

WORKING THE LAND

AGUACATE

BY CARON GOLDEN

We San Diegans love our avocados and consider them a year-round birthright. We make guacamole. We spread the pulp on toast. We even just eat it out of the skin with a spoon. And yet, as ubiquitous as they are, they haven't always been part of local agriculture.

Avocados have grown in south-central Mexico since at least 5,000 B.C., and were cultivated as early as 500 B.C., but they didn't arrive in California until 1871, when Judge R. B. Ord of Santa Barbara introduced trees from Mexico. Even then, the crop wasn't commercially successful for several more decades.

Of course, today avocados are prized fruit. As avocados have grown in popularity, California has become the leading producer of domestic avocados, and San Diego County is the acknowledged avocado capital of the country, with more than 2,000 growers producing some 60 percent of all California avocados.

"Avocados are the second largest crop in San Diego County, following nursery," says Eric Larson, executive director of the San Diego County Farm Bureau. "In 2007, avocados were a \$127 million crop."

Larson's great-grandfather grew avocados in the 1920s in Encinitas, and, in fact, local avocado growing started along the coast. But, as Larson explains, with imported water, the growers were able to move inland. Now, if you drive along the 15 freeway and look along the hillsides north of Escondido and into Temecula, you'll see ridges filled with avocado trees, which enjoy the drainage benefits a hilly terrain provides.

"The vast majority of trees in this county are planted high enough on the hills so the roots won't stay wet and to avoid freeze," explains Larson. "It's not a matter of how cold the weather is but how long it stays cold. Freeze happens at the bottom of hills and cold air starts to build. Avocados are cold sensitive."

It is water, however, not cold, that is *the* issue when it comes to growing avocados in San Diego County. According to Larson, water costs \$700 to \$800 per acre-foot and avocado growers need three acre-feet of water per acre

Photograph: Carole Topalian

a year. "It's not a whole lot of water compared to rice or alfalfa," says Larson, "but it's the most expensive water in the nation. And it will go up."

Larsen is referring to current drought conditions, coupled with the Interim Agricultural Water Program, an agreement between the agri-

culture industry and the Metropolitan Water District that allowed the industry to purchase surplus water at a discount, provided they agreed to reduce their water use in a time of drought.

"The agriculture industry who participated in the discount program we negotiated with the Metropolitan Water District agreed to take the first cuts," says Guy Witney, director of Industry Affairs and Production Research with the California Avocado Commission. "That was 30 percent. Some farmers had to stump 15 percent of their acreage. You really can't under-irrigate avocados or you'll get no yield. These farmers had to make heart-wrenching decisions. Some of them planted trees as kids with their parents and they're having to cut them down."

That's painful, but the challenges facing avocado growers don't stop there. Witney says that theft has grown in North County. Professional thieves come in at night, pick the avocados in droves and leave growers with little to show for their investment and labor.

Then there's foreign competition from Mexico, Chile and now Peru. The presence of foreign fruit has the potential to lower prices for everyone. And, according to Witney, shipping fruit the other way isn't a viable option. While American growers have clearance to sell their fruit in Mexico, Mexican officials interfere to the point that, Witney says, makes it not worthwhile.

And with the foreign fruit come foreign pests. In February 2007, the first load of avocados were imported from Mexico and, says Witney, they brought at least six new species of scale insects.

"Some loads have an excess of one million living insects per truckload, insects we don't have in our groves. They decimate the industry or make us reliant on pesticides, which can make organic production impossible," Witney says.

Water, theft, competition, pests. What next? Unfortunately, few local avocado growers are smiling as they recall 2008 and they're not all that thrilled with what bodes for 2009. A heat wave last spring burned the flowers off the trees, leading to what will be a weak harvest this year. The water restrictions set by the Metropolitan Water District are likely to increase this July. And, remember the 2007 fires? They devastated many of the region's farmers, including avocado growers. This year, 104.8 million pounds are expected to be harvested in San Diego with a total of 210 million pounds in California. That sounds like a lot but the year before California produced 259 million pounds, and 601 million pounds the year before that.

It all sounds a bit grim, but, according to Witney, science provides hope for growers in California. There's a new program at UC Irvine and UC Riverside using new genetic tools to breed a

Photographs: Caron Golden



better variety that behaves like a Hass but can produce in Southern California's challenging conditions.

It's not genetic modification but what Witney calls "rapid determination" among seedlings with desirable genetic qualities—precocity, or fruiting early in life; a compact tree height, which makes it easier to harvest fruit on hillsides; and a tree that would have mature fruit for harvest in the winter when the market is being deluged with foreign fruit. The plants would be available with restrictive royalties to make this a California product and the money earned from the royalties would go back into research. Already several million dollars have been invested in the last 12 to 15 years, Witney says.

While this new variety may someday help avocado farmers, many can't just sit back and wait. Some farmers are relying on their own innovation to help them with the challenges of growing avocados in Southern California.

HARVESTING OIL

Exit the 15 at Gopher Canyon Road, carefully navigate the winding country roads east and eventually you'll end up on a dirt road that takes you to Bella Vado, the 40-acre avocado farm owned by the da Silva family. Originally from Portugal, Cid da Silva came to the United States in the late '70s to attend school, eventually earning a master's degree in mechanical engineering from Georgia Tech but then working as a software engineer. He met Corinne, whom he married, and with their five children they traveled around the world through the '90s before landing in the Seattle area. Corinne, who grew up in La Mesa, wanted to return home and start a vineyard, but after doing research the couple decided that avocados would be the better crop. Four years ago the family moved to the farm and started their new business.

"I've been around avocados since I was a child," Cid da Silva recalls. "My parents had some trees." In fact, his father owned a farm. The family raised bananas, sugar cane and grapes, and da Silva says his father even made wine.

Da Silva recognized, though, that he'd need help learning how to farm avocados on a large scale and hired a company to manage the grove the first year. Once he realized he could do a better job and enlisted help and advice from neighbors like Noel Stehly of Stehly Farms Organics, he stood on his own. Da Silva invested in improving the farm's irrigation system and planting new trees for the first two years.

In the avocado world, yield is measured by the acre with 10,000 pounds of fruit an acre considered a success. Da Silva figures he's been harvesting between 7,000 and 10,000 pounds an acre, one year getting close to 15,000 pounds. Those farmers who are able to reach 20,000 pounds, he says, are in prime conditions, including having access to cheap water, which no one in San Diego County has.

In January, the fruit is thick on Bella Vado's trees and the leaves, despite the tip burn, are large and healthy. Da Silva grows mostly Hass variety avocados but also some Fuertes as well as Bacons that are used as pollinators. They get help from the bees that reside in nearly 100 hives nearby. Recent winds have knocked down about 20,000



Noel Stehly

pounds of fruit but at least there has been little trouble with insects. "The beauty of growing avocados in this area," he says, "is that there's not a lot of pests." That's a bonus for da Silva, whose farm is certified organic.

"My neighbor, Noel Stehly, encouraged me to turn organic from the beginning," da Silva explains. "They had been farming for years and he assured me that growing organic fruit wasn't that difficult and he would help me. Also we could see that the trends were turning more towards organic foods. Customers wanted food that wasn't produced with man-made chemicals. And, imports were placing a lot of pressure on conventional avocados. Producing organic avocados would differentiate us from the imports so economically it made sense. As a grower, having your neighbors grow organic avocados helps with your certifications and lowers production limitations on borders with conventional growers."

POMEGRANATE GUACAMOLE

*Courtesy of Javier Placencia, chef
owner, Romesco*

This is excellent with duck or chicken rolled tacquitos or with simple grilled salmon or mahi mahi, or plain tortilla chips. In the summer, the pomegranate seeds can be swapped for in-season fruit, like diced mango or papaya.

- 6 ripe Hass avocados
- 2 garlic cloves, very finely chopped
- 1 white onion, diced
- 1 large fresh jalapeno, finely chopped
- 1 bunch fresh cilantro, roughly chopped
- Juice of 2 limes
- ½ cup pomegranate seeds
- Pinch of sea salt
- Pinch of white pepper
- 1 cup fresh panela cheese

Peel and core the avocado. Place in a ceramic, stainless steel or glass bowl. Add all ingredients but the cheese. Smash the mixture with a large fork until a thick mixture is obtained. Try to leave some chunks of avocado for better texture. Add more salt if needed. Garnish with crumbled panela cheese and some pomegranate seeds.

For extra heat, add one finely chopped habanero pepper.



The premium-grade fruit is sold to packing houses like Stehly's. The rest form the heart of an unusual product: avocado oil.

"We had a bumper crop one year and found ourselves faced with the arrival of Mexican avocados into California," da Silva recalls. "Besides being a wonderful oil, avocado oil essentially would allow us to smooth out the highs and lows in a balance sheet. Also, no one was doing avocado oil in the U.S. and even though it's not a well-known culinary oil, it presented a great opportunity. There are many producers of olive oil in California but no avocado oil producers and since the largest cash crop in Southern California is avocados, why not make avocado oil? The logic made sense and we tried and loved it."

At the base of the property is a 2,400-square-foot tin shed that holds the oil-making operation. Da Silva uses the same equipment olive oil makers use to crush the fruit and separate the liquids from solids and then the oil from the water. It's a cold-press method that da Silva learned through trial and error.

"Like any craft, I learned to make avocado oil on the job," he says. "The first year was a true learning experience. The second year, the quality of the oil was much better. Essentially we have become avocado oil crafters."

The machines have been modified to work with avocados but the process is very similar to extracting olive oil. The big difference is the first step in which a machine removes the pits and skin, leaving the pulp. (Olives have no skin, of course, and pits are left intact, crushed with the rest of the fruit.) The avocado pulp is sent to a hammer mill that crushes the fruit and then a malaxer, over several hours, separates the oil from the pulp. The oil mixture is then decanted in a third machine and separated from the pulp before being pumped into a finisher, or polisher, which by spinning internally at 6,000 rpm releases the water and any remaining debris from the oil. The oil then goes into large blue barrels, where it is either bottled or made into skin care products. The da Silvas do the bottling and labels themselves.

THE INNOVATOR

Across the road from Bella Vado is Stehly Farms Organics. The farm grows avocados along with oranges and Meyer lemons, blueberries and blackberries, garlic, onions and more. Noel Stehly, a friend and mentor to Cid da Silva, owns the farm with his brother Jerome. Their father, also named Jerome, had bought the property decades before when he moved the family south from Anaheim.

"My dad was looking for a place to move his chicken ranch," says Stehly. "He was trying to find a spot that was protected from the east winds. This is it, but there are no more chickens here."

Citrus became Jerome Stehly's business but he started growing avocados in the late '70s. The broth-

ers now have 200 acres of avocados in Valley Center, growing Hass, Fuerte, Reed and Bacon varieties. Noel's brother also runs a management company on his own that operates other groves. And the two run a packing business for local organic growers. "Having a small carbon footprint was never our goal, but it's become a reality," says Stehly.

Talk to industry experts and you'll hear Noel and Jerome Stehly referred to as the best example of innovation in avocado growing. "They are doing very innovative and thoughtful things to ward off the costs that will result in some very serious consequences for farmers in North County," says Witney.

Driving up the dirt road that leads to the groves, the packing house and refrigerated storage rooms, one of the first things a visitor sees are sets of enormous black solar panels perched on a couple of hillsides. The panels power the packing plant, the shop, the coolers and housing. The Stehlys have already outgrown what they have and hope to install more to help power the next project, a nanofiltration system.

"Nanofiltration is like reverse osmosis," Noel Stehly explains. "We want to drill wells to supply water to the trees but the water here is too salty for avocados, even 800 feet down. Buying water is better for the trees but expensive. A nanofiltration system will enable us to pump our own water, clean it and apply it to the groves. And that will be less expensive than purchasing it, among other reasons, because we'll use less water. A lot of the water farmers use now is to leach the soil of the salts. We'd eliminate that."

Stehly is planning on installing the system this year and working on getting grants from the National Resource Conservation Service to

help fund the project. And those solar panels? They look like they'll also provide shelter for yet another project of Stehly's: worm beds that will provide worm castings. Of course, that's when Stehly's not planning his next innovation: adding wind power to the farm.

Despite the many challenges facing farmers like Cid da Silva and Noel Stehly, they remain optimists, committed to figuring out how to adapt to each new condition that confronts them, including using technology to do right by the land they have.

"I take care of the land because it takes care of me," says Stehly.

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ROASTED SWISS CHARD

Caron Golden

Serves 4

- 1 large bunch of Swiss chard
- 2 cloves of garlic, minced
- 2 tablespoons of citrus avocado oil
- Salt and freshly ground pepper to taste

Pre-heat oven to 400°. Thoroughly wash and dry the Swiss chard leaves. Chop into bite-sized pieces and toss with garlic, avocado oil, salt and freshly ground pepper. Spread onto baking sheet and roast in the oven for 6 or 7 minutes until the chard leaves are crisp. Keep an eye on it to avoid burning.

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