

# Village Farms

## Big Time Hydroponic Tomatoes

TEXT AND PHOTOS BY LANA ROBINSON



**Some suggest it takes a village to raise a child**, but in Texas, and indeed the entire nation, more and more consumers agree that it takes a village—Village Farms that is—to raise a commercial, hydroponic tomato with a homegrown flavor. Growers of these extraordinary beefsteak and cluster, on-the-vine tomatoes, marketed under the Village Farms and Home Choice brand names, nurture them much like doting parents, providing them with a wholesome environment, essential nutrients, and plenty of tender loving care. And to ensure the best of growing conditions, decision makers for Village Farms sought the perfect homes for their plants.

The collected Village Farms facilities form an impressive sight.

"Location is the key to growing premium greenhouse tomatoes," said Vice President of Process Improvement Paul Selina. "The locations in Fort Davis and Marfa were selected to optimize production in the winter months. We're growing hydroponically—drip feeding in a computer controlled environment."

Village Farms, L.P., is the leading producer, marketer, and distributor of high-quality, greenhouse-grown tomatoes in the United States and currently has operations in Texas, Pennsylvania, and Virginia. The Fort Davis, Texas, site is a 40-acre, state-of-the-art greenhouse vegetable production facility. Production there began on December 3, 1996, and instantly increased the state's tomato production by a whopping 70 percent. Subsequently, Village Farms constructed a second 40-acre greenhouse facility, its Marfa Division, just seven miles away, and then the neighboring Presidio Division, also at Marfa, which operates in a 26-acre facility.

"We supply to H-E-B, Albertson's, Randall's—major customers here in Texas. We have customers nationwide. The consumer has realized the benefits, especially the cluster tomato," said Selina, who has spent his entire career in the greenhouse industry, working in Florida, Mexico, and Colorado before coming to Texas. The marketing efforts of Village Farms in Texas are furthered by the help of the Texas Department of Agriculture's inshore promotion of Texas-grown foods through the agency's "Go Texan" program.

### A Bump in the Road

Of the total 6 billion pounds of tomato production in the United States, greenhouse-grown varieties account for at least 10 percent—and this number is increasing. Village Farms is confident that the future of the fruit is in greenhouses. Mike DeGiglio, a company founder and its current chief economic officer, believed that from the very start. "In 1990, we saw an opportunity in hydroponics and started the company," said DeGiglio. "Three years in a row, we were on the Inc. 500 listing of one of America's fastest-growing private companies in the United States. Two of those years, we were in the top 25. That was because of demand and people want-

ing a good tomato grown year round that tastes like a garden tomato."

To keep up with demand, from 1996–98, Village Farms made large investments in greenhouses. During that same time period, Canada's tomato industry also grew, resulting in an oversupply, which put downward pressure on market pricing. Suddenly, all the economic assumptions Village Farms had factored into their expansion changed. The company found itself with more debt than it could service. In order to survive, Village Farms filed for Chapter 11 bankruptcy protection in March 2001, but it actually turned out to be just a small speed bump along their road to success.

"To restructure the debt with our lenders, we completed a prepackaged bankruptcy," said Village Farms Chief Financial Officer Ken Hollander. "We went in, for the most part, with virtually no unsecured creditors at all. For the most part, our vendors were paid in full prior to filing for bankruptcy. We had \$110 million in debt, and the lenders wrote off in excess of \$70 million. To accomplish this, and avoid having the cancellation of debt considered income for tax purposes, we filed the Chapter 11.

"If you look at our financial models—and the whole economics of our business—it makes sense," said Hollander. "We filed for bankruptcy March 30, 2001 and 82 days later, our Plan of Reorganization was confirmed. Throughout the process, we communicated in detail with our customers and vendors, to let them know that bankruptcy was a very positive thing for the company. As long as we educate future business partners, future lenders—whomever—it shouldn't be an obstacle for us. Today, Village Farms is profitable and stronger than it has ever been."

At this point, Village Farms decided that it wasn't cost effective to keep their 18-acre Buffalo, New York, facility. That property is currently open for lease or possibly sale. The reasons for closing the facility included the cost of heating in the area.

Since emerging from bankruptcy, Village Farms has continued to execute its business plan. They recently purchased a 10-acre facility on a 35-acre piece of land they had previously leased for nine years

in Ringgold, Pennsylvania, which is referred to as their Keystone Division. "It's 30,000 square feet and we're converting that facility, which is adjacent to the greenhouse, into a distribution center for our Northeast and Midwest customers," said Hollander. "We manage the 42-acre Virginia facility for its owners. This product is also sold under the Village Farms label." Their Virginia Division, located in King George County, is a state-of-the-art greenhouse facility with an attached 100,000-square-foot warehouse, plus a 14,000-square-foot office and administrative section.

Now that Village Farms is back on solid financial footing, Hollander said expansion is not out of the question. "We continually evaluate prospects whether in the United States or elsewhere, and if it makes sense we'll pursue it."

### A Strategy of Vertical Integration

DeGiglio agreed, noting that since day one, a major company strategy has been to



vertically integrate in its field. "We develop greenhouse sites, finance them, and build them to our specifications. We do the growing, packing, sales, marketing, and distribute directly to retail—unlike conventional accounts, where you have a grower/packer who then sends product to a shipper and then a wholesale terminal market. You lose quality," he said. "Our production facilities are very intensive in nature. The greenhouses at Marfa and Fort Davis are the same elevation as Denver, Colorado, and the climate provides cool nights and high sunshine during the day, coupled with a controlled indoor environment. That way we're not subject to too much drought or too much rain. We control just about every parameter and the feed, to increase the taste. It offers a lot of advantages. To not control the channel to the end user is to lose control."

He said that with that approach, Village Farms has increased sales fairly significantly over the years. "Greenhouse production was once more of a niche, but it's so mainstream today. We have our customers, who now are depending on us, who want us to provide these products

*Opposite page: Harvesting at Village Farms is a constant process. Handpicked tomatoes are either placed into carts or a flume filled with a saline solution to be transported to the sorting and packing area. Right: These maturing beauties will remain on the plant until they have ripened in order to ensure optimum flavor. Vine-ripened tomatoes, such as those grown by Village Farms, are quickly displacing varieties that are picked green and then artificially ripened with ethylene gas during transport.*

consistently 52 weeks a year. We have to change crop cycles, as growers, and be out 8 weeks in one greenhouse, in order to fulfill that need. The question becomes, 'How do we grow our business and have additional capacity?'" DeGiglio said that one way would be to build additional greenhouses, but at \$20 million a pop for a 40-acre greenhouse, the investment is staggering. Village Farms has already invested \$100 million in its facilities.

"Another way to help grow, along a parallel line, is to increase our production through tying exclusive arrangements with other growers who are smaller, with 10- or 20-acre greenhouses," said DeGiglio. "It's

very hard for those growers who are growing the right crop, putting energies and production into that, also to do sales and marketing. They're too small to have a team. It's too expensive. Retail supermarkets are going through dramatic consolidation and becoming much bigger. The 10- to 20-acre grower, especially the seasonal grower—it's a hard sell for him. We offer that. Our critical massive base. On the other hand, we can search out growers with whom we can tie these marketing agreements, and we do it in different regions."

### Down Mexico Way

DeGiglio pointed out that Mexican growers use different technologies from those



in the United States and Canada, where the technology—high-end, glass houses and controlled environments—is quite similar. "There are a couple of those in Mexico, but a lot more of them are unsophisticated and use plastic in soil. Only a handful are growing the same way we do. We know they can grow the same quality," he said. "In Mexico, we look for good growers. Mexico has good resources—elevation, light, and water. We don't care about soil because we grow hydroponically. Based on that, it will give a good return on growers. We help them out with technologies and experience. It's a win-win partnering situation."

Village Farms oversees growing activities to make sure only their choice varieties are grown and that Good Agricultural Practices (GAPs) are followed. "They need third-party certification in order to ensure they are meeting these food safety standards," said DeGiglio. "That is mandatory in seafood, poultry, and fish. It's not yet mandatory for produce, but it may be coming. We've elected to make it mandatory in our company for our outside, third-party vendors. We want them to have that same certification, and we help them get that. Basically, they are packing under our brand. With these measures in place, our brand is clearly protected."

In the near future, DeGiglio envisions a couple of company-owned facilities

in Sonora, Mexico, which borders the United States south of Arizona. "We're looking at working with growers in Chihuahua. That is the biggest Mexican state, and we already have a grower in Sonora, south of Nogales, Arizona, and a leading grower in Queretaro, two hours north of Mexico City. That's a little farther, but the climate is excellent," he said. "We are helping them technically, and they are packing to our standards. They actually own the tomatoes. We don't buy them from them, but they are paid the pool price. All the tomatoes we bring in are sold in the United States"

DeGiglio noted that 60–70 percent of the tomatoes grown in Canada are sold in the U.S. market. He favors country-of-origin labeling as a means of providing details that help consumers—particularly those with food safety concerns—make informed buying decisions.

“NAFTA countries, other than the United States, have no environmental or food safety requirements,” said DeGiglio. “As growers in the United States, we have to adhere to FDA guidelines that say what you can use—which chemicals, pesticides, and insecticides. The United States is the most restrictive. It increases our cost. We are very much in favor of country-of-origin labeling. If other countries can produce cheaper and still ship to the United States, that’s okay. But when it’s labeled, the consumer sees a label that says ‘Ethiopia,’ ‘Somalia,’ or ‘Grown in California’—here’s the price. They have a choice.

“As a businessman who needs to be competitive, I believe in free trade, but I also believe in fair trade. I should not, as a U.S. grower, be at a disadvantage because I have to adhere to our laws.”

### Growing Techniques

At Fort Davis, Marfa, and Presidio, Village Farms controls the tomato’s immediate environment with a uniquely controlled, hydroponic system. This system circulates nutrients and water through a rockwool mat in which the tomato plants grow while the strong, West Texas sun beams down its photosynthetic powers. Drainage water is recovered, pasteurized, and recycled back to the plants. Bumblebees are brought into the greenhouses for pollination, which Selina says is critical to getting fruit of good size and quality. Integrated pest management biological controls make the environment safe for the



bees and suppress whitefly and other insect pests.

The 106 acres of greenhouse glass roof routinely require washing and whitewashing to control temperature and sunlight. This translates into more than 200,000 panes of glass. An A-frame cleaning machine with wheels that run in the gutters is mounted on the roof for applying shade paint to reduce heat when the outside temperature is high—and to keep the glass clean during winter. “It can move up and down each peak of the greenhouse and it has a cradle on the end that allows movement from peak to peak,” said Selina. “We start to apply shade during May. We’ll ap-

**Left:** A saline river runs through the Village Farms greenhouse to facilitate transport to the sorting and packing area. The water also cleans the tomatoes in the process. Once the fruit reach the postharvest area, a computerized system selects tomatoes by color, weight, and size for packing. Only the best, ripe Village Farms tomatoes make it to the market for individual sale.



ply successive applications of shade to build it up over the month. It stays on through the summer until the new crop is established. The second half of August, we remove the shade.”

The techniques and growing expertise espoused by Village Farms have been adapted from the greenhouse culture in the Netherlands. “A lot of technology was developed there, as well as varieties, including the ‘Beefsteak’ and Dutch vine clusters,” said Selina. Spurred by the need to reduce reliance on methyl bromide, the Dutch were pioneers in the hydroponics industry. Until the 1980s, 70 percent of all the methyl bromide used in that country was to fumigate soil for tomato cultivation. Today, usage has dropped to zero, primarily because most tomatoes are now grown hydroponically. “We hardly use any fungicide at all,” said Selina. “The best way to manage plant diseases is with the climate and sanitation.”

The Village Farms greenhouses in Texas produced close to 46 million pounds of tomatoes in 2001, and growers are shooting for 50 million pounds this year. “That’s 240 tons per acre. We’ll do it, and when we do, we’ll throw a big party,” said Selina. At any given time, the Texas greenhouses contain about 10,000 plants per acre, which comes to a mind-boggling total of 1.1 million plants. Even with so many plants, each one receives individual attention, from the time the seed is planted until it produces its last tomato.

“You have to train each one, prune it, de-leaf it, and pick it at least three times a week,” said Selina. “We generally buy the tomato as a small plant, 3–5 weeks old. We use a specialist’s plant propagation nursery. We supply the grower with the seed and materials. They are grown all the time in rockwool—beginning with a small cylinder that’s an inch tall and then

transplanted in a 4-inch square block. The plant is delivered to us in the 4-inch block of rockwool.” Research on the best medium for hydroponic vegetables is currently underway in Europe and by the leading companies in North America. But Selina said that rockwool remains the medium of choice for vegetables.

Seeding occurs in July for planting in the beginning of August and picking in



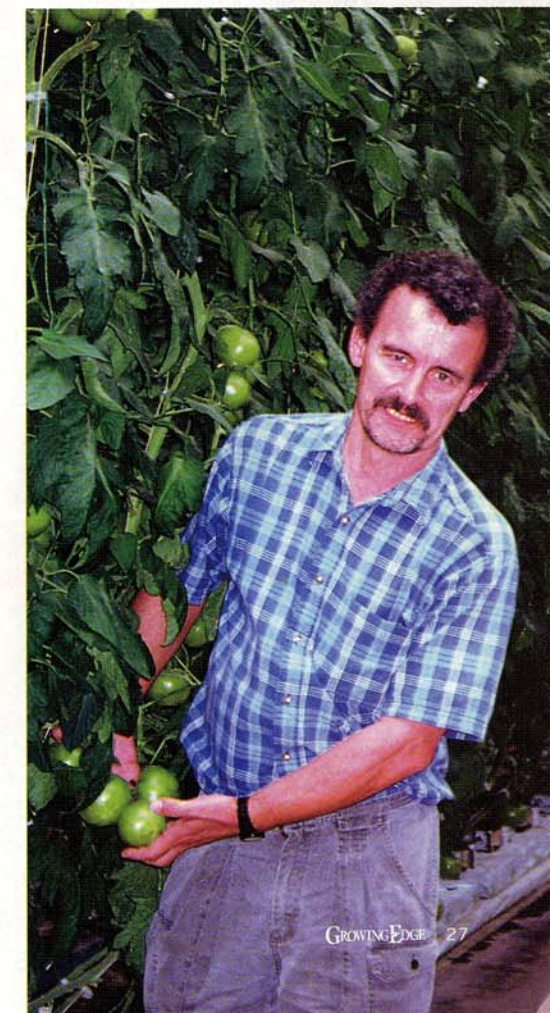
**Top left:** These flats of ‘Beefsteak’ tomatoes are ready to be shipped to a store near you. **Above:** In order to accommodate the massive, continual harvest at Village Farms, the packing area is constantly abuzz. On a good day, the Texas locations ship 400,000–500,000 pounds of tomatoes to destinations far and wide. That’s enough fruit to fill 20 refrigerated semitrailers. **Right:** Paul Selina, vice president of process improvement for Village Farms, proudly displays the objects of his affection.

October. “Just before Christmas, we come in and put a second plant in the greenhouse so we have two plants growing side by side. One we’re picking, and a new plant, which will have the strength and vigor to grow well through the upcoming spring and early summer. The higher light conditions of the spring and summer give us more tomatoes. Once we have setting fruit on young plants, we take out the

head of the old plant. They remain side by side for two months. That way we have production from the older plants until the younger plants are ready to take over,” said Selina. “It’s a lot of work managing those double crops during the winter, but you need to do that to get the highest production. We would prefer to go through the whole season with one plant. That makes labor, work in the greenhouse much simpler.”

Picking continues until the end of June. The goal is to keep the period between the last picking and first planting to a minimum. “The turnaround is immediate. The whole crew is involved. We have a total of 450 employees at our Texas greenhouses,” said Selina. “There is once a year that we are not picking tomatoes. Every day we can reduce from turnaround time is one more day we can pick. In the winter months, tomatoes are picked three times a week—six times a week in summer. We avoid Sundays when we can.”

Handpicked tomatoes are placed in carts and/or dumped into a flume filled



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