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Ecology & Environment

Growing Food in Hotter, Drier Land: Lessons from Desert Farmers on Adapting to Climate Uncertainty

Gary Paul Nabhan
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When author and desert farmer Gary Paul Nabhan realized several years ago that climate change "would bear down on us for the rest of our lives," he grew despondent. He was dismayed by the knowledge that our current food-producing system has played a "major role in generating the greenhouse emissions … that have accelerated climate change [over the last century]."

And he was "convinced that there was little we could do over our lifetimes to stop the planetary hemorrhaging" and safeguard our food security.

Nabhan then met Aziz Bousfiha, a Moroccan farmer and Sufi visionary who lives in Fez and farms just beyond the city's edge. The landscape receives an average twenty inches of rainfall per year, yet Bousfiha managed to create a stunningly lush urban oasis of orchards and gardens—including lemon, lime, lavender, rose, scallions, leaks, garlic, tomatoes, olives, squash, beans, and corn. Nabhan was "floored" by Bousfiha's inventiveness in the face of climatic uncertainty. "It inspired Nabhan to abandon the "fatalism, cynicism, and environmental determinism" that impede us from formulating workable solutions to adapt our food production to the effects of a warming planet and dwindling natural resources.

Growing Food in a Hotter, Drier Land is Nabhan's instructive and focused how-to that advocates collective participation, place-based solutions, and "mimicry" of "time-tried traditional practices from desert farmers around the world." And it all begins with the understanding that "weather and food go hand in hand," and that their essential symbiosis is in peril.

The summer of 2011 was one of the hottest ever recorded in the United States. The severe heat exacerbated an already dry landscape and produced extreme drought—the effects of which had such a damaging impact on US agriculture that five hundred food-producing counties were declared disaster areas because they suffered weather-related crop failures.

Summer wreaked more devastation in 2012. Nearly three thousand counties were declared disaster areas, while forty thousand new daily records for hot temperatures were reported across the country. By August, the United Nations Food and Agriculture Organization indicated that droughts across the Americas had caused global food prices to jump six percent in a single month.

Indeed, climatic disruptions are worldwide, and global food production is suffering "heightened vulnerability." The droughts of 2012 desiccated crops in Mexico, Canada, Russia, and Kazakhstan. In the high desert plateau of Jabal al-Akhdar in Oman, apricot, walnut, peach, and pomegranate trees are not sufficiently flowering and fruiting because warmer temperatures have reduced the number of chill hours required to keep fruit and nut trees dormant during the winter.

These scenarios are dreadful, but the practical advice and pragmatic solutions that Nabhan offers engender optimism. He shows how to reduce heat stress on plants and animals by establishing a "boundary layer" of leafy trees to provide a shade canopy. Nabhan encourages constructing a living fencerow from organic matter to sequester carbon, protect fields from floods and winds, and prevent soil erosion and nutrient runoff.

For more than two thousand years, buried pottery pitchers have been used for crop irrigation in dry lands. Because of water scarcity, its practice is being revived, and Nabhan provides step-by-step instructions on how to construct this ancient, yet efficient irrigation system.

Nabhan's guide is highly specialized, technical, and insightful. It is doubtful that a general reader would have the patience needed to complete it, but the book is a must-have instruction manual for surviving climate change for desert farmers, orchard growers, crop farmers, ranchers, and backyard gardeners.

Amy O'Loughlin