

From Commodification to Conservation: Restoring Agrobiodiversity Through Seed Breeding – Part II:

October 25, 2023 (Accessed 10/03/2024 <https://sustainableagriculture.net/blog/from-commodification-to-conservation-restoring-agrobiodiversity-through-seed-breeding-part-ii/>)



Editor's Note: This post is the second in a two-part series about seed breeding. This series explores the history of seed breeding in the US, the impacts of consolidation and concentration of seed breeding on farmers and our food systems, and what a more democratic seed breeding system might look like. This series was created in collaboration with the [Ujamaa Cooperative Farming Alliance](#) and [Dr. Cathy Day of Cathy Day Consulting](#). Find the first post in this series [here](#).

In the first installment of this series, we explored how intellectual property protections have led to major worries about the depletion of plant diversity and fair access to genetic resources throughout our agricultural systems. These concerns urge us to reimagine the seed system model and envision a more participatory, democratic, and community-centered future for agriculture.

Democratizing the Seed Breeding System

A century following the enactment of the Plant Patent Act and a generation past the presumed conclusion of the [Green Revolution](#), the seed industry has undeniably [prospered](#)

[financially](#), drawing extensively from what were once [robust seed systems](#). However, over time, advocates for sustainable seed systems now urge a transformative shift – away from the domination of production-centered global agribusiness monopolies responsible for eroding the rich bounty of locally adapted and culturally significant crop diversity. These advocates, proponents of sustainable agriculture, [emphasize the importance of seed diversity at the local food system level](#). They aim to defend not only the culturally significant and agrarian heritage deeply rooted in our agricultural practices but also to champion [fair competition and foster innovation within the seed industry](#).

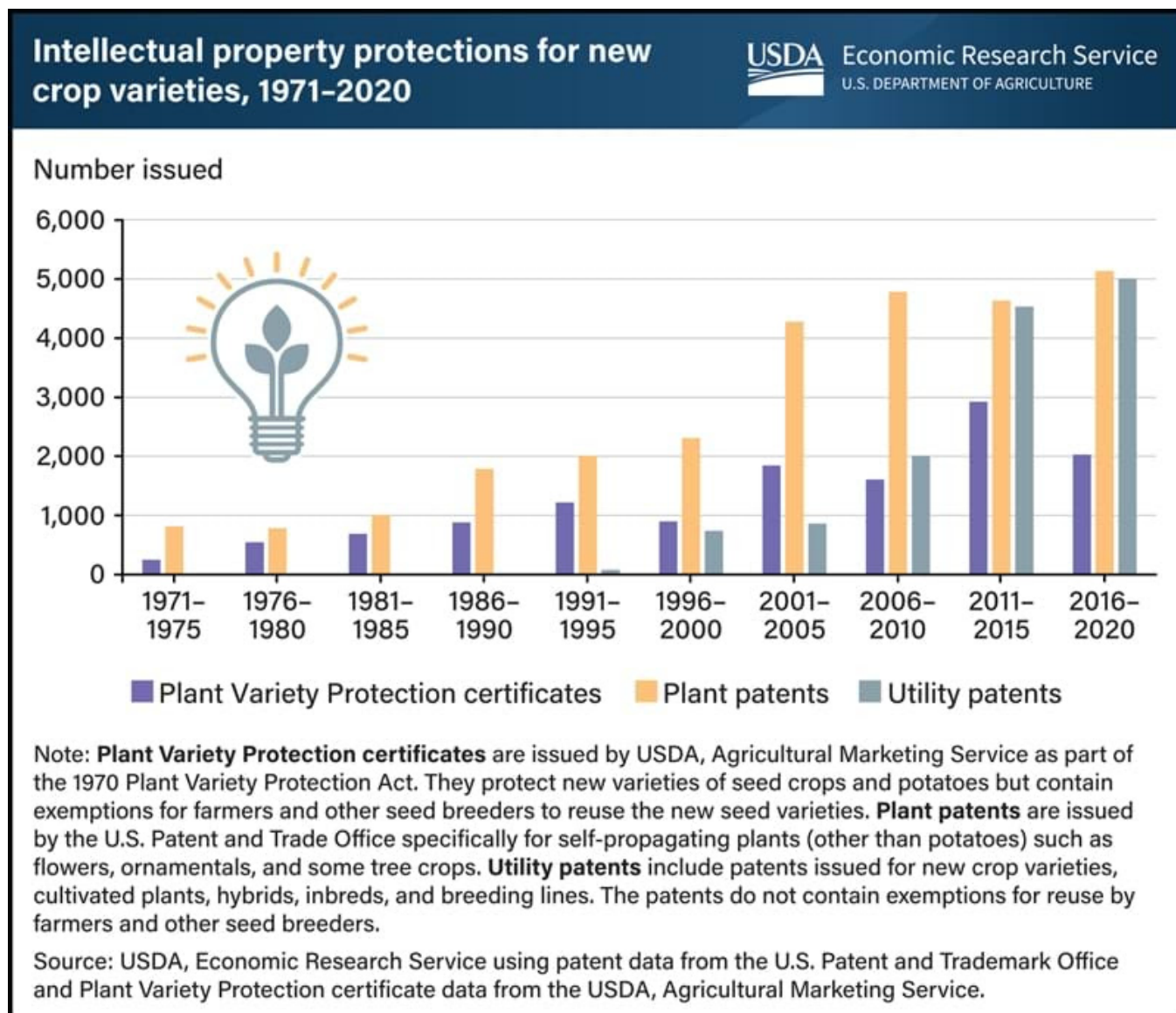
Diminishing agrobiodiversity has rendered agriculture [more susceptible to pests and diseases](#), [reducing its adaptability](#) in the face of shifting environmental conditions. Furthermore, the prevailing power dynamics within food systems and seed systems intensify this decline by limiting access to culturally significant seeds and foods for many communities, thereby [impeding efforts to enhance dietary diversity within our local food system](#). This scarcity underscores the urgent need for a more inclusive and equitable approach to seed systems, one that prioritizes preserving diverse and culturally significant seeds for a resilient and sustainable agricultural future.

Reinvesting in farmers as pivotal stakeholders in our food system empower those who have [traditionally stewarded](#) seeds within local communities. The dedication of local farmers to the sustained existence of diverse heirloom crop varieties is the foundation of local food systems. This [commitment to seed-saving](#) stands in opposition to the prevailing trend of globalization and standardization inherent in today's large-scale production farms. While adherence to tradition may appear unsophisticated in today's market, it is this approach to farming that can allow farmers to more easily respond to the needs of their communities by localizing food production. Additionally, the [shortening of the food supply chain](#) can also empower communities, in the face of climate change, to gain greater autonomy and flexibility regarding their food access.

Promoting [open-source seed licensing](#) programs presents yet another avenue to guide farmers, plant breeders, and researchers toward a more equitable and sustainable approach. As is seen more frequently in the software field, open-source licensing allows the recipient to use, modify, and share at will. Open source is a disruptive innovation model that both drives down profit and encourages collaboration. In contrast, the proliferation of patents and certificates that are held [in the portfolios of very few](#) has substantially constrained plant breeders, particularly with the consolidation of seed companies. Ostensibly, farmers will engage in crop diversity and sustainable agriculture when the [benefits and incentives are sufficient to promote change](#).

Acknowledging the past and current trends of the seed industry, it is imperative that we reinvest through grants, research funding, and technical assistance programs in the vital role local farmers play in anchoring our local food systems. Equipping them to hold back the ever-encroaching loss of seed diversity which is foundational to a resilient and sustainable food system. By actively conserving and protecting the agricultural landscape that we share as opposed to technology, we can pave the way for a more inclusive and sustainable future. By increasing financial and personnel support for the collection, preservation and evaluation of germplasm collections and encouraging increased public use of the rich sources of genetic diversity in U.S. germplasm collections, ensuring

that dedicated funding streams are created for public plant and animal breeding research that priorities farmer led research, and specifically including provisions for this type of research in the request for applications in NIFA competitive grant research programs, we will not only preserves our agrarian legacies but sustain the communities that depend on these community members.



When looking at the impact of organic certification on our seed system, there are factors that work for and against the movement away from the commercialization and commodification that is dominant in our seed system. The organic certification standards stipulate that GMO derived inputs (including seeds) cannot be used. This encourages the use of different types of seeds including open pollinated, heirloom seeds that empower any growers to produce and save their own seed. Producing seeds from one's own seed growing and saving practices removes the dependency on commercialized seed sources. Even though there is not a universally agreed upon definition of heirloom, it does seem generally agreed upon that heirloom varieties are at least 50 years old. Expanding the use of heirloom seeds helps preserve agrobiodiversity in our agricultural and food systems.

Even though there is a lot of benefit from organic certification in the way of encouraging more healthy and sustainable practices, there are also barriers that reinforce commercialization and commodification. Participation in the organic certification system is dependent on having access to considerable resources. For a small to medium size farm, [the average annual costs for organic certification can be somewhere between \\$700-\\$3,000](#). Navigating the organic certification process (and finding cost share programs) also requires considerable informational and technical resources. Programs like the [Organic Certification Cost Share Program \(OCCSP\)](#) can help alleviate some of the costs of certification for small and mid-sized organic farm businesses, which are a core part of the domestic organic supply chain. However, OCCSP has [struggled with funding challenges](#) in the past, and [risks losing funding](#) if the Farm Bill does not pass on time. In the absence of a [special provision during a Farm Bill extension](#), the Cost Share Program would expire, leaving thousands of organic farmers with a huge net increase in their annual certification costs.



Policy Recommendations

With the challenges posed by a changing climate, producers need resilient and adaptive plant and animal breeds that can withstand drought, heat, flooding, disease, weed pressure, and other new or worsening stresses. Producers also need cultivars that can perform well in organic and other low-input sustainable production systems that protect soil health, natural resources, environmental quality, and climate stability. In the upcoming Farm Bill we need to re-establish connections between seeds and our larger food system. We need a mass re-allocation of funds towards the public sector from private institutions and entities to provide more channels for regional food system development.

[The Seeds and Breeds for the Future Act](#) introduced by Senator Baldwin (D-WI), promotes the development of ready-to-use, regionally-adapted, and publicly available seed varieties and animal breeds. By directing funding through USDA research grants, this bill prioritizes the development of regionally and culturally appropriate public seeds (“cultivars”) and animal breeds, ensuring their accessibility to the public. This act can also help shift the market dominance that GMO seeds have

had in the US by supporting regional adaptation of seeds and increased agrobiodiversity. The end result could be a future where we see growth in our domestic food production that puts cultural diversity and sustainable practices at the forefront. In addition, this bill would direct USDA to create a public breed and cultivar research coordinator position within the REE mission area to ensure that USDA can continue to maintain and build a diversity of crops and livestock breeds with climate- adaptive and other beneficial traits that are broadly accessible to all US farmers. A robust set of policy recommendations for reinvigorating public plant and animal breeding can be found [here](#).

Everything starts with seeds. Whether you're an organic farmer looking for seeds that will work with your specific organic growing practices or looking for wheat varieties adapted to your specific growing climate, seeds are the foundation of every piece of food we put on our plate and central to everything farmers do. The continued growth of sustainable and organic agriculture and local, healthy food systems across the country – along with farmers' ability to meet the challenges of climate change and food security – depends on this critical first building block.