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An Agricultural Law Research Article

**Progress without Patents: Public  
Maintenance of Agricultural Knowledge**

by

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## Progress Without Patents: Public Maintenance of Agricultural Knowledge

In 1862, the U.S. Congress planned for a land grant university (LGU) in each state with the mission of enhancing general education and agricultural and mechanical knowledge for underserved and rural communities.<sup>1</sup> Well stocked with scientists, these schools have led agricultural research in the United States over the past century. Most gains in agricultural productivity and advances in disease resistance of crops and animals can be traced to work performed at LGUs. Nearly all of these discoveries were available for free to whoever wished to use or commercialize them.<sup>2</sup>

The first 120 years went according to plan for the LGUs. The last twenty years, however, have seen great and unnecessary change. The Bayh-Dole Act of 1980, and similar laws that followed, encouraged (many say required) public universities to patent and commercialize their “inventions” rather than simply make them available. Partnerships with large agrichemical companies quickly became the norm as universities and faculty sought to cash in on their discoveries. Patented agricultural inventions include improved plant varieties, important genes, and novel techniques. In 1980, “Reaganomics” was just gearing up and the privatization of our public universities was beginning in earnest.

In addition to privatizing what once was public and freely available, university faculty now had the implied incentive to work harder because they shared in a Bayh-Dole mandate giving the publicly employed inventor a portion of the royalties from university patents—typically 20 to 50 percent.<sup>3</sup> Why do we need a financial incentive to do the job that we were hired for? If to serve the public and earn a paycheck is not incentive enough to be employed at a

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<sup>1</sup> Robert L. Zimdahl, *The Mission of Land Grant Colleges of Agriculture*, 18 AM. J. ALTERNATIVE AGRIC. 103, 104-05 (2003).

<sup>2</sup> *Id.*

<sup>3</sup> VERONICA DIAZ ET AL., ASSOCIATION FOR THE STUDY OF HIGHER EDUCATION, BEYOND BAYH-DOLE: ENTREPRENEURIAL POLICY MAKING IN THE 1990S, 12-13 (2002), at <http://www.u.arizona.edu/~vdiaz/finalAshePaper.pdf> (last visited Nov. 1, 2004).

public university, then the faculty should search for jobs outside of academia. We have not taken vows of poverty; but we did agree to work for the public good, not to tie up with ownership the ideas, discoveries, and inventions we accomplished with public funds.

The move to change our public universities coincided with biotechnology becoming not only the “next big thing,” but for many, “the only thing” to improve agriculture and to end food-based misery in developing countries. Oblivious, in some cases by choice, to the fact that starvation and malnutrition are rarely production issues, “biotechnology will feed the world” became a rallying cry for investors, university administrators, and scientists.<sup>4</sup> Biotechnology, we are told, will be our salvation—any day now. In the meantime, very productive agricultural research that is more farmer, community, and environmentally based gets de-emphasized and, in some cases, eliminated from our campuses.

In spite of Malthusian attempts to convince us that we will starve without biotechnology, the new “science” is really all about ownership. Its arrival was perfectly timed for a friendly takeover of public research. Reduced public funding, a philosophy that business can do anything better than government, an out-of-touch public, and the simplistic promise of a science-based end to malnutrition combined as powerful forces for change.

Bringing businesses on to our LGU campuses is a flawed idea on many levels. Where is the disinterested voice? If public servants cannot put the public first, then how are they serving the public? “Trickle down” nonsense has no place on college campuses. If the argument that we must protect our investments and we must partner with industry is so great in other fields, then we must argue that food is different. Food is not software or nanotechnology, it is one of our most basic needs; however, the U.S. patent system makes no distinction between a patent on crop plants and a patent on the latest microchip.

For over 10,000 years farmers have been improving the world’s food crops. Every year these men and women saved their best seed and planted it back. The right to plant what you harvest is probably the oldest right of humankind. Biotechnology removes that right by legally and/or genetically forcing farmers to buy their seed each year. The industry argues that it must force farmers to buy new seed each

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<sup>4</sup> See Martina McGloughlin, *Without Biotechnology, We’ll Starve*, L.A. TIMES, Nov. 1, 1999, at B7.

year so that the breeders or scientists get a return on their investment. What investment? A few decades? A gene or two? A few million dollars? These “investments” allow you to own a living organism that has been improved for millennia? What about the farmers’ share? Is it enough to say that because farmers will profit by growing an improved variety they should give up all rights to grow their own seed? How can our LGUs be involved in actively dismantling a tradition that has stood for 10,000 years?

Do we need patents to ensure progress in science? No. Mendel discovered the science of genetics without them. Nearly a century later, Watson and Crick discovered the structure of DNA without them. Most, if not all, of the great discoveries in biology were not only made in a public system but also were made immediately available to other scientists and the public.

What has changed that makes us feel we need to protect our food-based intellectual investments? Is it merely that now it is legal to patent life? Is it that simple?

How is it that we can eliminate polio without patents in the 1950s, but today there are over 12,000 patents that have the word “vaccine” in their applications?<sup>5</sup> Why do half of those applications contain the word “university?” Why do we need financial incentives to end food-based or medical-based misery? What does this say about us as a people? It says more than we should be able to bear.

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<sup>5</sup> US Patent Office, *United States Patent and Trademark Office Full-Text and Image Database*, at <http://www.uspto.gov/patft/index.html> (last visited Nov. 1, 2004).