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## Loquaci Ranch site of first mechanical pomegranate harvester demonstration

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Farm Press Editorial Staff

"Let's pick some pomegranates," commanded Phil Scott, owner of Ag Right Enterprises in Madera, Calif., as the world's first mechanical pomegranate harvester roared to life in a turn-row at Loquaci Ranch.



POMEGRANATES ARE curious fruits — apple-sized, red in color, and containing hundreds of pitch-red juicy seeds. The bittersweet taste, depending on ripeness, puts these delightful transparent fragilities in-between grapefruits and red grapes.

Angeles billionaires Lynda and Stewart Resnick, owners of Kern County-based Paramount Farming Companies, the largest farming operation of tree crops in the world with 70,000 acres of almonds, pistachios and pomegranates in production.

About six years ago, Lynda Resnick founded Pom Wonderful and started marketing pomegranate juice. The Resnicks spent more than \$23 million funding research on the health properties of pomegranate juice. The money earned Pom Wonderful glowing reports from many reputable scientific sources about how pomegranate juice was effective against just about any malady — from heart disease to erectile dysfunction.

And the Resnicks spent millions telling health conscious America about those benefits. Their sales of Pom Wonderful jumped from \$12 million five years ago to \$91 million in three years. Other major juice makers jumped into the Resnick parade. There are close to 1,000 pomegranate products now on the market.

Pantaleo says pomegranate juice is the No. 4 juice in the U.K. "They are a little bit ahead of us in per capita consumption; we are catching up. Pomegranate juice and blends are moving into the main juice category," says Pantaleo. Most of the major juice producers have pomegranate products.

Prices for pomegranate juice followed the upward consumption trend and went through the roof with the headlines about the healthy products. Many San Joaquin Valley growers planted pomegranate orchards, often as an alternative to grapes or almonds.

Although pomegranates date back to 1,000 B.C., and have been in the Valley for years, growers trying to catch the latest crop boom have planted the trees in a wide range of configurations. In the early part of the boom, most plantings were like orchards and adaptable only to hand harvesting.

Prices for pomegranates reached \$350 to \$400 per ton last season. However, Pantaleo said 90 percent of the pomegranate juice sold in the U.S. is imported. "To sell California pomegranates into the market we have to compete with imports, so I tell people they need to

Dave Loquaci, fourth generation Madera County farmer, smiled as the massive, straddle row harvester he commissioned maneuvered to line up with a 7-foot-tall hedgerow of young pomegranates.

Jerry Pantaleo of Stiebs Pomegranate Products, also in Madera, watched as the huge, softball-size pomegranates were conveyed over another hedgerow of trees into a gondola used normally to harvest wine grapes. More than 90 percent of the fruit was removed by the harvester.

It was unveiling day for Loquaci, Scott and Pantaleo who have invested several years in developing not only the mechanical harvester, but the farming system to match it.

"We have always had pomegranates on the farm, mostly for our own use," said Loquaci. That is true of most valley farms. There have been commercial orchards for years. Pantaleo says there were about 25,000 acres in California a decade ago.

That has increased to 40,000 acres and acreage is growing rapidly thanks to the marketing and promotion efforts of Los

think in terms of \$250 to \$275 per ton long term if they are considering planting pomegranates.”

“Pomegranates are planted every way under the sun,” says Loquaci. Paramount, which farms 18,500 acres of the fruit, has most of its pomegranates planted like trees, according Loquaci.

“Guys also have them growing like bushes. Some are 14-by-8, other stuff is 10-by-18. My early plantings were hedgerow with 18-foot rows,” said the veteran farmer, whose father, Bob, was a pioneer in mechanical grape harvesting in the middle 1970s.

“What I am thinking now is that you don’t want to go much wider than 14-foot wide rows — maybe only 12 feet — with 6 or 7 feet between trees in a hedgerow. Put a metal grape stake every fourth or fifth tree and a small training stake on every tree,” he says.

“You want a wire at the top on the windy side and a wire for the drip hose. You don’t need a fancy trellis like a vineyard,” he said.

The trees grow rapidly and quickly develop a sturdy trunk for hedgerow.

Pantaleo says 75 percent of the new plantings are in some sort of high density configuration — the configuration and density Loquaci is convinced will work. The new plantings for olives for oil production in California are high density.

“High density and mechanical harvesting are the only way to go,” Loquaci says. “I want to skirt the trees at about 24 to 36 inches and have them fruit up to 10 feet, but I don’t want to get on ladders. That is why the mechanical harvester Phil and I worked on for a year is so important.”

When Loquaci developed a budget for high density pomegranates, he figured he would get 12 to 15 tons per acre at maturity. “Now I am thinking that may be too low. It may be more like 15 to 16 tons per acre.”

He can mechanically hedge the trees, but they also require hand pruning for fruit wood selection.

Pomegranates yield about 80 gallons of juice per ton — about half the juice yield of grapes. Pomegranate juice is selling to bottlers for about \$30 per gallon for finished concentrate.

What makes pomegranates particularly attractive is that they require only an acre foot of water to produce a crop. “You give them more than that and you get a lot of foliage and little fruit,” he said. Bees help improve the fruit set. Loquaci uses about three-fourths of a hive per acre.

That water requirement is about a third of that for grapes and almonds.

Pomegranates also thrive in less than ideal soils, according to Pantaleo.

“I tell growers not to rip out all of their trees and vines to plant pomegranates. If a grower is looking to diversify and has some tough ground, maybe put 20 percent of the farm in pomegranates.

“You have to be a low cost producer to compete with imports,” he added.

Loquaci says he has seen few diseases. The main insect problem is aphid and whitefly. They can cause stickiness and chew up shoots.

Pomegranates take little fertilizer.

“Actually, pomegranates lend themselves to organic production,” he says.

“However, the big thing for us in California is they use less water and with our growing water crisis, pomegranates look pretty good.”

Most growers who farm for juice go through their groves early and hand-pick bright red premium pomegranates for the fresh market before the fruit starts to split. Split fruit does not adversely affect the mechanical harvesting.

Loquaci and Pantaleo say about 20 percent of the fruit comes off for the fresh market, and it has been profitable.

The harvester Ag Right developed for Loquaci is a modified olive harvester. It uses long fingers to take the fruit of the trees.

Ag Wright has its olive harvesters running now in Argentina and Australia.

“You can always use the baseball bat theory ... if you hit something hard enough with a big enough club it will come off the tree or vine, but you do a lot of damage that comes back to bite you,” says Scott.

“The head we developed for the pomegranates is very gentle on the tree and actually can go around the tree to avoid damage,” said Scott. The finger mechanism strips the fruit from the trees.

“Grab one of those and pull it off,” Loquaci invited. It was difficult to break away, at least by pulling and twisting. “What you have to do to get it off by hand is pull it down away from the tree and bend the fruit up a little bit. It comes off pretty easy that way. You cannot pull it off. You cannot mechanically shake pomegranate trees and get the fruit off. You will ruin the tree if you try it.

“I am tickled to death about the way this machine harvested pomegranates,” say Loquaci. “We took it to Sanger to harvest olives and it worked beautifully there as well. It is ironic that the same machine can pick little tiny olives and big pomegranates.”

The development of the mechanical harvester could represent the final piece of the puzzle to make pomegranates a long-term crop for

the Valley. However, Loquaci, Pantaleo and Scott admit it took a lot of hard work and frustration to reach the point where they were ready to demonstrate the harvester to other pomegranate growers.

“Dave and I, as grower and processor, have worked closely for three years to realize that we had to get more tonnage per acre through high density plantings and harvest the fruit mechanically to make this work for both the grower and processor,” said Pantaleo.

“It was important that we recognize the marketplace for the product, as well as how to best grow the product to return a profit to the grower. I think we have done that.”

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