ORGANIC FARMING RESEARCH FOUNDATION

fostering the improvement and widespread adoption of organic farming

To: Ms. Michelle Arsenault, Advisory Committee Specialist, National Organic Standards Board, USDA–AMS–NOP
From: Organic Farming Research Foundation
Date: April 25, 2025
Re: Formal Comment on NOSB Research Priorities for Organic Agriculture, Docket # AMS-NOP-24-0081

Dear National Organic Standards Board,

Thank you for the opportunity to provide comments. The Organic Farming Research Foundation (OFRF) is a national nonprofit organization dedicated to the widespread adoption and continuous improvement of organic farming systems. We work closely with farmers, researchers, and policymakers to ensure the needs of organic producers are understood and addressed through robust, relevant research. Our 2022 National Organic Research Agenda (NORA-22), based on extensive surveys and interviews with organic producers nationwide, continues to guide our recommendations.

We appreciate the NOSB's thoughtful and evolving list of research priorities. The Board's clear commitment to systems-based approaches, agroecological integrity, and continuous improvement of inputs, production methods, and environmental outcomes reflects the real-world needs of the organic community. This year's updates—particularly the reaffirmation of ecosystem services, the addition of PFAS contamination, and continued emphasis on managing synthetic inputs and plastic use in production—highlight the NOSB's responsiveness to emerging and ever-evolving challenges.

The NOSB's approach to research has consistently emphasized whole-farm system management and stewardship. This is reflected in its call for integrated research that "recogniz[es] the interplay of agroecology, the surrounding environment, and both native and farmed species of plants and animals".[1] The Board's draft 2025 priorities show an increasingly holistic view of organic challenges, particularly in the call for research that helps producers continue to reduce reliance on higher-impact inputs, like copper, sulfur, plastic mulches, and sanitizers. These priorities complement the Board's long-standing role in supporting research tied to the National List sunset review process and provide science-based guidance for both policy and practical farm-level decision making.

The Board's commitment to systems-based research has helped shape the direction of USDA funding programs, including the Organic Agriculture Research and Extension Initiative (OREI) and the Organic Transitions (ORG) program, both of which reference NOSB priorities in their Requests for Applications.[2]

Recent updates reflect an evolution in NOSB's priorities in response to sector-wide input. The addition of

[1] U.S. Dep't of Agric., *Nat'l Organic Standards Bd., Research Priorities Executive Summary* (Oct. 2024).
[2] U.S. Dep't of Agric., *Nat'l Inst. of Food & Agric., Organic Agric. Research & Extension Initiative, Request for Applications*, pp.6–8 (2024); U.S. Dep't of Agric., *Nat'l Inst. of Food & Agric., Organic Transitions Program, Request for Applications*, p.7 (2024).

PFAS contamination as a top crop research priority was recommended in Fall 2023 and formally adopted in Fall 2024.[3] This priority addresses the urgent need to identify sources, impacts, and remediation strategies for per- and polyfluoroalkyl substances in farmland and water systems. While no OREI or ORG-funded projects have yet addressed this directly, NOSB's inclusion of this priority will help direct future funding toward closing that gap.

Similarly, the NOSB's renewed emphasis on assessing ecosystem services and biodiversity continues to evolve. While the Board has listed this as a research priority since at least 2019, the 2024 update significantly broadened its framing. The current priority now includes calls for life-cycle assessments of common organic inputs (e.g., manure, seaweed, fish-based amendments), landscape-level farm mapping, and the evaluation of biodiversity within and beyond the farm's boundaries.[4] This aligns with the NORA-22 findings, where one-third of producers cited "managing the farm as a system" as a substantial challenge and highlighted the need for more support in evaluating the ecological impact of input choices.[5]

The Board's decision to prioritize research on plastic use in organic production systems is also highly responsive to both producer and consumer concerns. This issue was added as a crop research priority in 2023 and reaffirmed in the 2024 update. The priority includes not just the use and fate of plastic mulch and drip tape, but also the breakdown of biodegradable films and the environmental impacts of micro- and nano-plastics.[6] As of 2021, three OREI- and ORG-funded projects had addressed biodegradable film mulches, with a total investment of $2.3 million. However, the lack of commercially available 100% bio-based film products that meet NOP standards continues to pose a barrier—an issue NOSB highlighted as early as its 2016 research recommendations.[7]

In these comments, OFRF would like to highlight: 1) The Value and Importance of NOSB Research Recommendations; 2) Persistent Research Gaps and Continued Needs; and 3) Emerging Priorities. In all these areas, the NOSB plays a critical role not only in identifying research gaps but also in elevating them to the level of policy-relevant urgency. Your research priority statements are shaped by stakeholder engagement, public comments, and input from farmers and researchers, ensuring they reflect the organic sector's most pressing and emerging needs.

1. The Value and Importance of NOSB Research Recommendations

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[3] Nat'l Organic Standards Bd., *U.S. Dep't of Agric., Research Priorities Discussion Document* (Aug. 2024);Nat'l Organic Standards Bd., *U.S. Dep't of Agric., Research Priorities Final Proposal* (Oct. 2024).
[4] Nat'l Organic Standards Bd., *U.S. Dep't of Agric., Research Priorities Final Proposal* (Oct. 2024), pp. 161–162.
[5] Organic Farming Research Foundation, *2022 National Organic Research Agenda*, fig. 4.7, at 40 (2022), https://ofrf.org/wp-content/uploads/2022/04/OFRF_NORA_2022.pdf#page=40.
[6] *Id*. 4 at pp. 161–163
[7] National Organic Standards Bd., *NOSB Research Priorities: 2016 Recommendation to the National Organic Program*, p.3, (Oct. 2016), https://www.ams.usda.gov/sites/default/files/media/MS2016ResearchPriorities.pdf.

OFRF would like to reiterate the critical importance of the NOSB's annual research priority-setting process. Much like its materials review and policy recommendation roles, the NOSB's research agenda-setting function plays a unique and indispensable role in ensuring that organic producers' needs are understood and addressed across USDA programs, academic institutions, and the broader research ecosystem.

From the researcher perspective, the NOSB priorities provide a vetted, community-informed source for topics that lead to high-quality, high-impact research projects. These priorities directly shape funding announcements for competitive grant programs, meaning that the NOSB's Research Priorities not only help align federal investments with pressing on-farm challenges but also play a key role in incentivizing participation by researchers, both early-career and well-established scientists, in agroecological systems research. Because NOSB priorities are informed by public comment, materials review processes, and real-world producer feedback, they form a dynamic and responsive research compass that leads to actionable outcomes. This further strengthens a feedback loop between science, policy, and practice, expanding both the volume and accessibility of organic research.

From the farmer and organic community perspective, the NOSB's research priorities offer a formal and direct communication channel to the scientific and policy-making communities. The priorities elevate grassroots knowledge, validate long-standing production challenges, and help ensure that research remains grounded in organic principles rather than merely replicating conventional solutions with approved inputs. Importantly, these priorities have been cited in Congressional Appropriations materials and agency briefings as a key source of guidance on which USDA research investments should be expanded, and where underserved topics persist (e.g., copper alternatives, nursery stock, and transition strategies). Importantly, the publication of annual priorities reinforces the role of the NOSB as a trusted voice for farmers, building farmer trust, ensuring transparency, and reinforcing that public investments deliver equitable and accessible benefits.

Put simply, we encourage the NOSB to continue refining, documenting, and publishing its research priorities annually; and to consider collaboration and mechanisms to measure progress towards addressing them.

2. Persistent Research Gaps and Continued Needs

Many longstanding NOSB research priorities remain highly relevant and in need of continued research investment. Below are key areas of study that OFRF suggests renewed focus and public investment towards, as they continue to shape organic farmers' regulatory compliance, economic viability, and the sector's systemic integrity.

a. Effective alternatives to copper

The NOSB has made alternatives to copper-based fungicides a research priority since at least 2014.[8] Research topics could include side-by-side evaluations of biofungicides, sulfur-based materials, breeding

[8] Nat'l Organic Standards Bd., *Materials Research Priorities: 2014 Recommendation to the National Organic Program,* p.3, (Oct. 2014).

projects, and impacts on soil and microbiome. A small number of recent OREI and ORG projects have investigated this topic, primarily focused on tomato breeding for pathogen resistance traits.[9] Although these projects have produced some promising results, due to the high-value nature of the crops associated with this treatment, mainly specialty and fruiting crops, there should be a continued call for investment into the area of study.

b. Methionine alternatives

The challenge of replacing synthetic DL-methionine, an essential amino acid currently on the National List, has been a NOSB priority since 2014 and reaffirmed as a critical need in 2024.[10] Despite its long-standing priority status, only a handful of recent OREI-/ORG-funded projects have investigated the topic, primarily focusing on fish meal with invasive species and continued investigations into corn and other small grain breeding trials.[11] Future research should continue to prioritize subjects like commercial viability of methionine-rich feed ingredients, like breed selection for methionine efficiency, and systems-based nutritional management and pasture strategies.

c. Livestock breed development and evaluation

NOSB first listed organic livestock breeding as a research priority in 2017, recognizing that many commercially available breeds are not always compatible with pasture-based or outdoor organic systems.[12] Though the NOSB later integrated this with a broader livestock research category in 2022, this need remains persistent.[13] Research is needed not only for new breed development, but even more so for on-farm evaluation of currently available breeds under organic conditions. One exciting example of this work is the research conducted on evaluating breeds for parasite resistance conducted by Dr. Joan Burke of the Agricultural Research Service in Arkansas.[14]

d. Organic pork production

Organic pork continues to be an underdeveloped sector despite growing consumer demand. One important development is clearer rules for organic production through the Organic Livestock and Poultry Standards (OLPS) rule. In light of this rule being finalized, the NOSB should reaffirm and update this recommendation to reflect new clarified standards. Research topics could include breed evaluation, organic-compliant housing and farrowing systems, feed alternatives that reduce dependence on soy and

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[9] *Practical Approach to Controlling Foliar Pathogens in Organic Tomato Production through Participatory Breeding and Integrated Pest Mgmt*, National Institute of Food and Agriculture Awd. No. 2014-51300-22267; *Tomato Organic Management and Improvement Project (TOMI): Part II*, National Institute of Food and Agriculture Awd. No. 2019-51300-30245.

[10] Nat'l Organic Standards Bd., *Materials Research Priorities: 2014 Recommendation to the National Organic Program*, p.5 (Oct. 2014); Nat'l Organic Standards Bd., *Research Priorities: Final Recommendation to the National Organic Program*, p.6 (Oct. 2024).

[11] *Fishing for a novel source of methionine in organic poultry feed: Exploring the potential of invasive Asian Carp as sustainable fish meal*, National Institute of Food and Agriculture Awd. No. 2015-51106-23966; *Breeding corn to enable organic seed production*, National Institute of Food and Agriculture Awd. No. 2020-51300-32180; *Corn/endophyte partnerships for organic farmers,* National Institute of Food and Agriculture Awd. No. 2022-51300-38057;

[12] Nat'l Organic Standards Bd., *Research Priorities: Final Recommendation to the National Organic Program*, p.3 (Oct. 2017).

[13] Nat'l Organic Standards Bd., *Research Priorities: Final Recommendation to the National Organic Program*, p.3 (Oct. 2022).

[14] *Understanding Parasite Resistance in Organic Livestock and Using a Systems Approach for Control,* National Institute of Food and Agriculture Awd. No. 2016-51300-25723

corn, and viable organic slaughter and processing infrastructure and market analysis. One recent OREI-funded project directly addressed analyzing organic pork feed systems, but no projects have focused on breeding or housing.[15]

e. Organic nursery stock

One important pinch point in the expansion of organic agriculture is the production of organic nursery stock, essential for perennial fruit and nut production and identified as a research priority from 2019-2021.[16] Alarmingly, there were no OREI or ORG research projects investigating this area of study. Researching the best practices for nursery production and development is key for growing this market; topics like disease and pest management, organic-compliant phytosanitary protocols, rootstock access, and the role of inoculants in transplant success are crucial. The NOSB should recommend further research into these topics, both to provide groundwork for nursery businesses and also democratize information related to nursery production and networks for sharing this knowledge. Without public investment, this knowledge will remain fragmented and proprietary, creating unnecessary barriers for organic orchard and vineyard expansion.

f. Microbial inoculants and biostimulants

An area that continues to draw intense interest among the crop production communities, microbial inoculants and biostimulants are widely marketed but under-evaluated. The NOSB identified microbial soil inoculants and biostimulants as a key research need in 2020–2021, in response to widespread farmer use of these products and a lack of independent efficacy data.[17] OFRF's 2022 NORA survey similarly found that farmers frequently cited these products as unproven or inconsistent, making it difficult to decide whether to invest in them. Although a handful of OREI and ORG projects have investigated the topic, results show high variability of yield impacts with low predictability.[18] There is a continued need to study and develop standardized protocols for evaluation, conduct compatibility studies with existing microbiomes, and create farmer-facing extension materials on how to assess products themselves.

Collectively, these research needs highlight the importance of maintaining a robust and farmer-informed research agenda that directly supports both regulatory compliance and on-farm problem-solving. We encourage all research organizations, including NIFA, ARS, and the broader research community, to align their future investments with the NOSB's long-standing and updated priorities.

3. Emerging Priorities

Informed by the 2022 NORA report, analysis of the OREI and ORG competitive grant awards, and ongoing outreach to farmers, researchers, and regional partners, OFRF has identified several research areas that

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[15] *Integrating hybrid rye as a winter annual crop into organic pig production*, National Institute of Food and Agriculture Awd. No. 2021-51300-34894

[16] Nat'l Organic Standards Bd., *Research Priorities: Final Recommendation to the National Organic Program*, p.3 (Oct. 2021).

[17] *Id*. at 4.

[18] *Ensuring the best practical use of microbe-containing crop biostimulants/biofertilizers among (transitional)-organic vegetable growers*, National Institute of Food and Agriculture, Awd. No. 2016-51106-25714; *Enhancing indigenous soil microflora to facilitate organic strawberry transition in the southeastern US*, National Institute of Food and Agriculture, Awd. No. 2019-51106-30197.

have grown in urgency within the organic sector but are not yet represented in the NOSB's formal research priorities. The following topics represent opportunities for the NOSB to continue to elevate farmer and community concerns that, if left unaddressed, could limit the sector's resilience and growth.

a. Farmer Mental Health and Quality of Life

The 2022 NORA Report highlighted the widespread stress, burnout, and social isolation among organic farmers, often made worse by economic instability and weather extremes all producers face.[19] Despite these concerns, mental health and farmer well-being remain absent from NOSB research priorities. We recommend research that can evaluate the effects of peer support, cooperative business models, and community networks on these important aspects of a farm community that are often overlooked. Supporting farmers as whole people is fundamental to the long-term sustainability of all agricultural operations, but especially within organic farming.

b. Labor Conditions in Organic Production

Although social fairness is a foundational principle of organic agriculture, research into labor practices and farmworker conditions in organic production remains unaddressed by the NOSB's research priorities. Research topics could include working conditions for farmworkers, structural barriers to land access among farmworkers, and strategies for operationalizing fair labor models on small-scale and medium-scale operations. We recommend that the NOSB initiate a research priority focused on the social dimensions of sustainability, helping USDA competitive grant programs address this long-neglected range of issues.

c. Urban and Peri-Urban Organic Systems

Urban and peri-urban farms play a vital role in community resilience and localized supply chains. Since the 2022 NORA report, many urban growers have reported challenges in navigating organic certification, yet NOSB priorities have not yet acknowledged these issues.[2021] Research should identify and develop tailored certification and technical assistance materials for small-scale urban organic farms, and explore the role of organic production in municipal food and resilience planning.

d. Organic Risk Management Tools

Organic producers continue to face challenges in accessing existing crop insurance programs, which are often designed around single-crop conventional methods.[2223] While farmers have voiced the need for organic-relevant risk management tools for over a decade, the NOSB has not yet recommended research into this topic. Research topics could include the development of actuarial models based on organic systems and the data necessary to their development, evaluations of region- and scale-specific organic risk factors, and ultimately the design of farmer-friendly tools and extension materials to improve

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[19] *National Organic Research Agenda: 2022 Report* at 49–54 (reporting widespread stress, burnout, and isolation among organic producers).
[20] National Organic Research Agenda: 2022 Report at 60–62 (detailing challenges urban and peri-urban farmers face, including certification costs).
[21] See National Organic Standards Board, Research Priorities 2024 at 161–165 (urban organic systems not identified among current priorities)
[22] National Organic Research Agenda: 2022 Report, at 41–43 (organic farmers reporting poor crop insurance fit and limited participation in existing federal programs).
[23] See Office of Inspector General, USDA, Crop Insurance for Organic Commodities (Audit Report 05601-0001-32, March 2020), https://www.usda.gov/sites/default/files/05601-0001-32.pdf (USDA OIG finding crop insurance tools remain poorly adapted to organic producers).

participation in USDA insurance programming. This research would fill a key gap and help align organic risk management with the realities of whole-farm planning done by organic farmers.

In summary, OFRF applauds the NOSB for its ongoing dedication to evidence-based, systems-focused research that addresses the real challenges organic producers face. Your leadership in setting clear, accessible research priorities plays a central role in steering public research investments, ensuring they reflect organic principles and the realities of the sector. We look forward to continuing to support your efforts in expanding organic agriculture's contributions to environmental stewardship, agricultural economic vitality, and resilient food systems.

Eat well and breathe deeply,
Gordon N. Merrick on behalf of the Organic Farming Research Foundation