

# WHY HYDROPONICS SHOULD NOT BE CERTIFIED ORGANIC

Controversy about what methods can be used to grow crops that can be certified organic isn't new. One type of agriculture that has sparked intense debate in the organic community in the United States is hydroponic production.

Hydroponic production is a method of growing where almost all the nutritional needs of a plant are provided through liquid feeding. Some hydroponic systems involve growing plants directly within nutrient-rich liquid solutions, while others use containers filled with solid mediums like shredded coconut husks, gravel or other materials that hold the plant up while using liquid nutrients to feed the plant.

Over the past several years, hydroponics have been one of the fastest-growing sectors of agriculture in the United States.<sup>1</sup> With the rapid growth of hydroponics reshaping how some fruit and vegetables are produced, policymakers need to thoughtfully define how hydroponic systems should be classified and regulated. The debate about whether these types of operations can be certified as organic will have major impacts on farmers, consumers, communities, and the environment. The regulations that define the USDA Organic seal have come to represent a high standard for environmental protection and sustainability, and allowing an industry like hydroponic production under this label is causing real controversy, especially for organic farmers who use soil-based systems and practices that are well-established in the organic standards.

# WHAT IS CERTIFIED ORGANIC?

The USDA's National Organic Standards Board (NOSB) in 1995 defined organic as "an ecological production management system that promotes and enhances biodiversity, biological cycles and soil biological activity."<sup>2</sup> The core principles of organic include eliminating synthetic inputs and minimizing other off-farm inputs, as well as promoting long-term soil health through practices like cover crops and crop rotation. Underpinning these foundational principles is the potential for ecologically responsible and regenerative soil-based farming practices, not only to mitigate the harmful effects of conventional agriculture, but to positively impact human health, communities, and the environment. Soil-based organic systems build healthy soil nutrient cycles, prevent erosion, provide habitat for biodiverse species, mitigate CO2 emissions by sequestering soil carbon, and more.



Not all hydroponic production is grown indoors in water. An increasing amount of hydroponic production happens outside on acres of plastic-covered soil covered in plastic containers where plants are fed all their nutrients via aqueous solution. Many "organic" berries are being grown in these conditions, yet consumers envision a different growing environment.

# WHY HYDROPONIC SHOULD NOT BE CERTIFIED ORGANIC

Because hydroponic systems receive their nutrients from outside liquid sources and are container-grown rather than soil-grown, they cannot recycle nutrients or organic matter back into the soil. Thus, they do not provide the benefits to soil health that soil-based organic systems are **required** to do. Nor do they participate in the hydrological cycling that is such a critical ecoservice that organic farming provides. This water cycling is critical for cooling the climate. There are also inescapable nutritional differences between soil production and hydroponic production.

Based on the existing legal definitions of organic established by the Organic Food Production Act (OFPA) and the National Organic Rule, Organic Farmers Association believes hydroponic systems should not be certified organic given that they do not promote soil health and biodiversity.

# WHAT IS AT STAKE?

**CONSUMER TRUST** The tremendous growth of the U.S. organic market rests on consumers' willingness to pay premiums for certification process and required standards to attain the organic label. It is not clear that consumers think hydroponics have these same characteristics of protecting the environment, biodiversity and human health. Indeed, early studies show that consumers consider organic hydroponics significantly less "natural" than equivalent soil-grown organic foods.<sup>3</sup> To verify this, we can see that most large-scale hydroponic producers avoid informing consumers of their use of soilless technologies to produce food.

If consumers cannot distinguish soil-grown organics from hydroponics, they may not be willing to pay the same premiums for organic, eroding the integrity of the organic label.

**GLOBAL IMPACT ON AMERICAN FAMILY FARMERS** Big investment by multinational corporations is driving the current unprecedented growth of the hydroponics industry. Because most other countries, including Canada, Mexico, and the European Union, have prohibited organic certification of hydroponics, these countries' industrial 'organic' hydroponic producers export their produce to the U.S., where, because the USDA permits hydroponics to be certified organic, they can still command an organic premium. The influx of organic-certified hydroponic imports without sufficient consumer transparency undercuts the future price premiums American organic produce farms rely on to survive, which imperils local food systems, jobs, and communities.

**CO<sup>2</sup> MITIGATION** Soil carbon sequestration is key to mitigating the environmental impact of CO2 emissions. The Rodale Institute estimates that with widespread adoption of organic regenerative farming, soils could sequester the entire 52 gigatons of CO2 equivalents emitted globally every year.<sup>4</sup> Hydroponic systems do not recycle carbon into the soil, squandering the opportunity to maximize soil carbon storage and effectively combat the climate crisis.

# WHERE DOES THAT LEAVE **HYDROPONICS?**

OFA does not oppose the use of hydroponic systems to raise food, but we do oppose certifying these operations as organic. With climate change likely to continue to reshape the food

system, building healthy soil is incredibly important for the planet, and organic production has always focused on this ecosystem service. Rather than inaccurately lumping hydroponics into the organic label, a new, separate label for sustainable hydroponic production, like the new Clean Hydroponic Produce Standard being developed by Alliance for Sustainable Hydroponics, would more meaningfully acknowledge the benefits these systems provide and offer



consumers more transparency in the grocery store.

# WHAT YOU CAN DO

OFA opposes organic certification of hydroponics and we have worked for several years to urge the NOP to stop certifying new hydroponic operations and to revoke the organic certification of currently-certified hydroponic systems. The standing NOSB recommendation to prohibit hydroponics was passed in 2010, and is one of the 20 NOSB recommendations that have been set aside by the USDA. You can support our efforts by telling your members of Congress to put pressure on the USDA to implement the NOSB's 2010 recommendation that prohibits hydroponics from being certified as organic.

# **GLOSSARY OF TERMS**

Hydroponic - A method of growing where almost all the nutritional needs of a plant are provided through liquid feeding. Some hydroponic systems involve growing plants directly within nutrient-rich liquid solutions, while others use containers filled with solid mediums like coconut husks, gravel or other materials that hold the plant up while using liquid nutrients to feed the plant.

Aquaponic - A hydroponic system that incorporates fish is called aquaponic. These systems use nutrients from fish waste in the water to fertilize plants.

**Aeroponic** - When plant roots are suspended in the air and misted with liquid solutions to feed the plant, the system is aeroponic.



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#### CITATIONS

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# A BRIEF HISTORY OF HYDROPONICS & ORGANICS

Hydroponics has not always been allowed in organic certification. Here's a brief history of the controversy.

# 1995

NOSB recommendations on organic standards mention hydroponics, "Hydroponic production in soilless media to be labeled organically produced shall be allowed, if all provisions of the OFPA have been met.".

### 2001

**National Organic Standards were** published. NOSB passes a recommendation on greenhouse standards. A proposal to permit hydroponic in organic is defeated.

### 2013

Without action from NOP to codify greenhouse standards through rulemaking, hydroponic greenhouse production labeled as organic grows, primarily imported from Mexico and Holland. Certifying agencies are divided on whether they will certify hydroponic production. Farmers circulate petitions calling on the NOP to act on the 2010 NOSB recommendation.

# 2015

**NOP establishes the Hydroponics** and Aquaponics Task Force, composed of majority hydroponic growers. Task force releases a divided report.

#### 2017

NOSB failed to pass a new recommendation to allow organic production in containers if no more than 20% of the nitrogen needs came from liquid feed. It did pass a recommendation to prohibit aquaponics. No reason was given why aeroponics should be prohibited while hydroponics should be allowed. With the failure to pass a new recommendation, the 2010 recommendation remains as the standing NOSB recommendation to prohibit hydroponics.

#### 1990 Congress passed the Organic Food Production Act (OFPA) and created the National Organic Program (NOP) and the National Organic Standards Board (NOSB) to guide USDA on how organic eligibility should be defined and how to implement OFPA. OFPA states, "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

# 2010

rotation, and manuring."

NOSB passes another (more detailed) recommendation on greenhouse standards and recommends that USDA prohibit hydroponics from being certified organic. USDA fails to move this recommendation forward to rulemaking. Hydroponic greenhouse production labeled as organic is growing rapidly, primarily coming from Mexico and Holland. Certifying agencies are divided--some will certify hydroponic operations under the U.S. standards and some will not.

# 2014

NOP Director releases statement that organic hydroponic is allowed.

# 2016

41 organizations (representing over 2 million people) and 15 former NOSB members call on USDA and NOSB to enact a moratorium on new hydroponic certification.

# 2018

The NOP released a statement that hydroponic production has always been allowed and will continue to be so. Many farmers and certification agencies disagreed with this statement and questioned the NOP's ability to make such a claim without substantiating the decision. This lack of clarity allows inconsistent action between different certifiers and an unlevel playing field for organic farmers nationwide.