October 26, 2016

National Organic Standards Board
USDA-AMS
1400 Independent Ave. SW
Washington, D.C. 20250
Re: AMS-NOP-16-0049

Docket # AMS-NOP-16-0049

Dear National Organic Standards Board Members:

The following comments are submitted to you on behalf of The Cornucopia Institute, whose mission is to support economic justice for family scale farming.

CROPS SUBCOMMITTTEE

Hydroponics Proposal and Container and Greenhouse Production Discussion Document

SUMMARY

The Cornucopia Institute strongly supports the Hydroponic Task Force 2010 NOSB Recommendation Subcommittee Report. We also strongly support written comments submitted by Task Force member Dave Chapman, veteran soil-based farmer Eliot Coleman, and the dozens of other pioneering organic farmers that understand that organics and soil go hand in hand.

We also support the 'Keep the Soil in Organic' international movement, including millions of farmers and eaters that want to keep the organic standards in line with its origins — not doing so seriously jeopardizes the reputation of the organic label in the marketplace.

Soilless, hydroponic/container growing is not necessarily "bad," it simply isn't organic by law. Allowing year-round imports from countries where hydroponic/container growing is illegal to then be labeled and sold as organic in this country undercuts legitimate US organic farmers. It is dead wrong — and patently illegal under the Organic Foods Production Act and the current regulations.

Rationale:

- The NOSB/NOP does not have the authority to modify the elements of the Organic Foods Production Act (OFPA) that specifically reference soil-based production as an integral requirement in organic production, including the Organic Plan which requires farmers to "foster soil fertility." When management of the soil is not the "primary" source of fertility, that operation is violating a mandatory part of OFPA.

- Both OFPA and the NOP final rule describe organic agricultural production as much more than substituting approved inputs for non-approved ones. Hydroponic/container growing is neither legal nor "sustainable."

- Claims of sustainability are unfounded in container systems. Containers dry out much faster than soil mulched with high organic matter. Utilizing peat to fill containers involves the destruction of wetland bogs, which are the result of thousands of years of captured atmospheric carbon. Peat contains no nutrients, so crops depend completely on added liquid nutrients. Regenerative agriculture is not being practiced in hydroponic/container systems.

- Scientific literature does not support the claim that compost tea is a source of plant nutrition. The primary source of nutrients provided in hydroponic/container systems comes from continuously added liquid nutrients that are highly processed and should be considered synthetic (i.e., the process of producing hydrolyzed soybeans requires boiling for hours in acid).

- Many container systems primarily depend on conventionally grown hydrolyzed soybeans, undoubtedly Roundup®-ready/GMO, prohibited in organics. Any claims that hydrolyzed soybeans are non-GMO cannot be confirmed through testing, because DNA is denatured under the high temperatures and strong acid incurred during soybean hydrolysis.

- The term "bioponics" is not found in the scientific literature, anywhere. And the question of the legality of hydroponic/container growing has nothing to do with biological activity, but whether or not soil is an integral part of the production process.

- Most hydroponic container operations routinely use ozone to reduce the contamination in the irrigation system. This impacts the overall biological activity present.

- Most container growers refer to their own systems as "hydroponic." Any container system where highly soluble liquid nutrients are applied routinely should be considered hydroponic, even if there is a solid substrate, like peat or coconut coir.

- If the purpose of the hydroponic taskforce was supposedly to clarify the NOSB's 2010 recommendations, why were taskforce members initially limited to individuals with economic interests in hydroponic or aquaponic production? Though this restriction was later corrected, after public outcry, in the end only one commercial soil-based grower was added to the 16-member panel.

- Allowing soilless hydroponic/container growing to be labeled "organic" would conflict with international standards.

- **The NOSB/NOP does not have the legal authority to create regulations that conflict with the enabling legislation (OFPA).**

DISCUSSION

A few years ago, the organic community was shocked to find out that hydroponic operations were being, quietly, certified "organic" despite the law!

The violation of law and regulations are clearly conceded in the documents you are now reviewing, due to the recognized need for modifying the existing regulations (the NOSB does not have the authority to modify the elements of the Organic Foods Production Act that also specifically references soil-based production as an integral requirement in organic production).

Somehow, a small section of the USDA has been redefining "organic," resulting in pressure from hydroponic growers in other countries to redefine organic as well.

The formal NOSB Recommendations on the "Production Standard for Terrestrial Plants in Containers and Enclosures (Greenhouses)" was passed on January 23, 2010 by a majority vote (twelve to one), after six years of NOSB work and public hearings.

We regret the additional delay caused by the NOP convening a task force.

The 2010 NOSB recommendations unequivocally state that hydroponic production should not be permitted in organic certification and that organic production of terrestrial plants must be soil-based. It is incumbent upon the current NOSB and the USDA to accept the past recommendations and to be consistent with international rules that prohibit soilless hydroponic vegetable production as certified "organic".

The NOP's decision to allow organic certification of hydroponic systems, in direct opposition to the 2010 NOSB recommendations and without formal proposed standards, violates the program's legal responsibility to follow the established due process in setting organic standards. Unlawful and extreme variations in certification requirements create consumer confusion and undermine the integrity of the organic label, ultimately weakening organic markets. One of the central

tenants of the Organic Foods Production Act (OFPA) of 1990 is to "*assure consumers that organically produced products meet a consistent standard*" (7 U.S.C. § 6501(2)).

This lack of a consistent standard that the NOP has created with respect to hydroponic systems is exactly the type of problem that OFPA and the NOP were designed to avoid.

A stated primary objective of the current USDA/NOP-created Hydroponics Task Force was to clarify the NOSB's 2010 Recommendations (80 Fed Reg. 12,422, Mar. 9, 2015). Yet, the majority of task force members chosen had a vested interest in the organic certification of hydroponics, rather than in furthering the 2010 NOSB recommendations. Therefore, the make up of the task force caused widespread concern that their actual purpose appeared to be to rewrite, rather than to clarify, the recommendations.

If the purpose of the taskforce was to clarify the NOSB's 2010 recommendations, why were taskforce members initially limited to individuals with at least three years of experience in hydroponic or aquaponic production? Though this restriction was later corrected to include those with experience in soil-based organic greenhouse production, in the end, only one commercial soil-based grower was chosen. **Several highly qualified task force applicants (known to support the exclusion of hydroponic production from organics) were not chosen.** The result was an unfairly biased taskforce that additionally included a representative of CCOF, likely the nation's largest certifier of hydroponic production.

The bias in the task force is also demonstrated with their invention of a new term: "bioponics." This word isn't found in the scientific literature, anywhere. The pro-hydroponics members of the task force stated in their report, and at the last NOSB meeting, that compost tea is used to provide nutrients in these "bioponic" systems. However, the scientific literature does not support that statement.

Compost tea is not a significant source of nutrients, so other nutrient sources must be relied upon for fertility. Compost tea is irrelevant to the production of a crop. **The claim that compost tea is used to provide the required nutrients is a ruse, intended to make it seem like these systems might have something in common with soil-based production**. The organic community is not so gullible.

In fact, most operations with cycling irrigation water routinely use ozone to reduce the biology in the irrigation system. The "bioponic" claim is an attempted work-around for §6513 Organic Plan: "*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*."

Organic agriculture is rooted in the management of soils, not the simple presence or absence of bioactivity. Therefore, hydroponic and aquaponic growers are mistaken when they argue that hydroponics are "organic," even with the presence of

microbes. The fact is that these hydroponic/container systems would fail without the routine (several-times-a-day) use of highly soluble, highly processed fertilizers like micronized fish and hydrolyzed soy protein. Whether or not compost tea is added to the system is irrelevant to the production of a container crop with minimal soil (or less).

The Hydroponic and Aquaponic Subcommittee Report describes an organically certified hydroponic blueberry and raspberry "container" operation owned by Driscoll's. The devil, here, is in the details and once theses systems are examined, they are nowhere near sustainable, despite their claims.

Claims of less water use are unfounded in these container systems. Containers dry out much faster than mulched soil with high organic matter. The process of mining peat to fill these containers involves the draining of increasingly rare wetland bogs, removing surface vegetation, and driving over these ecosystems with heavy vacuum harvesters. Scientists have described wetland peat bogs as being as important and fragile as rainforests, harboring many highly specialized, rare native plants. Much like fossil fuels, they are the result of thousands of years of captured atmospheric carbon. Driscoll's, Wholesome Harvest, and industries that grow in peat moss, in fact, do not represent a "Coalition for Sustainable Organics," despite the self-serving title given to the Astroturf group they founded and fund.

In addition, many of these container systems depend on conventionally grown hydrolyzed soybeans to achieve the fertility needed to produce a crop, because peat moss is devoid of nutrients. This, too, is illegal, since the soybeans used to produce the liquid fertilizer are conventionally produced and, therefore, most likely to be Roundup®-ready/GMO, also prohibited in organics. **Any claims that hydrolyzed soybeans are non-GMO cannot be tested because DNA is denatured under the high temperatures and strong acid incurred during soybean hydrolysis**. Some manufacturers of these products know this and tout "non-GMO," knowing it is difficult to prove otherwise.

From the 2010 NOSB Recommendation Subcommittee Task Force Report: "*There has been a frustrating shortage of specific information on the fertility programs being used in the currently certified hydroponic operations.... We have been unable to find organic producers who would allow us to use photos of their production…. As with all of the certified hydroponic production systems we have approached, getting clear information about current fertilization practices has been difficult, as the growers we have asked, including those on the task force, are unwilling to publically share these details. However, this has really not affected our ability to assess alignment with OFPA because* ***these systems derive their fertility primarily from soluble fertilizers delivered through water and not primarily from organic content of soil as required by OFPA***." [Emphasis added]

Soil fertility and soil management are prerequisites for organic certification of crop production. Hydroponic systems do not meet this mandate. Also from the 2010

NOSB Recommendation Subcommittee Task Force Report: "*When management of the soil is not the primary source of fertility, then that operation is violating a mandatory part of OFPA*."

Both OFPA and the NOP Final Rule describe organic agricultural production as being much more than substituting approved inputs for non-approved ones. The task force report also states: **"*It would be difficult to say that growing in a container is maintaining or improving the soil. It is our concern that if NOSB accepts growing a crop to maturity in containers, an amendment to the USDA organic regulation may be required*."** [Emphasis added]

The 2010 NOSB Recommendation strongly reinforces foundational principles and descriptions of "organic," as practiced on U.S. organic farms. The 1980 USDA Report and Recommendation on Organic Farming clearly states: "***Soil is the Source of Life***"—Soil quality and balance (that is, soil with proper levels of organic matter, bacterial and biological activity, trace elements, and other nutrients) are essential to the long-term future of agriculture. Human and animal health are directly related to the health of the soil. From the Task Force Report: "***It is our opinion that this [soil] web cannot be replicated by simply 'adding biology****,' because we are not smart enough to know which biology to add, nor how much… We can participate in and influence this system but we cannot control it.*" [Emphasis added]

The key to nutritious produce is healthy soil. A mantra for the organic community is: "Feed the soil, not the plant". Organic farming methods return organic matter into the soil, feeding billions of species in the soil, which then provide plants with nutrients from the mineral fractions of the soil. OFPA also makes clear that managing soil health is central to organic agricultural systems, as evidenced by the inclusion of details about what is expected by organic farmers as they design their annual crop and animal production system plans.

The Rule also outlines a practice standard for soil fertility and crop management that is impossible to meet in a hydroponic system. In the Soil fertility and Crop Nutrient Management Practice Standard (§ 205.203): US Department of Agriculture Study Team on Organic Farming. (1980) USDA Report and Recommendation on Organic Farming, section 2.4, "Organic Agriculture, Some Basic Tenets":

- *"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."*
- *"The producer **must** manage crop nutrients and soil fertility through rotations, cover crops, and the application of plant and animal materials."*
- *"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. Animal and plant materials include:" [Emphasis added]*

No language exists in OFPA outlining requirements for soilless hydroponic systems. In contrast, clear language exists to justify the prohibition of hydroponics in organics, given the fact that they cannot meet the minimum standards described above. This conflict with OFPA makes it impossible to allow the organic certification of hydroponic production.

The NOSB/NOP does not have the legal authority to create regulations that conflict with the enabling legislation (OFPA).

In addition, U.S. organic rules must be consistent with international standards. The 2010 NOSB Recommendation is consistent with the vast majority of world organic standards, including those in twenty-four countries in the European Union (EU), Mexico, Japan, and Canada. This situation has forced the U.S to create a specific hydroponics exception in its trade agreement with Canada.

The 2013 position papers of both the International Federation of Organic Agriculture Movements European Union (IFOAM EU) and the Expert Group for Technical Advice on Organic Production (EGTOP) offer well-researched recommendations on organic hydroponics that concur with the organic standards of EU countries. **IFOAM EU has produced a position paper calling for the USDA to regulate organic hydroponics based on the NOSB's 2010 recommendations**.

NOP's rationale for allowing hydroponic certification is based on a single sentence taken from the 1995 NOSB Recommendation for Specialized Standards for Hydroponic Production in Soilless Media. It states: "*Hydroponic production in soilless media to be labeled organically produced shall be allowed if all provisions of the OFPA have been met.*" This recommendation was not included in the final rule and so it has no legal basis for current organic certification.

No provision in OFPA or the NOP regulations justifies the certification of hydroponics. In fact, in its written response to the NOSB recommendation in 2005, the NOP implies that standards need to be developed before hydroponic operations can be certified. The NOP states: "***NOP concurs with the NOSB and agrees to proceed with additional rulemaking for mushrooms, apiculture and honey, and greenhouse operations and their products, and not to propose hydroponic standards until the NOSB has submitted a final recommendation***." [Emphasis added]

BY QUIETLY ALLOWING THE CERTIFICATION OF HYDROPONIC OPERATIONS, THE USDA IS IN VIOLATION OF THEIR OWN GUIDANCE TO THE INDUSTRY.

The USDA's allowance of hydroponic certification in the absence of clear and consistent regulations has created discontent with the NOP by the wider organic community. A demonstration of the strength of the opposition to organic hydroponics was the Moratorium Letter presented to Secretary Vilsack in April,

2016, formally requesting the USDA to institute an immediate moratorium on the organic certification of all new hydroponic and aquaponic operations. It was signed by 65 organic leaders, 15 former NOSB members, and 40 organizations, whose total membership exceeds 2.2 million people.

Consumers have a right to know how their organic food is grown. Currently, there is no way for customers to identify which food is grown hydroponically and which is not. Most consumers have no idea that soilless hydroponic growing is permitted under existing USDA organic standards. **With increasing publications on "nutrient dense foods" and the release of the human microbiome project, consumers are more and more aware of the connections between production practices and nutritious, healthy food.**

From the Moratorium Letter: "*We must not take trust in organic for granted, either from the organic community as a whole, or from organic agriculture producers. It took decades to build trust in the organic label, and we must not squander it by ignoring due process. Yet, disturbing signs of eroding public trust in organic are evident.*"

Soil farmer David Miskell summarized it well, "*My work on many of the most successful organic farms in the U.S. and Europe leads me to the conclusion that soil based organics blends soil life, non-synthetic minerals, organic residues and physical care of the soil and surrounding lands to create an innovative balanced environment. Do we know all the mysteries of this process? NO, but we are learning.*"

To allow the entire organic industry to suffer public mistrust due to unnecessary confusion regarding basic greenhouse standards is short-sighted public policy.

We must not compromise the organic standards in an effort to increase sales and open new markets at the expense of the public confidence and organic integrity.