National Organic Standards Board
Certification, Accreditation and Compliance Subcommittee
Discussion Document: Organic and Climate-Smart Agriculture
August 9, 2022

Introduction:

Dear Dr. Tucker,
With the announcement of the Partnerships for Climate-Smart Commodities, the organic community engaged in a celebration of the forward-thinking funding and policy goals embracing our collective concern for a resilient farming future. The certified organic community has been involved in 20 years of consensus-making in a public-private partnership with the United States Department of Agriculture (USDA) National Organic Program (NOP) and the National Organic Standards Board (NOSB). The NOSB process represents countless hours of research, stewarding innumerable acts implementing a voluntary regulatory program through which producers are paid a premium for their systems-based approach (collection of climate-smart practices), by which consumers can be assured of climate-smart decision-making with transparency and the force of law.

While organic community members live and breathe the NOP standards every day, it's possible to forget that the USDA oversees the "Certified Organic" seal and has (very successfully) shepherded the marketplace to its current retail market size of $62 billion. Indeed, to be clear, the market program that is the goal of the funding offered by the Partnership for Climate-Smart Commodities has already been created in the form of the National Organic Program (NOP).

While all certified organic production is climate-smart, not all climate-smart production is certified organic. Therefore, this discussion document aims to articulate why, if an agriculture producer is certified organic, they should be automatically considered climate-smart and made eligible for all climate-smart funding, buying, and other programmatic opportunities administered by the USDA.

Per the February 2022 memo assigning the NOSB a work agenda item, the NOSB will specifically address the questions to help articulate why classifying certified organic farming "climate-smart" is a sensible evolution of the hard work and resources that have gone into building the wildly successful NOP.

We expect this document to be a clear signal to the greater USDA that certified organic production should be automatically considered "climate-smart" and therefore eligible for any and all funding opportunities and support through relevant USDA programs. We consider this an ongoing discussion and look forward to the dialogue and future clarifications the USDA might request.

Throughout the remainder of this discussion document, the NOSB responds in detail to the seventeen questions outlined in the memo.

1) What existing data or research support the link between organic practices and climate change mitigation?

For an excellent summary of the scientific literature, we encourage you to read the report: Schonbeck, M., D. Jerkins, and L. Snyder. 2017. Soil health and organic farming. Organic Farming Research Foundation: Santa Cruz, CA, USA. While the Schonbeck et al. report focuses on soil health in organic farming systems,

we remind the NOP that, by not using prohibited synthetic nitrogen fertilizers, herbicides, or pesticides, organic farms inherently emit fewer greenhouse gas emissions.

The following USDA scientists are working on organic-specific agronomy research and can add their nuanced scientific perspectives to this question. The researchers are Michel Cavigelli and Eric Brennan at the Agricultural Research Service (ARS), and Sharon Raszap Skorbiansky at the Economic Research Service (ERS). It would be helpful to have USDA researchers (or an interdisciplinary team of university researchers) assess the state of the literature on climate change and organic farming. Important points to consider in such a review include:

- The climate footprint of energy-intensive input production.
- Synthetic inputs' role in soil's capacity to hold carbon.
- Differences in nitrous oxide and methane emissions on farms under organic and conventional management.
- Farm resiliency of different systems.

2) What research should USDA prioritize to demonstrate the efficacy of organic farming as climate-smart agriculture?

1. Climate benefits of zero synthetic fertilizer use. The NOP standards prohibit crop production using synthetic fertilizers, herbicides, and pesticides. As a carbon-intensive input, synthetic nitrogen fertilizer represents one of the focal areas' researchers aim to minimize and use effectively. From a manufacturing carbon footprint to synthetic nitrogen's role in volatilizing soil organic matter to fertilizer runoff issues affecting water quality, organic agriculture has addressed or eliminated the impact of synthetic fertilizer on the environment by eliminating its use. To comprehensively understand certified organic production's impact on soil and water quality, research quantifying the per-acre impact of organic agriculture's elimination of synthetic nitrogen in the following categories should be prioritized: carbon not emitted in the manufacturing process, the carbon sequestered in the soil by not volatilizing soil organic matter through concentrated nitrogen application, and finally, the nitrogen kept from contaminating ground and surface water.

2. Life cycle analysis of the major organic commodities, including corn, soybeans, wheat, dairy, eggs, and chicken meat, should be conducted across the continental United States. Organic producers must use most of the climate-smart practices listed on the Partnerships for Climate-Smart Commodities announcement webpage. By quantifying the impact of NOP regulations on the crops' carbon footprint, producers will be well positioned to communicate precisely to consumers the climate implications of being certified organic.

3. Economic resiliency analysis: Organic is the solution to mitigating climate change *and* responding to it. In a global economy where supply chain disruption is the norm, conventional crop yields are erratic, and farm viability is highly susceptible to shocks, certified organic production offers a solution by relying on the ecological potential of land rather than relying on off-farm inputs imported from thousands of miles away. As of the writing of this document, we have evidence that organic yields are more resilient to drought due to increased organic matter in the soil (Rodale, 2017) however, we need more data on quantifying the potential. Organic farms rely on fertilizers either produced on the farm (via crop rotation, cover crops, or animal manures) or regionally sourced fertility (chicken litter, cattle manure, compost, etc.).

3) What key practices that support climate-smart agriculture are already codified in the USDA organic regulations?

The following climate-smart practices are codified in the USDA organic regulations. These practices are highlighted in the Partnership for Climate-Smart Commodities announcement.

- Cover crops - **[205.203(b) and 205.205]** - Certified organic crop producers were the original leaders in integrating cover crops.
- Low-till or no-till – Organic producers are required to select and implement tillage and cultivation practices that maintain or improve the physical, chemical, and biological condition of soil and minimize soil erosion **[205.203(a)]**
- Nutrient management-Certified organic producers must not use any fertilizer or composted plant and animal material that contains a synthetic substance not included on the National List of synthetic substances allowed for use in organic crop production **[205.203(e)1]**
- Manure management-Certified organic producers 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 **[205.203(d)]**
- Buffers, wetland and grassland management, and tree planting on working lands **[205.202(c)]**
- Climate-smart pasture practices, such as prescribed grazing or legume inter-seeding- **[205.240(b)]**
- Planting for high carbon sequestration rate- **[205.203(a-c)]**
- Enhanced efficiency fertilizers - **[205.203(b)]**
- Alternate wetting and drying on rice fields- **[205.206]**
- Soil amendments, like biochar and compost- Organic growers actively embrace progressive soil amendments like biochar, compost, and other approved materials which build soil biology and physical structure; indeed, the USDA organic regulations allow the use of biochar **[205.105]**

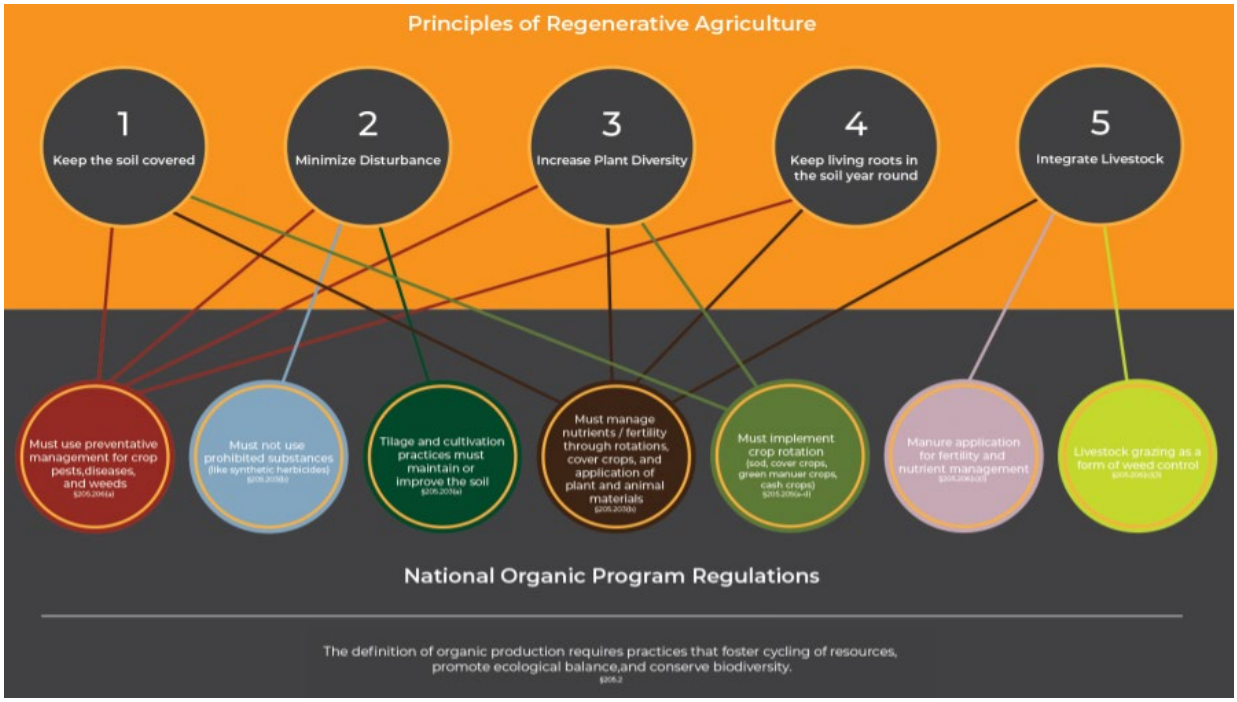

Figure -1: - Organic Agronomy Training Service (OATS).

4) What climate-smart organic practices should new/transitioning farmers be made aware of?

- Organic farming can require less tillage (1. Moldboards and Dust Clouds: Organic Has a Tillage, OATS 2021) than conventional agriculture due to crop rotations.
  The yield gap (4. Double the Acres Half the Yield: Organic Can't Feed the World, OATS 2021) between organic and conventional production is closing (i.e., corn) or has closed (i.e., wheat).
- Certified organic farming prohibits synthetic nitrogen use, which is positive for soil health and farmers' pocketbooks.
- Crop insurance for organic is improving (attention is still needed).
- Certified organic rotations incorporating perennial crop phases such as clover or alfalfa or annual crop phases such as small grains and pulses can lead to less tillage than conventional systems.
- Organic crop rotations can fix nearly all of the fertility necessary to have robust crop yields when proactively managed.
- Organic prohibits the use of synthetic fertilizers, yet rapidly realizes yields that are consistent with conventional.

5) What specific practices already documented in organic system plans (OSPs) support climate-smart agriculture?

- Cover crops **[205.203(b) and 205.205]** Certified organic crop producers were the original leaders in integrating cover crops.
- Low-till or no-till practices: all tillage practices, including equipment and timing, are recorded in the OSP **[205.203(a)]**
- Nutrient management plan: OSP requires applicant farmers to document and receive approval for all material fertility inputs, fertility monitoring, and application practices, including approval for each material by the certifier **[205.203(e)1]**
- Manure management practices on crop and livestock operations **[205.203(d)]**
- Buffers, wetland and grassland management, and tree planting on working lands **[205.202(c)]**
- Climate-smart pasture practices: Grazing practices are extensively documented to show that all ruminants receive 30% or more of their dry matter intake from pasture **[205.240(b)]**
- Planting for high carbon sequestration rate: Crop rotation is extensively documented in the OSP, showing between 3 and 5 years of history on each **[205.203(a-c)]**
- Enhanced efficiency fertilizers: **[205.203(b)]**
- Alternate wetting and drying on rice fields: **[205.206]**
- Soil amendments, like biochar: Organic growers actively embrace progressive soil amendments like biochar; indeed, the USDA organic regulations allow the use of biochar **[205.105]**

6) How could organic system plans and other organic recordkeeping more clearly demonstrate that organic farmers' practices support climate-smart agriculture?

Organic certifiers could work with other federal agencies who are working on climate-smart agriculture to adopt a common language for the:

- Guidance on soil testing procedures to prove soil organic matter is being maintained or increasing
- Guidance on soil testing showing that soil fertility is maintaining or increasing
- Guidance on whether nitrogen auditing should be done on organic operations during inspections. Guidance to help understand what nitrogen sources are allowed. Guidance on how to assess if a farm has a growing dependence on off-farm fertility or if they are building their soil fertility

- Guidance on soil testing procedures to prove soil water holding capacity is being maintained or increasing

7) How can NOP better communicate to new and transitioning farmers that organic supports climate-smart agriculture?

Clearly communicate to new and transitioning farmers that the organic standards completely incorporate the five pillars of soil health as identified by the Natural Resources Conservation Service (NRCS) as codified into law via the NOP standards (Figure 1).

8) What are the barriers to capturing and reporting on organic farming benefits?

Organic system plans maintained by farmers and reviewed by certifiers vary from certifier to certifier. A universal OSP that requires annual reporting of key data including soil organic matter content of the soil, fertility levels of Nitrogen, Phosphorus, Potassium (NPK) in the soil, and other key soil health indicators could enable farmers to use their OSP as a multi-purpose reporting form. To this end, a universal OSP that is designed to ask questions in a way that complies with other federal programs (NRCS, Risk Management Agency (RMA), Farm Service Agency (FSA) etc.) could enable farmers to perform less duplicative reporting when seeking access to other programs administered by the USDA.

9) What changes would increase the efficiency and effectiveness of organic reporting of climate-smart agriculture data? What federal, state, or local climate-smart programs could organic farmers apply for?

The following list is not comprehensive but shows how organic producers could easily qualify without additional reporting: This list is not exhaustive.

- Through the USDA Natural Resources Conservation Service (NRCS)
  - Environmental Quality Incentives Program (EQIP)
  - Conservation Stewardship Program (CSP)
  - Regional Conservation Partnership Program (RCPP)
  - Conservation Innovation Grant (CIG)
- Through the USDA Risk Management Agency (RMA)
  - Pandemic Cover-Crop Program (PCCP)

10) What types of crosswalk tools would most help farmers in making connections between the Organic Systems Plan and any documentation required for other climate-smart and/conservation programs?

Making the Organic System Plan (OSP) a universal document consistent across certifiers would allow certified operations to enter into climate-smart and conservation programs more efficiently.

11) How can organic farmers better market their current practices as climate-smart?

The NOSB is eager to hear suggestions from the organic community about this question.

As a baseline understanding: certified organic farmers lead the way with the implementation of climate-smart practices and should automatically qualify for any climate-smart label when the USDA codifies the term's use.

Marketing is about messaging, and as the agricultural solution to climate change, Organic has a story to tell. To realize the full potential of the public-private partnership we need USDA-Agricultural Marketing Services' (AMS) help. The organic seal is trusted and venerated but it's also static. As consumers look to their food as a means of combatting climate change with their dollars, they need the organic label to clearly make the connection between organic and climate-smart.

As organic stakeholders, including farmers, processors, and retailers, coalesce around the most impactful practices to combat climate change, the following practices could be elevated to improve consumer awareness of the climate smart benefits of organic:

- Certified organic producers are prohibited from using synthetic fertilizers, making organic an obvious climate-smart option.
- Organically farmed soils have been found to sequester 13% more soil organic matter than conventional farms (Ghabbour, et al., 2017).
- Under organic certification, ruminant livestock are required to be on pasture, thus reducing the amount of manure stored on organic farms, which in turn reduces potential nutrient leaching.

12) What organic practices and attributes should organic farmers highlight to help them qualify for climate-smart programs?

- The use of crop rotation and cover crops to build soil fertility.
- Zero use of synthetic fertilizers.
- Buffers around field edges.
- The requirement to maintain riparian areas.
- The use of animal manures and judicious tillage to increase soil biology.
- Reduced tillage by considering the entire crop rotation on a field.

13) How can organic farmers talk about their practices so they can benefit from the variety of federal, state, and private sector climate-smart agriculture programs? i.e., reducing duplication of reporting?

Organic agriculture is a dynamic systems-based approach to solving production barriers and mitigating environmental concerns. Standardizing the language regarding climate-smart agriculture will be a step in the right direction allowing for a reduction of duplication with reporting.

The USDA should focus on streamlining and consistency of reporting so organic producers could automatically be qualified to be endorsed for the non-GMO project, climate-smart agriculture, Farm Service Agency (FSA), NRCS, Risk Management Agency (RMA) programs.

14) USDA already supports climate-smart agriculture through many technical assistance and incentive programs. What can be done to ensure those resources reach organic farmers?

Producers would be aware of the availability of programs that support climate-smart practices if they were listed in the OSP or as cover pages to the OSP. This outreach technique has proven effective for the

organic cost-share program (FSA). Most certifiers ask organic farmers if they would like to participate in organic cost-share during the application process. Standardization of communication and forms will be key. Farmers need to know where to look for these resources, and if they can always be found as an annual update from their certifier, filling out the OSP would be a one-stop shop for communication.

Furthermore, delivering streamlined, standardized communication to each certifier for circulation in the OSP and then cross-posting the same standardized communication in the USDA Organic Insider, with FSA and NRCS staff, and agents that sell RMA policies.

15) What types of technical assistance do organic farmers need to transition? Is this assistance available now? What type of assistance may be missing?

- Technical assistance for record keeping and organic farming principles knowledge.
- Orientation on weed mitigation equipment and techniques.
- Building robust rotations that tackle agronomic concerns.
- Soil health and nutrient management strategies for organic farming.
- Navigating non-standardized contracts for crop sales.
- Technical guidance on how to join a crop marketing cooperative and organic marketing in general, which is typically executed through a different type of supply chain than conventional agriculture.
- Risk management programs. Currently risk management opportunities are a deterrent to farmers considering transition to organic because coverage levels decline when transitioning from conventional to organic.

Several groups, including state organic programs, select certifiers, Organic Agronomy Training Service, Practical Farmers of Iowa, Montana Organic Association, California Certified Organic Farmers (CCOF) Foundation, Oregon Tilth, NRCS, etc., offer farmers some form of technical assistance.

Missing assistance: Expert organic agronomy advisors with localized/regional knowledge. We are missing experts who know how to help organic farmers grow and expand at scale in their region, increasing profitability.

Additional missing expertise: the banking/lending community is not well versed in how to support organic farmers.

16) How can USDA better connect organic farmers with the tools, expertise, and networks they need to successfully promote themselves as climate-smart?

Organic farmers are deploying multiple climate-smart practices already, as many are fundamental for creating a successful foundation in organic agriculture. Promoting these practices is where the organic program and organic farmers have fallen short.

17) What are the most critical research needs organic farmers could benefit from?

The NOSB annually presents a list of organic food and agriculture research priorities. The NOSB requests that integrated research be undertaken considering the whole farm system, recognizing the interplay of agroecology, the surrounding environment, and native and farmed species of plants and animals. These priorities are essential to the community, and the NOSB recommends attention to the following summarized list:

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 programs.
3. Evaluate ways to prevent and manage internal parasites in livestock, examining breeds, geographical differences, alternative treatments, and pasture species.
4. Develop a dairy program to address climate change mitigation strategies where milking capabilities are not hindered, and effective forage rotations are maximized.
5. Develop balanced organic livestock rations that incorporate high percentages of diverse, regionally adapted feed grain and forage crops to reduce the reliance on corn and soybeans and allow farmers to realize more marketing opportunities for a robust crop rotation.

Crops

1. Examination of decomposition rates, the effects of residues on soil biology, and the factors that affect the breakdown of biodegradable biobased mulch films.
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 (including specific considerations related to copper use in organic rice production) 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 problem insects and weeds.
8. Factors impacting organic crop nutrition, and organic/conventional nutrition comparisons.
9. Side-by-side trials of approved organic inputs, both synthetic and natural, and cultural methods, with a request for collaboration with the USDA IR-4 project (Interregional Research Project No. 4), a specialty crops research program.
10. Impartial evaluation of microbial inoculants, soil conditioners, and other plant and soil amendments is needed as there is little objective evidence upon which to assess their contribution to soil health.
11. More research, extension services, and education are needed to fully understand the relationship between on-farm biodiversity and pathogen presence and abundance.
12. Clarify practices that reduce greenhouse gas emissions and that contribute to farming systems resilience in the face of climate change.

Food Handling and Processing

1. Sanitizers: Effective alternatives of sanitizers, effect on occupational human health and environment, effectiveness of rotational use strategies with the sanitizers currently on the National List.

2. Effect of various types of food packaging on organic products, including suitable alternatives to BPA (Bisphenol-A) for linings of cans used for various products, plastic use, antimicrobial nanoparticle surface coatings of packaging.
3. Research on the creation of an overarching ancillary ingredient review process for materials used in processing and handling vs reviewing ancillaries as part of the petition or sunset review process, including cost/benefit of each process.
4. Alternatives to conventional celery powder for curing organic meat.
5. Research on best practices for identifying potential vectors of heavy metal contamination in organic systems, including strategies for effective testing in soils, water, organic processing, etc. that could lead to the identification and prevention of heavy metals transgression in organic systems.
6. Evaluation of the essentiality of §§ 205.605(a), 205.605(b), and 205.606 substances and the suitability of organic alternatives in applicable food formulations via laboratory testing, sensory evaluation, and/or market analysis.

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 GMO/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/GE seed.
4. Techniques for preventing unintended presence of GMO/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 consumer access to organically produced foods.
2. Production and yield barriers to transitioning to organic production to help growers successfully complete the transition.

Subcommittee Vote

Motion to accept the discussion document on Organic and Climate-Smart Agriculture
Motion by: Nate Powell-Palm
Second: Kyla Smith
Yes: 5 No: 0 Absent: 0 Abstain: 1 Recuse: 0

References:

Schonbeck, M., D. Jerkins, and J. Ory. 2017. *Soil Health and Organic Farming: Building Organic Matter for Healthy Soils: An Overview.* Organic Farming Research Foundation (www.ofrf.org), 39 pp.

Elham A. Ghabbour, Geoffrey Davies, et al., 2017. *Advances in Agronomy: Chapter One - National Comparison of the Total and Sequestered Organic Matter Contents of Conventional and Organic Farm Soils*

Rodale Institute, 2021. *The Farming Systems Trial.*