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The Farmer Has No Thumbs

"I don't have a green thumb." It's a common refrain when people talk about being able to keep a houseplant, or even a small backyard garden, alive. Perhaps you've described yourself this way – ignorant of the magic required to sustain kale or a tomato plant. Unlike some technologies that have been inaccessible from the beginning (like computers), for a while most people in the US had a green thumb borne of necessity. Being able to grow a few things in a garden was simply part of maintaining a household and feeding a family; knowledge of gardening technology was accessible to all and not blocked by systemic inequalities like class or race. The poorest folks in the US could learn how to grow food (and often had to because those were the only jobs accessible to them).

However, in 1887, the United States government passed the Hatch Act which allocated money to the creation of agricultural experiment stations. This legislation was funded by the realization that while many people could produce *food*, there weren't enough agricultural "experts."[1] It was almost as if the government realized that access to agricultural knowledge was *too democratized.* Thus began the construction of the agricultural infrastructure we know (or don't know, given our physical and emotional distance from our food sources) today. In retrospect, the primary achievement from the Hatch Act and subsequent innovations was the infrastructure of big agriculture and the *undemocratization* of agricultural knowledge.

Today, the earth's population growth means that need more food than ever; simultaneously our climatological problems make growing food more difficult. However, rather than return to a democratization of agricultural knowledge, we are adding another inaccessible technology – artificial intelligence – to the farmer's toolkit. According to *Wired*[2], farmers are still "stuck" in the application of 20th century technology: the indiscriminate application of pesticides, the human decisions about which fields to harvest. Using machine learning and artificial intelligence enables farmers to use pesticides only on individual crops that are sick. That same technology helps agricultural financiers determine which farmers' land is going to be the most fertile in the coming growing season.

The message from this transition is clear: to produce food now, you don't need a green thumb. Instead, you need access to sophisticated computing, cutting-edge algorithms, expensive sensors, and inscrutable robots. The future is now, and one of the last strongholds of democratized knowledge has been fully breeched. So, if you want to plant a small backyard garden, start by finding a farmer robot to manage it and let technology do the work.

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[1] Deborah Fitzgerald, "Mastering Nature and Yeoman," in *Science in the 20th Century* (Taylor and Francis, 1997).

[2] Matt Simon, "The Future of Humanity's Food Supply Is in the Hands of AI," WIRED, May 25, 2016, https://www.wired.com/2016/05/future-humanitys-food-supply-hands-ai/.