendations outlining specific standards that it feels should be codified by the NOP through rulemaking, many of which the NOP has adopted and should adopt in regard to hydroponics.

NOSB's 2010 formal recommendation to prohibit organic certification of hydroponic production systems is also in accord with soil-focused OFPA standards, concluding "that systems of crop production that eliminate soil from the system, such as hydroponics or aeroponics, cannot be considered as examples of acceptable organic farming practices"⁵⁷ and "cannot be classified as certified organic growing methods due to their exclusion of the soil-plant ecology intrinsic to organic farming systems and USDA/NOP regulations governing them."⁵⁸ NOSB's formal recommendation⁵⁹ integrated previous subcommittee discussions conducted in 2003, 2008, and 2009 on the subject of hydroponic production systems, made in response to public comment and input.⁶⁰ NOSB stressed that organic farmers are not just tillers of the soil, but also stewards of the soil ecology on the farm and shepherds of the myriad organisms that support thriving soil ecosystems:

The organic farming method derives its name from the practice of maintaining or improving the organic matter (carbon containing) content of farm soil through various methods and practices. The reason this is *the central theme and foundation of organic farming* is not inherent to the organic matter itself, but is based on the importance of the organic matter to the living organisms that inhabit

⁵⁵ NOSB, *Formal Recommendation by NOSB to NOP for Rulemaking for Production Standards for Terrestrial Plants in Containers and Enclosures* (April 29, 2010), available at <https://www.ams.usda.gov/sites/default/files/media/NOP%20Final%20Rec%20Production%20Standards%20for%20Terrestrial%20Plants.pdf> (emphases added).

⁵⁶ 7 U.S.C.S. § 6518(a).

⁵⁷ NOSB, *Formal Recommendation by NOSB to NOP for Rulemaking for Production Standards for Terrestrial Plants in Containers and Enclosures* (April 29, 2010), available at <https://www.ams.usda.gov/sites/default/files/media/NOP%20Final%20Rec%20Production%20Standards%20for%20Terrestrial%20Plants.pdf>.

⁵⁸ NOSB, *Formal Recommendation by NOSB to NOP for Rulemaking for Production Standards for Terrestrial Plants in Containers and Enclosures* (April 29, 2010), available at <https://www.ams.usda.gov/sites/default/files/media/NOP%20Final%20Rec%20Production%20Standards%20for%20Terrestrial%20Plants.pdf>.

⁵⁹ *Id.*

⁶⁰ *Id.*

soils, particularly for its positive influence on proliferation of diverse populations of organisms that interact in a beneficial way with plant roots.⁶¹

To implement its formal recommendation, NOSB recommended a rulemaking from USDA and provided recommended definitions of hydroponics and aeroponics to be added to the OFPA's Final Rule.⁶² Eight years have passed since this recommendation; as such a final rule implementing it is unreasonably delayed and unlawfully withheld.

V. Neither Bioponics nor Hydroponics Sufficiently Integrate Soil into Production Methods in order to be Organic

The Hydroponic and Aquaponic Task Force, created in 2015 for the purpose of considering organic certification of hydroponics, incorrectly asserts that, although hydroponic systems cannot be organic, bioponic systems can.⁶³ The Task Force's July 2016 report included three separate sections: 1) clarifying the NOSB's 2010 greenhouse recommendation; 2) analyzing the different systems considered under the umbrella of hydroponics, and; 3) reviewing opportunities for alternative labeling schemes for hydroponics.⁶⁴ While the first section confirmed that the 2010 NOSB recommendation prohibits soilless systems in organic, the second section established the Task Force's position that organic standards do not expressly prohibit soilless systems.⁶⁵ Rather, the Task Force asserted that organic standards prohibit the use of synthetic and/or inert, already soluble nutrients that provide plant nutrition in the absence of soil-plant ecology and biology, but not all hydroponic systems lack soil-plant ecology and biology.⁶⁶ The Task Force committee labeled these systems "bioponics" and distinguished them from "traditional hydroponics."⁶⁷

A. Non-Organic v. Organic Hydroponic Systems

In determining which growing systems comply with organic standards, the Task Force further distinguished between traditional, non-organic hydroponic systems and bioponic systems.

⁶¹ NOSB, *Formal Recommendation by NOSB to NOP for Rulemaking for Production Standards for Terrestrial Plants in Containers and Enclosures* (April 29, 2010), available at <https://www.ams.usda.gov/sites/default/files/media/NOP%20Final%20Rec%20Production%20Standards%20for%20Terrestrial%20Plants.pdf> (emphasis added).

⁶² *Id.*

⁶³ USDA, Agricultural Marketing Service, *NOSB Hydroponic and Aquaponic Task Force Report* (July 21, 2016), <https://www.ams.usda.gov/sites/default/files/media/2016%20Hydroponic%20Task%20Force%20Report.PDF>.

⁶⁴ *Id.*

⁶⁵ USDA, Agricultural Marketing Service, *NOSB Hydroponic and Aquaponic Task Force Report* 16 (July 21, 2016), <https://www.ams.usda.gov/sites/default/files/media/2016%20Hydroponic%20Task%20Force%20Report.PDF>.

⁶⁶ *Id.* at 36.

⁶⁷ *Id.* at 10.

1. “Traditional Hydroponic Systems”

The Task Force defines traditional, non-organic hydroponic systems as “inorganic systems that do not rely on biological organisms to make minerals available to the plants.”⁶⁸ Rather, the plants take up nutrients in basic ionic forms through their roots.⁶⁹ The growing media is considered inert due to its lack of exchange capacity and microbiology.⁷⁰

According to the Task Force, two categories exist for these systems: “water-based” or “aggregate culture.”⁷¹ In a water-based system, a producer directly immerses the roots in a liquid nutrient solution or suspends the roots and regularly moistens them with a liquid nutrient solution.⁷² This includes deep water culture/raft, nutrient film techniques, ebb and flow, aeroponics, and other wicking systems.⁷³ In aggregate culture systems, roots grow in an inert growing medium (sand, perlite, vermiculite, peat moss, or coconut coir are common), which producers irrigate with a complete liquid nutrient solution.⁷⁴ This includes plants grown in polyethylene long, narrow, lay-flat bags or trays filled with inert media, long, above ground containers filled with inert media, hard pots stacked in a tower with a trickling nutrient solution, and plastic pots irrigated with a drip irrigation system.⁷⁵ Producers may either drain the nutrient solutions or recirculate the solutions through the system.⁷⁶

2. “Organic Hydroponics (Bioponics)”

The Task Force defines bioponics as “a growing method that completely relies on a soil food web micro-biological ecosystem to provide nutrients to a crop.”⁷⁷ In a bioponics system, all

⁶⁸ USDA, Agricultural Marketing Service, *NOSB Hydroponic and Aquaponic Task Force Report* 12 (July 21, 2016), <https://www.ams.usda.gov/sites/default/files/media/2016%20Hydroponic%20Task%20Force%20Report.PDF>.

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ *Id.* at 13.

⁷² USDA, Agricultural Marketing Service, *NOSB Hydroponic and Aquaponic Task Force Report* 16 (July 21, 2016), <https://www.ams.usda.gov/sites/default/files/media/2016%20Hydroponic%20Task%20Force%20Report.PDF>.

⁷³ *Id.*

⁷⁴ *Id.*

⁷⁵ USDA, Agricultural Marketing Service, *NOSB Hydroponic and Aquaponic Task Force Report* 13, 14 (July 21, 2016), at <https://www.ams.usda.gov/sites/default/files/media/2016%20Hydroponic%20Task%20Force%20Report.PDF>.

⁷⁶ *Id.*

⁷⁷ USDA, Agricultural Marketing Service, *NOSB Hydroponic and Aquaponic Task Force Report* 15 (July 21, 2016), at

inputs come from animal, plant, and mineral sources and require biology to convert inputs into a useable form for plants.⁷⁸

Unlike in traditional hydroponics, in the case of biaponics, producers add biology and carbon sources to the media to promote growth of microorganisms and decomposition of solid media.⁷⁹ Examples of solid growing media used in bioponic systems include soil, potting soil mix, compost, vermicompost, coconut coir, peat moss, bark, saw dust, rice hulls, perlite, and vermiculite.⁸⁰ Therefore, bioponic systems involve soil ecology through the addition of microbes in compost, compost-tea, liquid nutrient products, or specific commercially produced products.⁸¹ For example, producers may root plants in solid media, which they submerge in water, such that the roots grow past the solid media into the water.⁸² Producers may add organic plant and animal material to that water to create liquid compost, or they may add compost tea and commercially produced liquid organic fertilizers to the water.⁸³ The microbiology in a bioponic system provides the catalyst for the decomposition of organic material within the growing system.⁸⁴

3. *Bioponic Systems are Not Organic*

Bioponic systems as defined by the Task Force do not adhere to OFPA and its implementing regulations because they fail to actively conserve the resources of the operation site. Organic production methods must “maintain or improve the natural resources of the operation, including soil and water quality.”⁸⁵ Additionally, organic production must “respond to site-specific conditions by integrating cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity.”⁸⁶

Hydroponic systems do not actively conserve resources, particularly soil and biodiversity, but passively conserve them by not growing food on cropland or other potentially arable land as in-ground production does. However, the core of the hydroponic proponents’ arguments in regard to hydroponics’ consistency with the OFPA regulations rests on the idea that “bioponic” systems, *can* conserve natural resources (soil, water, biodiversity). According to the Task Force, bioponic systems (organic hydroponics and aquaponics) “*can* conserve land resources as they don’t involve tillage, require less acreage to produce crops and minimize erosion when the systems are recirculating (closed loop).”⁸⁷ This does not fulfill the requirement in OFPA

<https://www.ams.usda.gov/sites/default/files/media/2016%20Hydroponic%20Task%20Force%20Report.PDF>.

⁷⁸ *Id.* at 16.

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ *Id.*

⁸² *Id.*

⁸³ *Id.*

⁸⁴ *Id.*

⁸⁵ 7 C.F.R. § 205.2.

⁸⁶ 7 C.F.R. § 205.2.

⁸⁷ USDA, *Agricultural Marketing Service, NOSB Hydroponic and Aquaponic Task Force Report* 145 (July 21, 2016) (emphasis added), at

regulations that producers *actively* maintain or *improve* natural resources. Hydroponic producers cannot guarantee that land they do not own or use is being conserved, maintained, or improved and therefore do not fulfill the requirements for organic certification.

VI. NOSB Asserts that Neither Hydroponics nor Bioponics are Organic

Following this Task Force report, in Fall 2016, NOSB issued two documents related to hydroponics, which disagreed with the Task Force's distinction between bioponics and hydroponics.⁸⁸ The first document included a formal proposal, which considered hydroponics, aeroponics, and aquaponics to be within the umbrella term of bioponics, which differs slightly from the definitions created by the Task Force.⁸⁹ In the proposal, NOSB again expressed its expert opinion and conclusion that these systems are *not* consistent with organic production.⁹⁰

The Board passed a resolution at that Fall 2016 meeting stating that:

The NOSB respects the efforts of the former NOSB that led to their 2010 recommendation on terrestrial plants in greenhouses. The NOSB recognizes that the foundation of organic agriculture is based upon a systems approach to producing food in the natural environment, which respects the complex dynamic interaction between soil, water, air, sunlight, plants and animals needed to produce a thriving agro-ecosystem.

At the heart of the organic philosophy is the belief that our responsibilities of good stewardship go beyond production of healthy foods and include protection of natural resources, biodiversity and the ecosystem services upon which we all depend. We encourage future NOSB to consider this wider perspective as the board undertakes the challenges of assessing and defining innovations in agriculture that may be compatible in a system of organic production.

In the case of the hydroponic/bioponic/aquaponic issue, it is the consensus of the current members of the NOSB to prohibit hydroponic systems that have an entirely water based substrate. Although that was the original intent of the proposal before us today, the current proposal as structured does not achieve this objective.

<https://www.ams.usda.gov/sites/default/files/media/2016%20Hydroponic%20Task%20Force%20Report.PDF>.

⁸⁸ NOSB, *National Organic Standards Board Crops Subcommittee Discussion Document: Container and Greenhouse Production: Further Clarifications* (Sept. 6, 2016), at <https://www.ams.usda.gov/sites/default/files/media/CSContainerandGreenhouseproductionDDNov2016.pdf>; NOSB, *National Organic Standards Board Crops Subcommittee Proposal: Hydroponic/Aquaponics/Bioponics* (Sept. 6, 2016), at <https://www.ams.usda.gov/sites/default/files/media/CSHydroponicsBioponicsProposalNov2016.pdf>.

⁸⁹ *Id.*

⁹⁰ *Id.*

While the NOSB does not believe that the liquid substrate systems should be sold under the USDA organic label, these growers deserve the chance to promote their very commendable qualities and objectives in their own right.⁹¹

The Board subsequently released another document, dated February 15, 2017, again calling for prohibition of organic certification of hydroponics and bioponics, titled *Crops Subcommittee Discussion Document Aeroponics/ Hydroponics/ Aquaponics*.⁹² The Board recommended prohibition of aeroponics, hydroponics, and aquaponics under 7 C.F.R. § 205.105.⁹³ That is, the regulatory section dealing with allowed substances, methods, and ingredients, would be revised and amended to include prohibition of hydroponic systems. Petitioner CFS agrees that this is the appropriate place to revise the recommendations and again calls on the agency to undertake that rulemaking.

VII. USDA's Response Conflicted With OFPA Regulations and the NOSB Recommendations

However, rather than issuing a rule prohibiting hydroponics per the NOSB's continued recommendations, USDA merely responded to the NOSB and Task Force recommendations on its website, in the following manner:

Organic hydroponics is a method of growing plants using mineral nutrient solutions, in water, without soil. Terrestrial plants may be grown with their roots in the mineral nutrient solution only or in an inert medium, such as perlite, gravel, biochar, or coconut husk. Some organic farms are utilizing hydroponic growing methods to produce organic crops under the USDA organic regulations. These producers use the same fertilizers and pest control practices as other organic farmers – primarily natural fertilizers and pest control methods. *Organic hydroponic production is allowed as long as the producer can demonstrate compliance with the USDA organic regulations.*

Thus, through this document, USDA expressed its approval of continued violations of OFPA regulations without any supporting rationale or explanation. USDA also stated that certifying agents were certifying organic hydroponic operations, but, in the future, the NOP may provide additional guidance and regulations regarding organic hydroponic production. The time for

⁹¹ NOSB, *National Organic Standards Board Crops Subcommittee Proposal: Aeroponics/Hydroponics/Aquaponics* (Feb. 15, 2017), <https://www.ams.usda.gov/sites/default/files/media/CSHydroponics.pdf>.

⁹² Organic Trade Association, *Fall 2016 National Organic Standards Board (NOSB) OTA's Summary Report*, https://ota.com/sites/default/files/indexed_files/NOSBSummaryReport_Fall2016.pdf; NOSB, *National Organic Standards Board Crops Subcommittee Proposal: Aeroponics/Hydroponics/Aquaponics* (Feb. 15, 2017), <https://www.ams.usda.gov/sites/default/files/media/CSHydroponics.pdf>.

⁹³ *Id.*

further guidance has arrived, and the USDA should follow up on its promise through a final rule prohibiting organic certification of hydroponics.

VIII. Continuing Violations of OFPA’s Regulations Results in an Inconsistent Organic Market

In addition to violating OFPA regulations regarding soil-focused organic production methods, USDA’s failure to issue a final rule prohibiting hydroponic production violates the stated purpose of OFPA to maintain consistency in organic production methods.⁹⁴ OFPA seeks “to assure consumers that organically produced products meet a consistent standard.”⁹⁵ Drafters of OFPA recognized that “Growth in the organic food trade ... has been hampered by a lack of consistent standards for production” and sought to ensure that organic consumers “are sure to get what they pay for....”⁹⁶ Therefore, without a final rule prohibiting hydroponic production, the USDA continues to allow certifiers to violate OFPA by continuing to inconsistently certify hydroponics as organic. This provides an inconsistent product to consumers who expect a product grown according to organic standards.

A. Hydroponic Crops are Being Unlawfully Certified Across the Nation

Currently, Accredited Certifying Agents (ACAs) inconsistently grant organic certification for hydroponic operations, creating inconsistent standards in violation of the OFPA.⁹⁷ Despite the NOSB’s stance on hydroponics, some ACAs authorized by USDA’s National Organic Program to certify farms as organic (including CCOF, QAI, Midwest Organic Services Association, and Oregon Tilth, among others), determined that hydroponic operations meet the standards of the organic law and regulations.⁹⁸ Currently, 41 operations are certified organic for hydroponic crop production.⁹⁹ Of these, at least 25 are entirely water-based with plant roots submerged in fertilized water, nutrient solution, or aquaponic effluent.¹⁰⁰ However, many other ACAs do not certify hydroponics, thereby creating an inconsistent standard of organic certification.¹⁰¹ USDA must address this inconsistency to remain in compliance with the requirements for uniformity in the OFPA.

⁹⁴ 7 U.S.C. 6501(2).

⁹⁵ *Id.*

⁹⁶ Food, Agriculture, Conservation, and Trade Act of 1990, *Report of Committee on Agriculture, Nutrition, and Forestry*, U.S. Senate, S. 2830, Report 101-357, July 6, 1990.

⁹⁷ Appendices A and B.

⁹⁸ *Is Hydroponics Organic?*, CORNUCOPIA INSTITUTE (March 11, 2015), <https://www.cornucopia.org/2015/03/hydroponics-organic/>.

⁹⁹ Appendices A and B.

¹⁰⁰ *Id.*

¹⁰¹ *Is Hydroponics Organic?*, CORNUCOPIA INSTITUTE (March 11, 2015), <https://www.cornucopia.org/2015/03/hydroponics-organic/>.

B. *Other Bans on Organic Certification of Hydroponics*

In addition to domestic consistency, USDA should join other countries in banning organic certification of hydroponics. In April 2018, the European Parliament voted to end the import of “organic” products produced hydroponically into the EU as well as organic certification of hydroponically grown products within the EU.¹⁰² Additionally, Canada and Mexico do not allow organic certification of hydroponics, and do not allow the import of organic certified hydroponically grown foods.¹⁰³ Both of these entities have recognized that hydroponically grown foods are not “organic,” and their actions show the organic industry is not injured by banning organic certification of hydroponically grown products. Organic standards for Americans should not be lesser than, and must be equivalent to, those of other countries’ organic standards. USDA should also take immediate action to follow these countries and ban organic certification of hydroponics.

REQUESTED RELIEF

Petitioners request the United States Department of Agriculture, through its component agency the Agricultural Marketing Service, to carry out the following specific actions:

1. Issue new regulations prohibiting organic certification of hydroponic agricultural production based on the National Organic Standards Board’s April 29, 2010 recommendation on Production Standards for Terrestrial Plants in Containers and Enclosures.
2. Specifically, amend 7 C.F.R. 205.105, Allowed and prohibited substances, methods, and ingredients in organic production and handling, to prohibit hydroponic systems.
3. Ensure that ecologically integrated organic production practices are maintained as a requirement for organic certification as defined by the existing OFPA regulations.
4. Revoke any existing organic certifications previously issued to hydroponic operations.

¹⁰² *EU Bans “Organic” Hydroponic Imports*, CORNUCOPIA INSTITUTE (April 24, 2018), <https://www.cornucopia.org/2018/04/eu-bans-organic-hydroponic-imports/>.

¹⁰³ California Certified Organic Farmers, *Canada*, CCOF.ORG, <https://www.ccof.org/certification/services/international-programs/canada>; *Weeding the Organic Garden: Ferreting Out Corruption*, CORNUCOPIA INSTITUTE (Dec. 11, 2018), <https://www.cornucopia.org/2018/12/weeding-the-organic-garden-ferreting-out-corruption>.

CONCLUSION

The National Organic Program establishes essential standards for organic certification based on management methods which foster soil health, biodiversity, and ecological balance.¹⁰⁴ Petitioner CFS urges USDA to act immediately to protect the integrity of the organic label and continue to provide a uniform standard for organic consumers. In accordance with the APA, Petitioner CFS requests that USDA expeditiously answer this Petition.

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Respectfully submitted,



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Northwest Organic Dairy Producers
Alliance (NODPA)

Organic Farmers Association (OFA)

¹⁰⁴ 7 C.F.R. § 205.2.

Northeast Organic Farming Association of
Connecticut (CT NOFA)

Northeast Organic Farming Association-
Interstate Council

Northeast Organic Farming Association of
New Jersey (NOFA-NJ)

Northwest Organic Farming Association -
New York (NOFA-NY)

Northeast Organic Farming Association of
Vermont (NOFA-VT)

PCC Community Markets