

High Country News

FOR PEOPLE WHO CARE ABOUT THE WEST

How to drought-proof California's farms

Erica Etelson | OPINION | Sept. 24, 2015 | *Web Exclusive*

Three years into its most severe drought in over a thousand years, it's unclear how much longer California can continue growing half of the nation's produce. The crisis confronting Big Ag and family farmers alike may signal the end of agriculture as it's currently practiced. But it need not spell doom for farming altogether: On the contrary, a handful of ecology-minded growers think California could produce plenty of food even with limited amounts of water.

For starters, they say, state agriculture and water policymakers could study the practices of farmers like Warren Brush. He runs a 50-acre family farm in the high and dry foothills south of Santa Barbara, where annual rainfall has dropped to just over 10 inches.

Many drought-stricken California farmers are seeing not just production and profits plummet but, even more ominously, well depth. Brush, on the other hand, continues to irrigate hundreds of thirsty avocado trees without depleting his well; the water in his well was at a level of about 240 feet below the ground in December, but after a dry winter and spring, it stands much higher, at 100 feet.

Typical agricultural well depth in California is 800 feet, and deep-pocketed farms and vineyards are drilling ever deeper, threatening to collapse the aquifers that feed them. Brush recharged his well using agro-ecology techniques that are appropriate in dry areas the world over. His innovations caught the attention of the U.S. Agency for International Development, which now contracts with Brush to teach people how they can apply his techniques in Africa.

How does Brush drought-proof a farm? Use the water that lands on it, he says, all of it.

"When we mimic nature's ability to slow, spread and sink water into the landscape and protect it from evaporation through shading with vegetation and mulches, we can recharge our landscape," Brush explains.

Instead of letting water run downhill off his farm, Brush contours the land and uses minimal tilling so that the soil stays moist enough to quench the thirsty plant roots. Simple infiltration structures convey the water back where it originally came from (underground), eliminating runoff and recharging the well.

Brush also adds compost and manure to the soil, and thereby does four jobs at once: He fertilizes the soil without chemicals, creates air pockets that allow water to infiltrate, prevents soil and nutrient erosion, and sequesters in the ground vast amounts of carbon that would otherwise lurk in the atmosphere, heating the planet and worsening the drought.

Once these conservation practices are put in place, Brush says, he's confident that he and the farmers he's trained can survive even faced with long-term drought. Whereas other desperate farmers are demanding delivery of quantities of water beyond what actually exist, Brush and his adherents seem to operate in a parallel universe, in which drought is of little concern.

"We can learn from nature's example how to create a landscape that works like a sponge, efficiently infiltrating and storing rainwater so that our farms become resilient and drought-proof," Brush says. Eager to teach others, he offers a free "earthworks resiliency" class, in addition to hands-on courses in California, Europe and Australia.

Ag innovators like Brush are part of a small but growing agrarian counterculture committed to working within natural limits. These renegades include ranchers who employ a grazing technique known as holistic management to restore eroded rangelands. Developed by Zimbabwean biologist-farmer Allan Savory back in the mid-1980s, the approach uses cattle to fertilize the land, increase its water-capturing ability, and capture carbon.

By Brush's reckoning, if California's 28 million acres of agricultural land were managed like his farm or holistically grazed, they could produce as much food as they do now using little more than the 10 inches of rain that fall from the sky.

In January, the California Climate and Agriculture Network, or CalCan, a sustainable agriculture advocacy organization, echoed many of Brush's practices in the recommendations it made to Gov. Jerry Brown. The governor has directed the Department of Food and Agriculture to coordinate several healthy soil initiatives over the next year, although a bill that would have provided funding for these initiatives failed to pass the legislature.

The United Nations Food and Agriculture Organization has declared 2015 the International Year of Soils. With drought devastating more and more farms and ranches, the declaration comes not a moment too soon. Here in America's Salad Bowl, we have a responsibility to restore our soils to health and produce as much food, with as little water, as possible.

Warren Brush may not be worried about the drought, but the rest of us are.

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