



LSP *Myth Buster* #49

An ongoing Land Stewardship Project series on ag myths and ways of debunking them.

Updated: May 2017

→ *Myth:* We Don't Need Publicly Supported Research

→ *Fact:*

The list of benefits society has derived from publicly-funded agricultural research is impressive. Localized seed

varieties, hardier fruit and vegetable cultivars, soil-friendly tillage methods, animal breeds that use feed more efficiently—these are just a sampling of the public “goods” taxpayer-funded science has produced over the past several decades. The bulk of that research was done by the USDA and our land grant universities. State and federally funded test plots can take on the economic risk of figuring out what works and what doesn't—something individual farmers usually cannot afford to do.

Granted, this research has not always resulted in a positive payback for farm communities and society in general. For example, public research that promotes monocultural row crop systems to the exclusion of all else has resulted in major environmental, economic and even social downsides. But overall, publicly-funded research provides the opportunity for farmers and members of the general public to have a say in what questions/problems are investigated, and that's a good thing.

It turns out that public doorway into scientific inquiry is closing fast. According to a 2016 report by the USDA's Economic Research Service, between 1970 and 2008, around half of total U.S. food and agricultural research and development was conducted by public institutions. By 2013, that share was only 30 percent. Public scientific research is simply shriveling away as lawmakers in Washington, D.C., and at various state capitols slash funding at unprecedented rates. A lot of innovative research initiatives have been killed, despite producing extremely valuable public benefits. Perhaps the most egregious recent example of that was when the Iowa Legislature voted this spring to eliminate the Leopold Center for Sustainable Agriculture, which over the past three decades has been a national model for how interdisciplinary research can produce innovations in farming systems that protect water quality while producing economic benefits. (In May, Iowa's Governor vetoed the bill killing the Leopold Center, but it still has no state funding, meaning for now this national treasure basi-

cally exists in name only.)

The result of the public's withdrawal from agricultural science is that the private sector—specifically, large agribusiness firms such as Monsanto and Syngenta—have willingly stepped in to fill the gap. Consolidation in the industry, coupled with changes in patenting and intellectual property rights laws related to seeds and other “biological” products, has made private funding of agricultural research more viable than ever. Such research is not just done in company laboratories; the Microbial and Plant Genomics Institute housed in the Cargill Building on the University of Minnesota's Saint Paul campus is a prime example of how private industry can use its money to buy access, not to mention “scientific credibility,” at a public institution.

Not All Science is Made the Same

When eliminating funding for public agricultural research on the state or federal level, policymakers invariably point out that the private industry's growing interest in this sector of science will more than make up for the shortfall. Whether the test plot is public or private, science is science, right? Not exactly. Corporations have little economic incentive to fund research that will not produce a commercially viable product, pure and simple. It's hard to patent and sell a diverse farming system that keeps more continuous living cover on the land year-round. That doesn't mean such a system doesn't have value in terms of healthier soil and cleaner water, it's just hard to quantify on a quarterly profit-and-loss report.

Part of the problem with allowing the private sector to swallow up research is that these firms are vulnerable to being swallowed up themselves, further consolidating our agricultural knowledge base. Nowhere is that more evident than in the seed sector, which has been revolutionized by the development of genetically modified products, which can be patented, sold and controlled by whoever is footing the bill of this pricey research. Over the past two decades, we've lost over a third of our public plant breeding programs, according to Rural Advancement Foundation International.

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Three private firms now control more than half of the global seed market, up from 22 percent in 1996. And the industry is about to get more concentrated: ChemChina is buying Syngenta, Dow Chemical is taking over DuPont, and Bayer is gobbling up Monsanto.

All of this will mean more of the same in the seed business: companies focusing almost exclusively on researching and developing major commodity crops like corn and soybeans, while ignoring research into plants— forages, fruits and vegetables, for example— that don't represent as big of a market potential but are so critical to developing a more diverse food and farming system. The few public breeders still in existence are having a tough time gaining access to germplasm for propagation research. Such trading of seeds between institutions has traditionally been the backbone of public seed research.

If we are to prevent agricultural research from becoming a completely private club, the public will need to step up and make it clear that science centered on developing diverse, innovative farming systems is a worthy investment of tax dollars. That will mean connecting some dots between, for example, a more diverse agriculture and a cleaner environment.

There's been progress on that front in recent years. For example, the University of Minnesota's Forever

Green initiative, which is researching how to make cover cropping and “relay” planting systems an agronomic practicality, has shown great potential for providing farmers an economic boost by allowing them to diversify out of the corn-soybean duo-culture. The Land Stewardship Project and others have gotten the message across to urban and suburban legislators that such research will help produce a public good that their constituents are increasingly clamoring for: clean water. The result has been some modest state funding for this innovative research. The door into the private club isn't exactly swinging wide open, but all that knocking is starting to pay off.

→ More Information

- The USDA's Economic Research Service report, “U.S. Agricultural R&D in an Era of Falling Public Funding,” is at www.ers.usda.gov/amber-waves/2016/november/us-agricultural-rd-in-an-era-of-falling-public-funding.

- “Proceedings of the Summit on Seeds and Breeds for 21st Century Agriculture” is at <http://rafiusa.org/publications/seeds>.

- The Food & Water Watch report, “Public Research, Private Gain: Corporate Influence Over University Agricultural Research,” is at www.foodandwaterwatch.org.