

National Organic Standards Board (NOSB) Crops Committee

Soil-less Growing Systems Discussion Item

May 2009 Meeting

This document serves as an update to clarify the NOSB Crops Committee position on soil-less growing systems, such as hydroponics, as they pertain to organic certification to the USDA National Organic Program standards. This clarification represents a portion of the work in progress toward the overall goal of forming an updated NOSB Greenhouse Production Standards recommendation for presentation to the NOP for rulemaking at the Fall 2009 meeting.

Introduction

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 soils, particularly for its' positive influence on proliferation of diverse populations of organisms that interact in a beneficial way with plant roots. These microscopic organisms, found in abundance in well maintained soils, interact in a symbiotic manner with plant roots, producing the effect of strengthening the plant to be able to better resist or avoid insect, disease and nematode attack, as well as assisting the plant in water and mineral uptake. The abundance of such organisms in healthy, organically maintained soils form a biological network, an amazing and diverse ecology that is 'the secret', the foundation of the success of organic farming accomplished without the need of synthetic insecticides, nematicides, fumigants, etc. In practice, the organic farmer is not just a tiller of the soil, but a steward of the soil ecology on the farm, hence some of the alternate names for this realm of production, such as ecological or biodynamic farming.

Discussion

Observing the framework of organic farming based upon it's 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 or aeroponics, can not be considered as examples of acceptable organic farming practices. Hydroponics, the production of plants in nutrient rich solutions or moist inert material, or aeroponics, a variation in which plant roots are suspended in air and continually misted with nutrient solution, have their place in production agriculture, but certainly 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.

The OFPA specifically required an organic plan designed to foster soil fertility (§6513b) and the NOP regulations resulting from the Act bear this out as follows:

§205.203(a)- The producer must select and implement tillage and cultivation practices that maintain or improve the physical, chemical, and biological condition of the soil.

§205.203(b)- The producer must manage crop nutrients and soil fertility through rotations, cover crops, and the application of plant and animal materials.

§205.203(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...

Although the regulations do not specifically state ‘soil only production’, the exclusion of soil from organic production of normally terrestrial, vascular plants violates the intent of the regulations. This intent can be seen in these sections of the rule that require proper stewardship toward improving and maintaining the soil ecology within an organic farming system. It is pointed out that naturally aquatic plant species and non-vascular plant species such as mushrooms come from different (non-soil) ecological niches and would be handled separately.

In previous Crops Committee discussion documents, the question has been asked: “Should container culture based growing media (typically utilized in greenhouse systems) that are predominately compost and compostable plant materials be considered ‘soil’. As highlighted in earlier portions of this document, a foundational principle of organic farming is the practice of maintaining and nurturing soil health so as to foster the proliferation of the proper soil biology with their accompanying ecologies. Since all typical soil dwelling organisms, such as earthworms, protozoa, fungi, bacteria, actinomycetes, etc. can thrive in a properly designed compost based growing media, producing the beneficial symbiotic ecological relationships found in soil, such growing media should be rightfully considered soil. The Committee will be preparing guidelines concerning the proper make-up, handling, and recycling of such growing media as part of the forthcoming updated Greenhouse Production Standards Recommendation mentioned earlier. Another next step would be developing recommendations for mushroom production standards and aquatic plant production standards.

Committee Vote

Motion: Gerry Davis Second Tina Ellor

Yes: 6 No: 0 Absent: 0 Abstain: 0