THE TAOS NEWS
Best U.S. Weekly Paper- NNA 2007,2008, 2010
Inland Press Nation's Best Weekly Newspaper 2009

Seed saving: An old technology for a new climate, dedication

How one farmer uses seed saving to adapt

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The Taos News, 9/8/2016

Miguel Santistevan's grandfather built the house he and his family call home. Sol Feliz Farm, his nonprofit homestead, sits hidden behind a gymnasium and church less than half a mile off of one of the oldest roads in Taos in the seductively lush Taos Valley. His personal seed bank is, at the moment, sharing space in the basement with his daughters' Christmas toys from last year.

This is Santistevan's first summer back to serious farming. He was a public school teacher up until this year.

On a Friday in late August, Santistevan surveyed his patch of blue corn, vines of melons and squash and a few stalks of tobacco. His garden is grown exclusively from seeds in his collection — "landraces," or varieties cultivated in and adapted to the mountains and valleys of Northern New Mexico.

Seed saving is an old technology – as old as agriculture itself, quite literally. It's the tail-end of a yearly rhythm — tilling the soil, planting the seeds, weeding and watering the crops, harvesting for food while saving some plants for seed, before, at last, resting for the winter only to begin it all again come spring. Increasingly, seed saving – like agriculture itself – is a lifestyle that demands, if not a total dedication to the land, at least a concerted presence in it.

Ag issues

Yet worldwide, the diversity of agricultural crops is declining. A report published by the Food and Agriculture Organization of the United Nations just before the new millennium noted that, since the beginning of the 20th century, some 75 percent of genetic diversity in agricultural crops has been lost as farmers have abandoned local landraces for genetically uniform varieties. The payoff is higher-yielding crops.

Stantisevan has seen this in action. When his agricultural research brought him face to face with an old acequia farmer talking about the history of growing lentils in the Sangre de Cristo Mountains, he was asked in no uncertain terms — Why go through all the effort to grow a meager amount of lentils when you can buy a bag at the store for less than a dollar?

Santistevan, who struggles to find a balance between family, finances and his love of agriculture, knows that's a fair point.

Seeds, particularly those that have shown themselves capable of surviving and thriving in the local environment, hold their own promise — that their genetic material might have the potential for higher and more sustainable yields in times of rapid climate change, that somewhere in those landraces are characteristics that can carry agriculture into hotter, drier and more unpredictable growing seasons.

Climate challenges

Taos is already a marginal environment. The growing season comes late and leaves early. Santistevan doesn't plant in the ground until the last week of May. It gets cold at night. Frosts are routine and not unheard of during summer. And sweeping winds can strip moisture from the soil faster than it can be watered.

"So far, climate change in Taos means more extremes of what we already had," Santistevan said, meaning bigger temperature swings and even trickier timing when it comes to planting. Across the West, mega-wildfires, erratic rain and severe drought are all harbingers of a new normal.

What do seeds have to offer in this global transition? According to Santistevan, something profound.

But local seeds are more than their raw genetic material. They hold the stories — the unwritten tomes of history — of the agricultural people of Northern New Mexico, who themselves are trying to survive into the 21st century.

'Feel the corn on your skin'

Despite his long lineage in Taos, Santistevan wasn't born with a garden shovel in his hand. He was raised by a single mother who had no choice but to work outside the home and off the land in order to keep her family clothed and fed. "People moved away from the land in their generation," Santistevan said.

He'd never planted a garden, let alone managed one, when the chance to work on a community agriculture project came around. Santistevan was a drummer in a punk rock band in his 20s and living in Albuquerque. It was the spring of 1993 in the South Valley. And it was "like a homecoming," he said.

Santistevan's charge at the community garden was everything it took to make it happen, including finding seed to plant. He found his way to Mr. Chavez, and the seasoned farmer told him to take as much seed as he needed from big barrels of dried blue corn.

"It was a heavy deal," Santistevan said. "He told me, 'Put your hands in it. Feel the corn on your skin because that's your life, mijo. You take care of this and you take your life into your hands.'" Santistevan was hesitant and anxious taking on that responsibility. But when the allotted Saturday came, he got out in a drizzle just before dawn to plant the field. As he rolled up from a bend, legs stretched over a row half planted with corn, the sun crested over Sandia Peak as a hawk took off from a tree, silhouetted as it soared over a sunrise rainbow.

"That changed my whole deal, bro," he said. "I said to myself, 'I'm going to do this forever. I'll come back lifetimes.' The feeling I had in me was profound," he said.

And from that profound feeling came the beginnings of what he calls "a profound story of seeds" — and culture — adapting to the changing environment of the 21st century.

Starting with that first garden in Albuquerque, Santistevan quickly found himself deep in the history of the land.

He did the heavy work of understanding the centrality of water and the struggle to preserve the old Spanish agricultural infrastructure — irrigation ditches and land grants — in modern times. He went to Chimayo, Chamisal, Mora and other mountain communities of Northern New Mexico for research, living out of the back of his truck a whole summer at a time. "All

these old acequia guys and land grant guys," he said, he came to recognize as elders, keepers of a long history of self-sufficient agriculture in the hinterlands of the Southwest.

They told stories while walking their fields. They told him of faith and gave him seeds — lentils from the Pe-asco Valley found in the bottom of an old feed bag, bolita and haba beans, and grains such as wheat and sorghum.

Seeds kept finding their ways to him. It just seemed like the universe knew what he was up to, he said. In the 23 years since he first accepted the gift of blue corn from Mr. Chavez, his nascent seed bank has grown only more diverse with Southwestern varieties of crops and only more adapted to the changing climate of the already-marginal climate of Taos.

Cultivating comparisons

Santistevan wanted to lend his efforts to the agricultural — and cultural — struggle of Northern New Mexico. But there were already plenty of anthropologists, sociologists and historians who pontificated on the situation of Nuevomexicanos. "I wanted to get scientific on these acequia guys," he said. But plans to pursue a graduate degree fell through. When seed saving is done alongside making a living and raising a family, concerted and sustained scientific rigor sometimes gets left up to serendipity.

Such was the case around 2010 when drought made for a poor growing season and a row of beans became an impromptu experiment in seed adaptability.

Fava beans, known as habas, are a local favorite. As a crop, they're tolerant of frost. As a plant, they fix more nitrogen — then just about anything else. And as a snack they're unparalleled, Santistevan says.

When water flows easily from the mountains and fills the acequias — the communal irrigation ditches used to water fields — Miguel can send water up and down his land. But as summer sets in and water pressure lets up, his fields are left to rely on the rain from summer monsoons for the majority of their moisture.

The beans were watered once with the acequia before it went dry that year. He figured the beans, starved of water, were done for as they wasted away in the field. "I watched them die," he said. His vigorous green plants limped into yellowed, wilting stems, then shriveling to black skeletons before finally settling into little more than dust.

But toward the end of the season, as he walked by the row, there was the distinct jingling of seeds bouncing around in dried, dangling pods.

Normally, the row of habas would have produced between 40 and 50 pounds of beans, he said. That year, it was just enough to fill an empty baby food jar. What they lacked in quantity, though, they made up for in quality — particularly, that they had survived the drought at all.

The next year brought another drought and the opportunity to do a head-to-head comparison to determine if the habas had adapted to the previous year's bone-dry conditions. In each row, he alternated between seeds that had lived through the drought and those that hadn't. At the end of the season, after weighing the dried stalks and counting every seed, Santistevan found that the previous year's seeds outperformed the control seeds by leaps and bounds.

Plants grown from drought-adapted seeds produced 800 percent seeds (measured in grams per plant). A replication trial the following year showed even more gains, though not as dramatic — those seeds outperformed the control variety by 500 percent.

Yet habas aren't the only seeds Santistevan's found to have qualities that proved advantageous during drought.

Though his data aren't extensive, it lends weight to the story of adaptability.

"If you buy your seeds from a company every year for eight years, you've already set yourself back because you're a farmer who's farmed for one year eight times. If you save your seed, you're a farmer who's farmed for eight years once," he said.

Being locally adapted means they are privy to the changing climate. If they're growing year after year, they're able to "keep evolving and adapting," he said. He's hoping seeds will lead the way forward in years of record heat.

"There's an intelligence under my feed that got me here. It's an intelligence I can rely on because the knowledge existed before me and will come through me," he said. "I let the plants talk to my DNA…and talk through me," he said.

Ensuring the viability of independent caches of genetic material — such as personal seed banks like Santistevan's and seed libraries like those spouting up across the country — are of vital concern.

Santistevan's happened upon other varieties of Southwest plants he's seen do well in years with little water. There's tepary beans, a native pre-Columbian crop, bolita beans, white corn and amaranth. He's had success with garbanzo beans, which were once grown throughout Northern New Mexico. Peas are hardy.

And of course, there's the trusty habas, beloved by his daughters as a wintertime snack.

Resistance, renaissance

There's an old and gnarly tree in Santistevan's yard where his family used to skin sheep. These days, there's a weathered and splintering picnic table underneath, a permaculture garden of perennials surrounding it. In the tree's shade, Santistevan talks of seeds as both resistance and renaissance.

They're resistant to "the story we're being fed" about industrial agriculture, he said.

"They say the only way to feed the planet is with genetic modification and fertilizers, that we have to do all this grandiose stuff," he said. In commodifying and meticulously controlling the supply of the basic resources for life — seeds as much as water and land — traditional farmers are still under siege by colonial forces, he said.

"Colonization is alive and well…and it's maddening," he said. Seed saving centers the work of small farmers — many Native Americans or Hispanic farmers, or like Santistevan, both — and elevates their generations- long practice of caring for plant seeds. "It's a different mentality," he said.

Whereas industry offers uniformity and agricultural predictability, the earth — left to its own adaptation — is a grand experiment gleefully doling out chaos. "You can't keep up with the earth," he said. "She'll throw you all kinds of food and remedios."

Thus, the story of seed saving is profound, he continued, precisely because it is not big, but small; it's not quick, but involved; it's not homogenous, but dizzyingly diverse.

Agriculture, he says, "got us into this mess. And agriculture will get us out of it."

It’s with that excitement he also talks about the agricultural renaissance — the ecological and cultural revival around growing food. His work is a part of it, but by no means its outer limits. With seed companies like Native Seed/SEARCH, with new generations of families growing the same types of crops they always have, and with more and more opportunities for farmers to actually sell their produce to make a living, the agricultural fervor is growing.

But he thinks there’s a spiritual side of agriculture, too.

“Industry relies on techniques and their data,” he said. “All the traditional farmers I’ve talked to, by and large, rely on faith. They’re hedging their bets on the goodness of God.”

Looking south past the wood shed to the patch of crops grown from Northern New Mexico seeds, he breathes in the momentary quiet. “God’s gift is the silence in the corn,” he said.

Limits and the limitless

As essential as saving seed is to Santistevan — for its genetic and cultural potential — there are definite limits to its use in the decentralized approach to adapting agriculture for a changing climate. And all of those limits are underscored by the reality of seed saving being a practice largely of smallscale agriculture.

This is an excerpt. For the full story, go to taosnews.com/solutions.

Miguel Santistevan finds himself immersed in the history of the land.

Seed saving is an old technology – as old as agriculture itself.

Photos by Cody Hooks
