



This data brief summarizes findings from Organic Seed Alliance's (OSA) most recent State of Organic Seed report as they relate to the role of organic plant breeders and researchers, including trends in organic research investments, plant breeder and researcher views on intellectual property rights, and recommendations for encouraging the expansion of organic seed systems.

Overview

Organic seed represents the first link in the organic supply chain, serving as the foundation of organic integrity from seed to plate. *State of Organic Seed* is an ongoing project that monitors organic seed systems in the U.S. Every five years, OSA releases this progress report and action plan for increasing the organic seed supply while fostering seed grower networks and policies that aim to decentralize power and ownership in seed systems.

One bright spot in our 2022 findings is a marked increase in public investments supporting organic plant breeding and other organic seed research projects. OSA documented nearly \$40 million in research support for these types of projects in the last five years alone. We arrived at this and other conclusions by compiling a database of organic research funding in addition to a survey of organic plant breeders and researchers.

Key findings

The following key findings **pertain to the role organic plant breeders and researchers play in fostering organic seed systems:**

- **Organic plant breeding is an expanding field that is making progress toward several goals:** adapting seed to organic farming systems, prioritizing traits important to organic growers, and elevating the principles that underpin the organic movement. Collaboration and decentralization are key strategies in organic plant-breeding projects.
- **Organic plant-breeding projects pursued by researchers generally align with the needs of organic producers,** where vegetables and field crops are the most popular crop categories and disease resistance and yield take priority.
- **Organic research investments are increasing,** the bulk of which come from USDA's Organic Research and Extension Initiative (OREI) and are dedicated to breeding and variety trials.
- **As investments in organic plant breeding and organic seed increase, the organic principles underpinning the organic movement serve as an important touchstone** for ensuring that seed systems embrace diversity, health, and fairness as they grow alongside the broader organic industry.

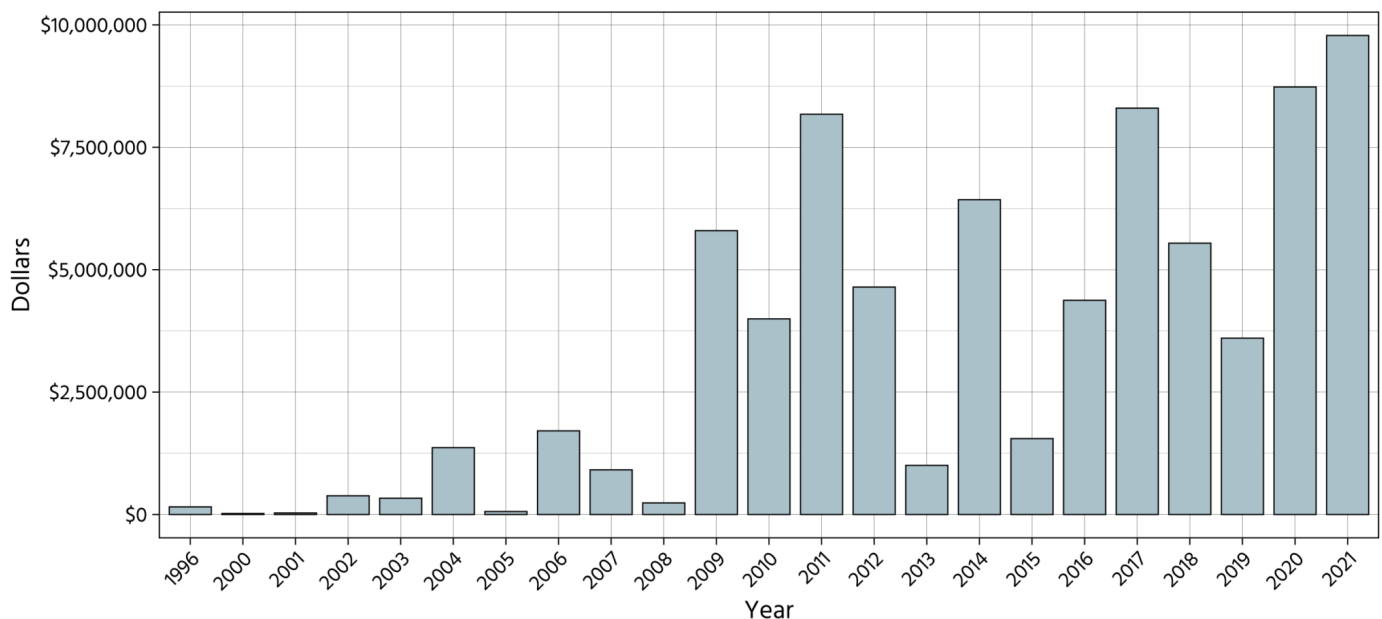
- Public organic plant breeders and researchers are having greater success developing new varieties. However, challenges remain regarding staffing and capacity for researchers to carry out their projects.

"Most organic breeders are located in New England, Northern Europe, or the Pacific Northwest. As such, their varieties tout frost resistance but almost none are bred for the South. This is a significant and growing problem each year as the climate warms."

- Organic Producer

- In the last five years, there has been more than \$39.8 million in public investment for organic plant breeding and other organic seed initiatives. This represents the largest public investment in organic seed systems we've recorded (see Figure 1).
- By region, projects labeled as "multi-regional" received the most support, followed by projects located in the North Central, Southern, Western, and Northeastern regions, respectively. This finding underscores the collaborative nature of many organic plant-breeding projects.

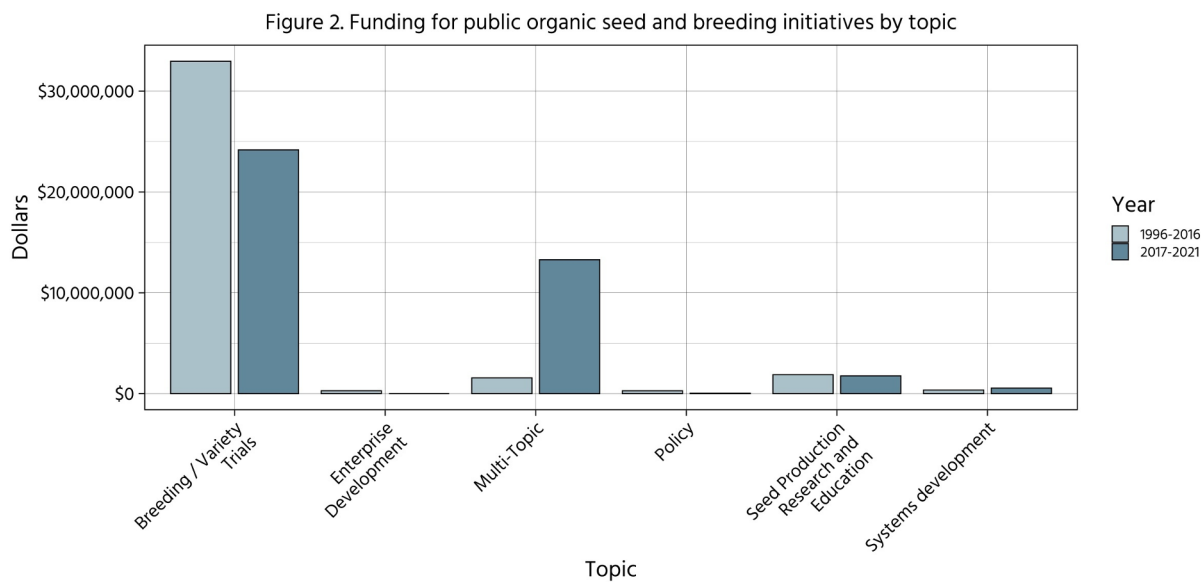
Figure 1. Funding for public organic seed and breeding initiatives by year



- Plant-breeding and variety-trial projects received the most funding (see Figure 2). Over the last 25 years, only 5 percent of these research dollars have gone toward organic seed production research and education.
- By crop type, vegetable and field-crop projects received the largest amount of support. Forage and cover crops have seen increased investments in the last five years.

Are current research investments equitable?

Financial resources tend to get funneled toward larger research programs. The burden of paperwork per project partner can also disincentivize paid collaboration with broader groups of stakeholders. We view this as an access and equity issue for research programs and a barrier to increasing the diversity of grant recipients and partners. Research investments should incentivize the connection between plant breeding and research priorities to social justice in seed and food systems.



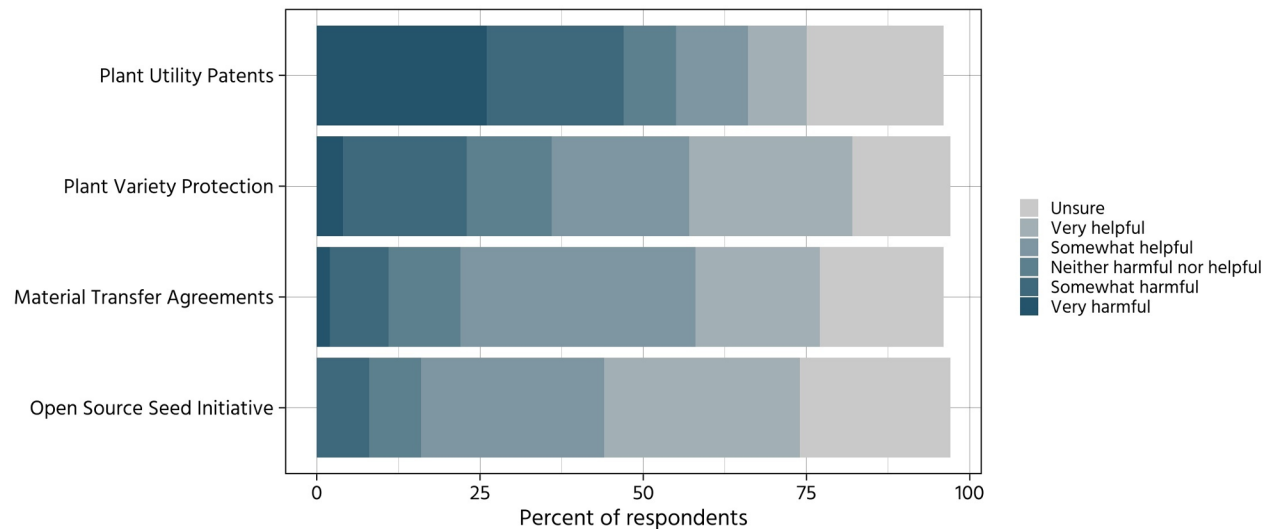
Responses to climate change

Adapting plant genetics to specific regions and growing practices is an effective strategy for strengthening climate resilience. Many organic plant breeders work to adapt our crops to modern environments and climates, and include characteristics important to both growers and consumers. Nearly half of the researchers responding to our survey report “unexpected environmental conditions” as obstacles to meeting project goals.

Plant breeder and researcher views on IPR strategies

Researchers were asked how they would describe the impact of different intellectual property rights (IPR) strategies on organic seed systems, ranging from “very harmful” to “very helpful” (see Figure 3). Researchers identified the Open Source Seed Initiative (OSSI) pledge, Material Transfer Agreements, and Plant Variety Protections as most helpful and utility patents as most harmful.

Figure 3. Seed researcher views on IPR strategies



Recommendations

- Public research investments in organic plant breeding and other organic seed research should continue to increase while diversifying who participates in research.
- These investments should prioritize the challenges that organic seed producers face, many of which can be addressed through research, as documented in our 2022 data; there has been very little public investment in this area compared to organic plant breeding.
- A broader range of governmental funding sources should support public cultivar development — funding should not overly on USDA's OREI.
- Additionally, non-government investment models are needed to support research and infrastructure needs of smaller organic seed producers/companies.
- Researchers should continue collaborative models with growers as well as social scientists to ensure meaningful engagement and relevant project deliverables.
- Public research programs need to prioritize the needs of historically marginalized growers and their communities.
- Public research priorities should align with the social principles underpinning the organic movement to ensure that transparency, equity, and justice are central tenets of public investments.