

BEUTEL 77

Growing, Processing, and Marketing Kiwifruit

By James A. Beutel, Frank H. Winter, Spencer C. Manners, Martin W. Miller

The kiwifruit (*Actinidia chinensis* (anch), a native of south central China, grows on a large, woody, deciduous vine. In 1906 it was introduced into New Zealand under the name of "Chinese gooseberry," and during the next quarter century New Zealand nurserymen selected large-fruited seedlings, which became commercial varieties. When

Zealand first began to export the fruits commercially in 1953, the name was changed to "kiwi," because the fruits superficially resemble New Zealand's native bird, the kiwi.

In 1935 the U.S. Plant Introduction Station at Chico, California, received plants of a large-fruited variety from a New Zealand grower of Chinese gooseberries. These plants are the ancestors of most of the 'Hayward' variety kiwifruit plants growing in California today, and even after 40 years, the parent vine is still fruiting. In 1974 kiwifruit became the internationally accepted name of the fruit, replacing Chinese gooseberry and kiwi.

In the 1960s the Chico Plant Introduction Station developed cultural methods for the kiwifruit, and growers were encouraged to experiment with new plantings. Two growers imported several thousand

plants from New Zealand in the mid-1960s to establish the first kiwifruit vineyards in California. Limited nursery production began in Chico in about 1960, and nurseries devoted solely to kiwifruit production began in Gridley in 1966. By 1970 approximately 50 acres were growing in Kern and Butte counties.

California Survey

Information on age and size of plantings was obtained in a recent survey of 160 growers, representing 750 acres in 26 California counties. Most of the plantings, by growers who responded to the survey, were made in 1974 and 1975 — 164 and 260 acres, respectively, compared with 72 acres planted in 1973 and 85 acres during 1967-72. Plantings were primarily in sizes of 1 to 3 acres (38 growers in 1975, 21 in 1974), although in 1975, 14 growers planted

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4 to 7 acres, 4 planted 8 to 13, and 5 planted over 14 acres.

Considerable kiwifruit acreage was not covered by this survey. It is presently estimated that more than 1,200 acres have already been planted in small commercial lots of 2 to 25 acres from Chico south to San Diego; however, about 100 acres are bearing (4 years and older). The 1975 kiwifruit production was only 120 tons, but acreage already planted in California could produce 3,000 to 4,000 tons of fruit by 1980, compared to the 6,000 tons now being produced in New Zealand. Full-bearing, 10-year-old kiwifruit vineyards produce 4 to 7 tons per acre.

Kiwifruit Plants

Kiwifruit vines are planted in rows 15 feet apart. Vines are spaced 18 to 20 feet apart in the rows and are trained on strong trellises 6 feet high. Because the plants are dioecious, 10 to 12 percent of the total planting must be pollenizers to ensure pollination by wind and by insects, primarily bees. Vines require protection from strong winds, prefer well-drained orchard soils, and need frequent irrigation.

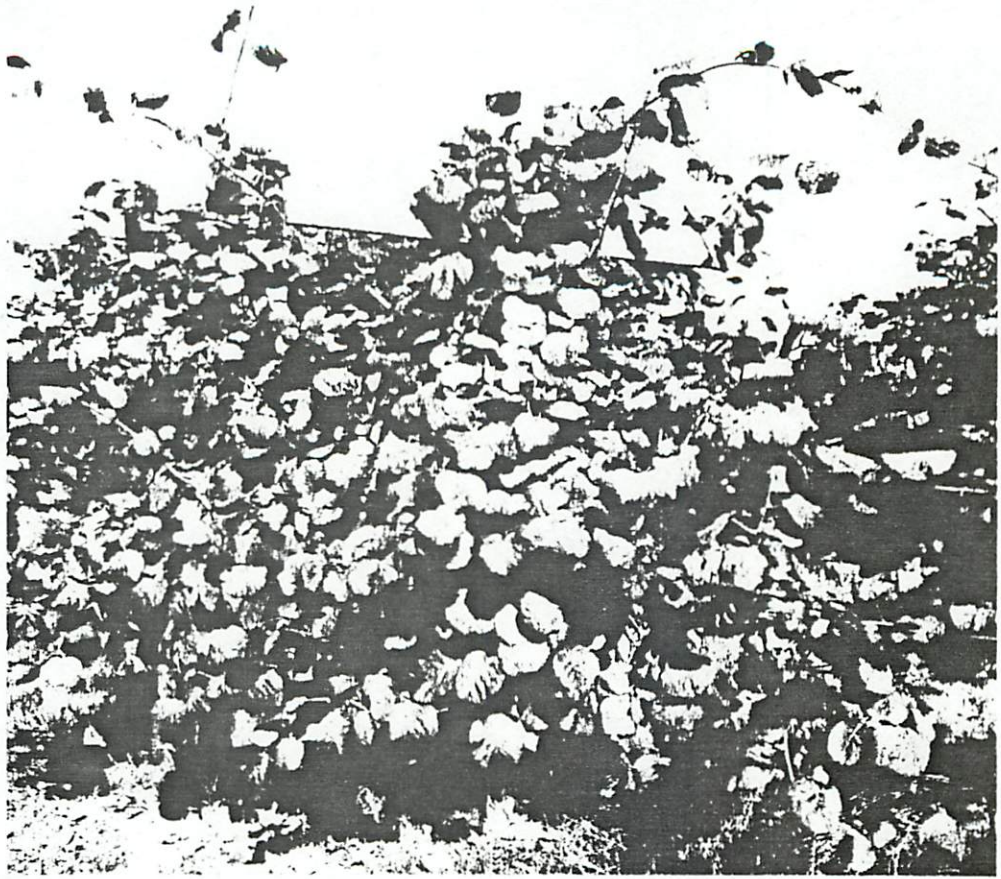
Vines begin to leaf out in mid-March and flower in early May; the fruits are harvested in November. Since the kiwifruit is a subtropical plant, it freezes at temperatures of 29° F and below when in leaf, but a mature dormant vine may tolerate temperatures down to 10° F.

Kiwifruit vines are attacked by a few pests and diseases in California. These include root knot nematodes, omnivorous leaf roller, salt marsh caterpillar, oak root fungus, crown rot, and fruit decays caused by *Botrytis* and *Alternaria*.

Harvesting and Storing

Kiwifruits are harvested when they reach at least 8 percent soluble solids. When cooled to a 32° F core temperature within 12 hours after harvest, the fruits can be stored up to 6 months under commercial refrigeration. About 7 pounds of fruit are packed in a plastic tray enclosed within a perforated polyethylene bag to minimize moisture loss; this is placed in a wood or fiberboard box for shipment. The limited California production has been sold mainly in local markets, but some fruits have been exported to Japan and Holland.

The kiwifruit's external appearance is not particularly attractive. The fruit, which is about the size



It is currently estimated that the 1,200 acres now planted to Kiwifruit in California will produce 3,000 to 4,000 tons of fruit by 1980, as compared to the 6,000 tons now being produced in New Zealand.

and shape of a chicken egg, has a relatively firm, greenish-brown skin densely covered with short brown

hairs. But the flesh is an attractive emerald green color and has numerous small, jet-black, edible seeds ar-

Composition of edible portion of fresh, frozen, and canned Kiwifruit, as developed by the University of California

Constituent	Fresh	Frozen*	Canned
° Brix at 20 °C	14.9	16.4	25.1
Moisture (%)	81.2	80.7	73.0
Ash (%)	0.45	0.53	0.45
Fat (Ether extract) (%)	0.07	0.08	0.06
Protein (%)	0.79	0.95	0.89
Carbohydrate (%)	17.5	17.6	25.5
Minerals (mg/100g sample):			
Calcium	16	18	23
Magnesium	30	27	30
Iron	0.51	0.51	0.40
Phosphorus	64	67	48
Vitamins:			
Vitamin A (I.U.)	175	117	155
Vitamin C (mg/100g sample)	105	218‡	103
Thiamin (mg/100g sample)	0.02	0.01	0.02
Niacin (mg/100g sample)	0.50	0.22	0.40
Riboflavin (mg/100g sample)	0.05	0.03	0.02
* Fruit immersed in a solution of 1 percent citric plus 0.25 percent ascorbic acid 3 minutes before freezing.			
‡ Due to pre-dip in ascorbic acid			

ranged in a circular pattern around the center of the fruit. In cross-section, rays of lighter colored flesh spread from the center almost to the skin layer. Between each pair of adjacent rays (locule walls) are several seeds.

The New Zealand kiwifruit sea-

son, including storage, extends from May through November; California-grown fruits are available from November through April. Thus, when California produces enough to meet the existing demand, fresh kiwifruit will be available the year around.

corbic acid per 100 g edible fruit for lye-peeled, compared with 81.33 mg for hand-peeled fruits). It was determined experimentally that a greater concentration of ascorbic acid existed near the skin than in other parts of the fruit. Peeling by knife removed some of the fruit tissue along with the skin. The lye treatment, with temperature and concentration controlled, removed only the very thin skin membrane. Thus, not only was more ascorbic acid retained, but preparatory losses were less (9.02 percent weight loss in lye-peeled versus 13.72 percent in hand-peeled fruit).

Canning

Canning. Kiwifruits are stored at 22° F for 3 weeks to 3 months and then allowed to soften at room temperature (65° to 70° F), just as Bartlett pears are handled for canning. Cold storage for at least 2 weeks is necessary to induce softening, which improves the flavor of kiwifruit whether they are canned or eaten fresh.

Fresh, partially softened, whole kiwifruits were peeled in a 15 percent lye solution for 90 seconds at boiling temperature (approximately 218° F). The fruits were removed from the solution, washed in cold water, trimmed by hand, and rinsed again. Then 19.5 ounces of fruits and 10.5 ounces of 33° Brix syrup were packed into No. 2½ cans, which were then vacuum sealed. The fruits were cooked in the cans at 212° F for 21 minutes and then were water-cooled before storage at room temperature.

Freezing

Freezing. Caustic-peeled fruits, sliced transversely into approximately 1-cm-thick sections, were dipped for 3 minutes into a solution of 12 percent sucrose, 1 percent ascorbic acid, and a 0.25 percent malic acid. The purpose of the dip treatment was to inhibit enzymatic and nonenzymatic changes during processing and storage. The slices were then frozen by one of two IQF (individually quick frozen) methods — in liquid Freon at -22° F, or in an air blast at -40° F. When frozen, the slices were packaged in polyethylene bags and stored at 0° F.

Dehydrating

Dehydration. In preliminary experiments, fruits were dried at vari-



Prospects for Processing Kiwifruit by Freezing, Canning, Dehydrating, and Juice Extraction

With many newly introduced crops, production eventually exceeds the fresh-market requirement, and other outlets must be found for the surplus. Anticipating a future kiwifruit surplus, the Department of Food Science and Technology at Davis has studied four processing possibilities — freezing, canning, dehydrating, and juice extraction. With each method, the nutritional value of the processed product has been compared with that of unprocessed fruits.

Peeling. Because of their hairy skin, kiwifruits must be peeled be-

fore processing, except those to be used for juice. Two peeling methods were explored — one using lye solutions and the other using a gas flame. The latter proved impractical, but the lye treatment worked satisfactorily and was used in the research.

It was assumed that the lye, as a basic substance, might decrease the high concentration of ascorbic acid in the fruits. Surprisingly, a study showed that lye-peeled fruits retained a much higher concentration of this important vitamin than did hand-peeled fruits (103.78 mg as-

ous temperatures. It was found that the lye-peeled, whole fruit could be dried to a good consistency, and darkening could be prevented, provided dehydrator temperatures were kept below 150° F. The dried product was quite acidic to the palate, but a pre-dip in a sugar solution before drying helped to improve the flavor.

Juice Extraction

Juice extraction. Overmature or irregularly shaped fruits that would not lend themselves to other processing methods were washed and put through a Model No. 3600 Brown Finisher. The finisher, fitted with a 0.01-inch screen, removed hairs and seeds as well as the skin, producing a rich green juice.

Observations. Canned kiwifruit stored for approximately 5 months were studied subjectively and analytically. Subjectively, it was found that canning had changed some fruit characteristics considerably, as compared with those of lye-peeled, unprocessed fruits. The canned fruits had changed from a light, bright green to a darker, yet not un-

sightly, dull green, and the texture was considerably less firm than that of raw fruits. Canned fruits had a much milder flavor than did fresh kiwifruits, and storage in syrup had made the fruits quite sweet. Although the flavor of the canned product was not similar to that of fresh kiwifruits, the taste was considered very pleasing, and more desirable to some judges than that of the fresh fruits. Analytically, canning was found to have little effect on the composition of the fruits (see table).

Comparing Flavor

Frozen, sliced kiwifruits were closest to fresh fruit in appearance and flavor. The fruit slices, both frozen and thawed, maintained most of their textural integrity and bright green color. They also retained the fresh-fruit flavor characteristics but were judged less sweet. No off-flavor was detected, provided care was taken to freeze only fully ripe fruit. Freezing did not cause large compositional changes (see table).

Fresh and frozen kiwifruits were found to contain 66 calories per 100

grams edible portion, or 66 calories per fruit of 30 size and 52 calories for the 40 size. Canned fruit contained about 50 percent more calories than fresh fruit, due to the added sugar.

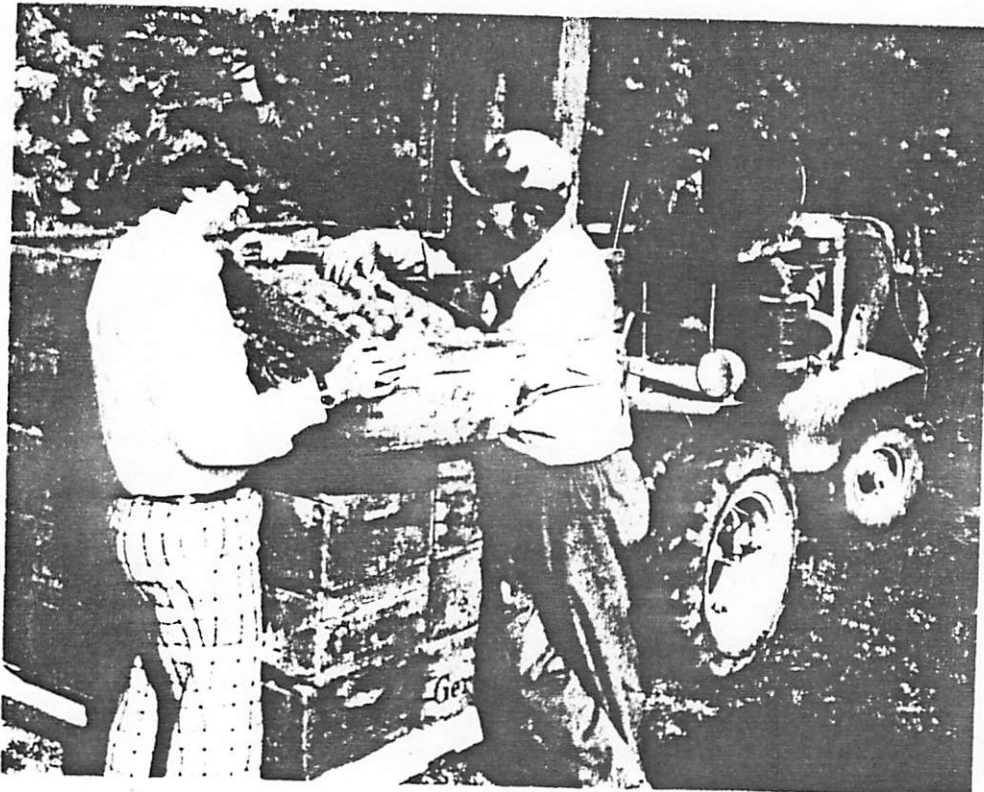
Kiwifruit juice was very pleasant to the taste and could be consumed as a single-strength juice. Because of its acidic nature, some consumers might want to add sugar or blend kiwifruit juice with other juices.

Results of the present study indicate that kiwifruit can be successfully preserved by canning or freezing. Frozen fruit slices maintained excellent quality after thawing and could contribute both color and taste to a fruit salad or desert.

Even though the canned fruit had changed in color and flavor, as compared with fresh fruits, they were still considered very acceptable by the judging panel.

The vitamin C concentration in fresh kiwifruit and in expressed juice is especially high — more than twice that in oranges. The tartness due to the acidity makes the juice particularly desirable for blending with bland juices, such as those of pear and papaya, or for use as a single-strength breakfast drink.

Kiwifruit Pioneers Tanimotos Still See Bright Future



Mori Tanimoto, right, discusses his excellent 1976 Kiwifruit harvest of 7 tons an acre with Joel Wilson of Blue Anchor

The Tanimoto Brothers still shake their heads with disbelief when they discuss the production and profits they've obtained from a relatively few acres of Kiwi on their planting near Gridley in the Sacramento Valley.

With 11 years of Kiwi growing behind them, George, Mori, and Jim Tanimoto are among the most experienced Kiwi growers in California. They are also one of the major sources of Kiwi plants for new growers. But don't bother calling them for plants this year — they're already booked solid until 1978.

If it hadn't been for a period of adverse weather, the Tanimotos would probably still be farming just cling peaches and prunes on their 150 acre orchard that has been in the family for over 50 years.

Initial Planting

It all started when an unseasonal rain on August 11 destroyed most of their 1965 cling peach crop.

"Right after that rain, we were listening to the radio one day, and

heard a report about Kiwi bringing \$1.50 a pound," says George. "We decided right then and there we'd give this new fruit a try."

The Tanimoto brothers started by planting one acre in a cleared section of their peach orchard. Concurrently, they started their Kiwi nursery by necessity, since there was no other source for plants.

They continued to nurse this first planting along for three years, but at the same time couldn't really see much future for Kiwi fruit in this country.

60 Cents a Pound

Then in 1971 they harvested their first crop from this one acre, at a price of 60 cents a pound.

"As soon as this word got out, all hell broke loose," Mori says. "Before, we couldn't give our nursery plants away. But once people heard of our return on this crop, we started getting all kinds of requests for plants." Today, they sell these same Kiwi plants at \$8 each, and can't keep up with the demand.

Still, back in 1971 they weren't convinced that this price was anything but a fluke.

The next year, in 1972, their one acre produced a clear profit of \$4,500. The third year crop in 1973 provided a net return of \$13,000 from this same acre.

"About this time," says George, "we decided that Kiwi were for real, and began planting in earnest."

Today, they have 21 acres of Kiwi, and another seven acres being planted this winter.

This past fall, their original vines — now 8 years old, produced nearly 9 tons per acre of Kiwi fruit. Their 4 year old plantings produced 7 tons per acre.

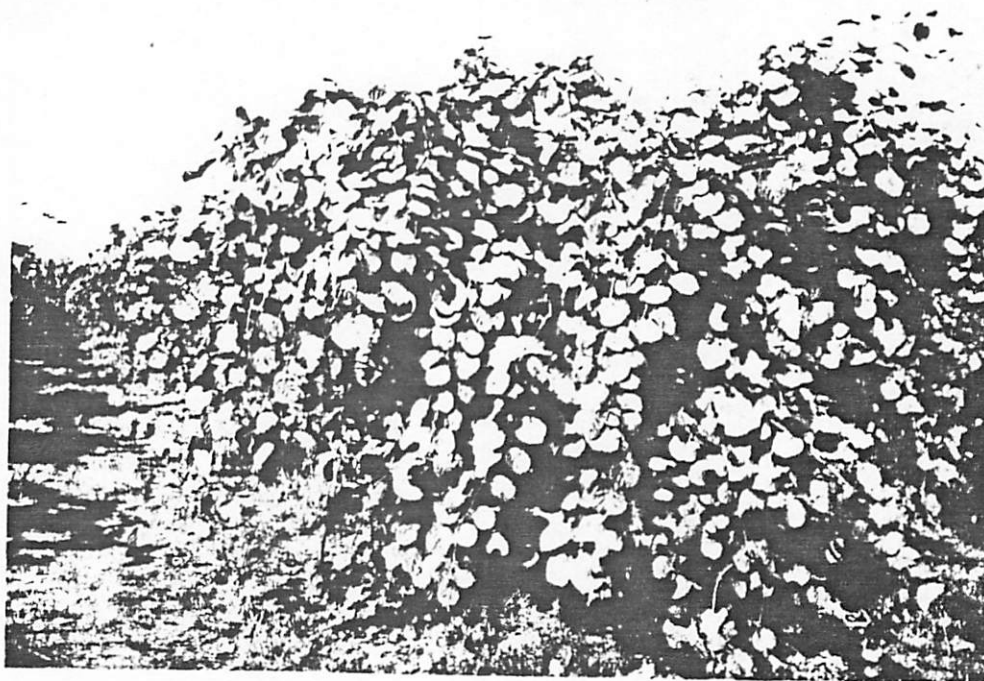
8-Year Vines

The eight year old vines have just about reached mature production, in the opinion of Mori. He places mature production at between nine and ten tons per acre.

The Tanimoto brothers agree with just about all other Kiwi growers that this fruit is not the easiest in the world to raise.

On the other hand, they point out that Kiwi are not particularly susceptible to pests so far, and also that rain damage is not a problem.

"Probably the biggest reason most



The Tanimoto brothers apply water by overhead sprinklers on one Kiwifruit planting and by flood on another. They find the Kiwi plants rather exacting in their water requirements, and observe careful irrigation practices.

growers have reported such difficulty in getting Kiwi plantings established is because they have started out with such small plants," George says.

To overcome this, the Tanimotos sell all their plants as two year olds, and bare root for dormant season transplanting.

Bare Root Plantings

George is of the opinion that bare root planting improves stand potential over container planting, since it allows the root to grow in any direction it desires, instead of restricting its growth in a container.

The Tanimoto brothers apply water by overhead sprinklers on one planting, and by flood on another. They find Kiwi plants rather exacting in their water requirements, and observe careful irrigation practices.

Mori speaks for all three brothers in pointing to a tremendous future for Kiwi production in California.

"Most California fruit crops are already in trouble from overproduction," he says, "a difficulty that is further compounded by the fact that growers can only market this production in one or two ways."

Kiwi fruit, on the other hand, has both a substantially greater potential in the fresh market as well as a very diversified potential in the processed product market, he believes.

This potential is further brightened by the fact that the bulk of California Kiwi production is currently being exported to overseas markets.

Also, George points out there is relatively little competition for California Kiwi fruit on the fresh market during the winter and spring months, as compared to New Zealand Kiwi fruit which must compete with the complete array of California fruits during the summer months.

Good Market

Given these facts, all three Tanimoto brothers firmly believe there is a good market for several thousand acres of Kiwi fruit production in California.

The biggest problem that the industry as a whole may face in the near future is that some areas currently under cultivation may not prove adoptable to profitable Kiwi growing. Presently, Kiwi are being planted literally from San Diego north to Redding.

What area or areas may prove out to be the best growing districts for Kiwi over the next few years remains to be seen.

But for sure, the Tanimoto brothers are convinced that Kiwi plantings perform well in their area of the Sacramento Valley.

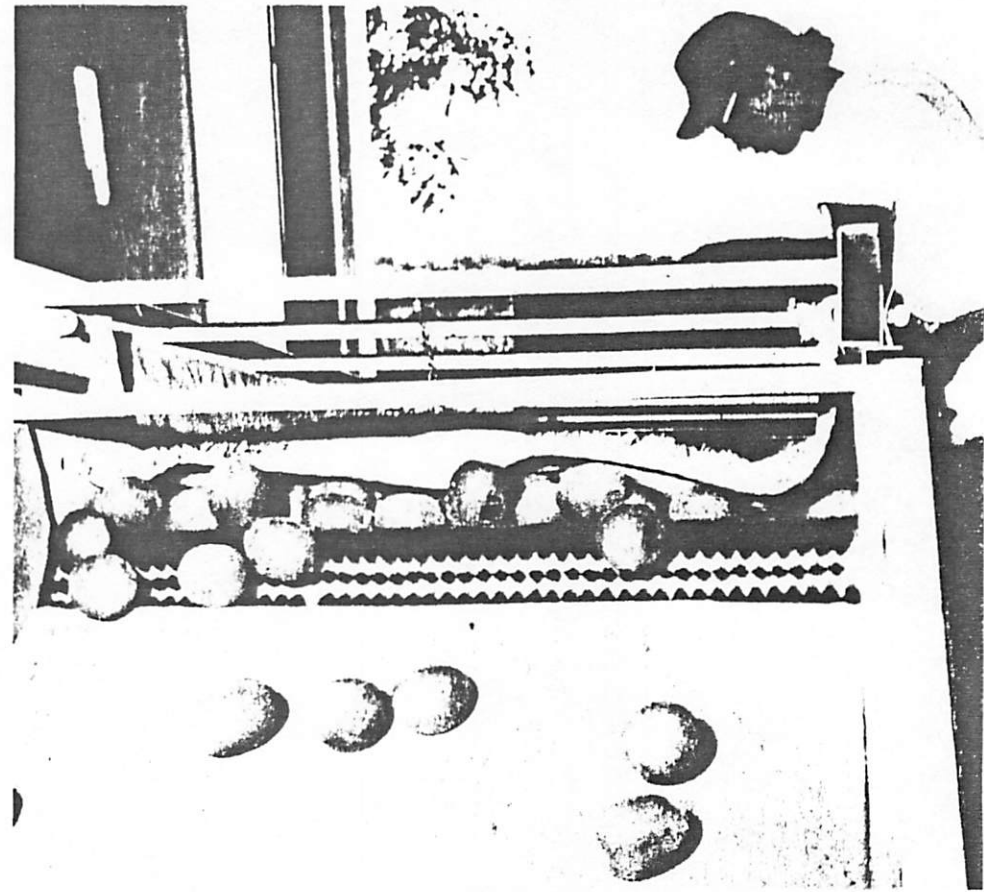
Alkop Farms — California's Largest Kiwi Planting

When Veterinarian Bob Allen and Oral Surgeon Rudolph Kopfer formed a partnership in 1972 to make a modest investment in Kiwi growing, little did they realize that five years later they would be the operators of the largest single Kiwi planting in the country.

Their story is typical of the difficulties that many professionals have encountered with agricultural investments, but in their case at least these difficulties may just end up making them the nation's leading Kiwi growers and packers. And who knows — the way Kiwi prices are going — perhaps they may end up millionaires as well. But that still remains to be seen.

Today, Bob Allen devotes as much time to the management of this Kiwi operation as he does to his veterinary practice in Chico. Which is understandable, considering the fact that the company he now heads — Alkop Farms, expects to have a total of 94 acres of Kiwi vines in the ground by this year, and also now has its own packing operation.

By any standards, Alkop's Kiwi plantings are among the most substantive in the industry, utilizing both drip irrigation for fast vine growth and overhead sprinklers for vine watering and frost control.



This present development is a far cry from the idea that first germinated in the minds of Dr. Allen and Dr. Kopfer. Looking for an agricul-

tural investment opportunity, and with a strong belief in the future of Kiwi fruit in this country, they started out by purchasing enough



Two key Alkop employees are Tom Schutz, who works as packing plant manager as well as in the field, and Rich Smith who operates nursery and also works as a fieldman.



Kiwifruit have been packed for first time this year by Alkop Farms, at new packing plant. Kiwi flats hold approximately 6½ lbs. of fruit.

Kiwi vines from the now defunct Calchico Kiwi Company in 1972 to plant 26 acres.

Shortly after this, in 1973, they formed a limited partnership with others who also wanted to invest in the future of the Kiwi industry. This group then purchased enough plants for another 40 acres, from Calchico.

In addition to purchasing plants from Calchico, which at the time was the prime nursery source for Kiwi, they also contracted with the company to farm this 40 acres.

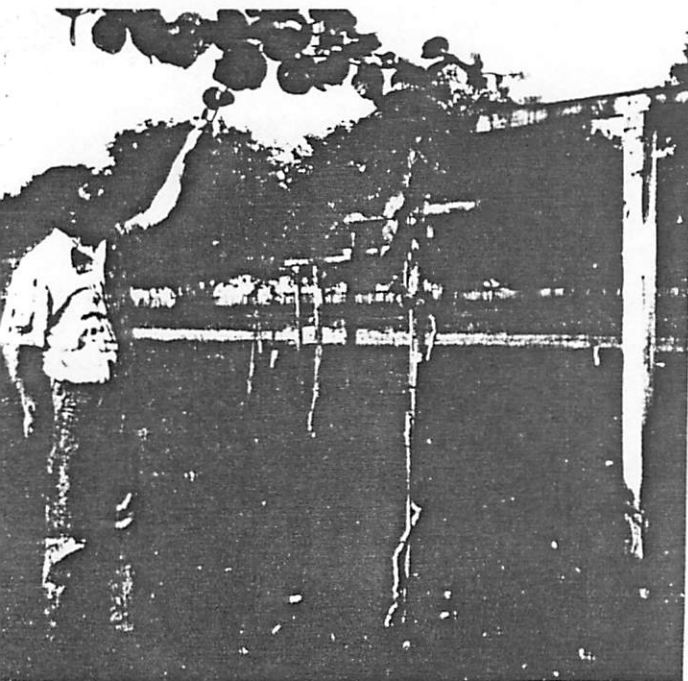
Personally Involved

They experienced numerous dif-

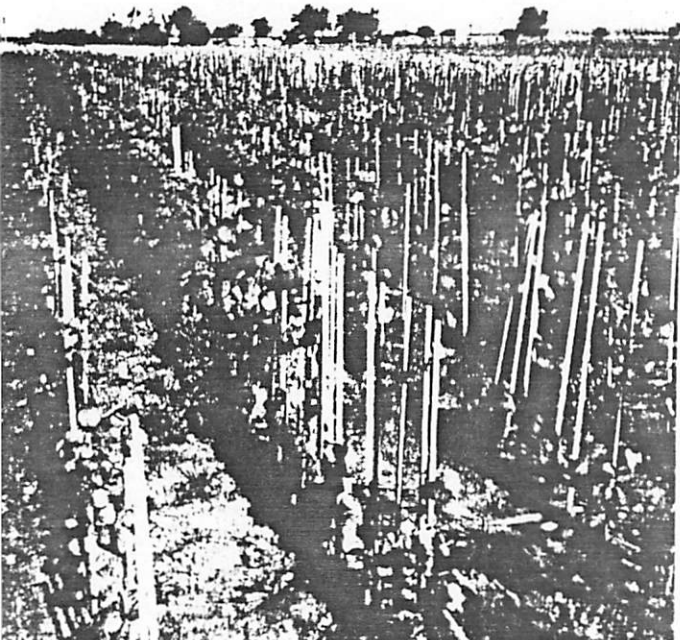
ficulties in obtaining their plants and in getting their plants in the ground.

As a consequence, Allen and Kopfer became more personally involved in studying the suitability of their land and water supply, as well as their capability for undertaking farming operations and the future of the industry in general.

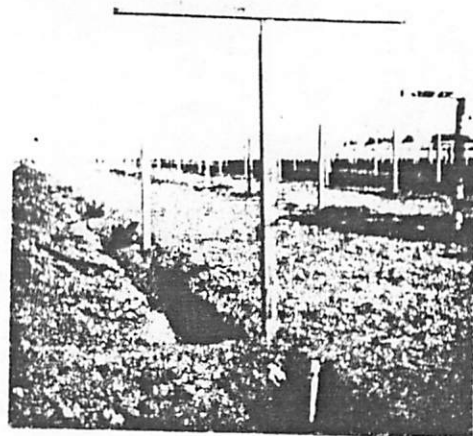
They became increasingly concerned and in 1974 contracted an attorney who in concert with Calchico's counsel worked out a new agreement. This agreement put Dr. Allen and Dr. Kopfer very much in the Kiwi business, as general partners in the 40 acres, as well as joint partners in the original 26 acres.



Alkop Ranch Manager Jim Adams inspects new Kiwi vine planting which has reached wire, and will begin producing fruit next season. Drip irrigation tube at bottom carries water direction to root zone of each vine.



Alkop Kiwi nursery is located in greater farming complex, and is completed enclosed by chain link fence for certification. Plants are transferred to vineyards at two years of age.



High expense of establishing Kiwi vineyard is indicated by this new planting preparation.

Some two years after "entering" the Kiwi business, Allen says they had yet to obtain their first Kiwi plants. In order to protect the limited partnership they purchased enough additional vines in 1974 to plant the 40 acres, from Robert Smith at Sierra Tropics Nursery. Finally, in the winter of 1974-75 they obtained some vines and placed them in their newly-established, state certified nursery measuring 100 by 1,000 feet and enclosed by a chain link fence.

Alkop Nursery

This nursery was established on part of an 87 acre plot just outside Chico, purchased by Allen and Kopfer in the summer of 1974. In addition to their own plants, they also agreed to transfer 3,000 plants from the Calchico Nursery for Don Boehme of San Diego County.

During 1975 Dr. Kopfer visited the Brokaw Nursery in Saticoy. The Brokaw Nursery has long been one of the leading producers of avocado and citrus trees. Hank Brokaw and Burt Silva of this nursery had been carefully producing Kiwi vines and had just entered the market on a large scale. Dr. Kopfer was amazed at the size of the plants that were available and scheduled a further meeting. At this meeting, a contract for 5500 of these vines was placed. So at long last, in the spring of 1976, the 40 acres were planted. Hank Brokaw and Burt Silva have been continually involved with this planting. They have a contact with Alkop Farms to continue their consulting involvement through the spring of 1977.

In the meantime, some of their plants were beginning to bear. Alkop Farms decided to build its

own packing plant to handle these crops and those of other growers.

"We made this decision on two basic facts," Allen says. "First, we decided by this time that come what may we were in the Kiwi business to stay; second, we felt there was a definite need for a commercial Kiwi packing operation to handle the growing volume of fruit in the northern part of the state."

New Plant

Construction on this new plant was initiated in the spring of 1976.

It was completed ahead of the 1976 packing season in October, and was used this past fall to pack approximately 2,000 flats of Kiwi fruit, each containing approximately 6-1/2 pounds. The vast majority of this fruit was custom packed for other growers.

This fruit was fed from wooden picking boxes onto the start of the packing line. It was then conveyed across a brushing machine to remove the fuzz off the surface of the fruit. The Kiwi were then conveyed past packing stations on a continuous flow line, for place packing in both wood and corrugated shipping flats. The fruit was then covered with a plastic curtain to prevent dehydration during the prolonged storage period. The fruit were packed in sizes ranging from 25 to 54 per flat.

Following packing, the Kiwi were conveyed to an accumulating point, for transportation to one of two PFE vans purchased by Alkop for use as refrigeration rooms to hold the Kiwi fruit until as late as next April and May.

Capital Infusion

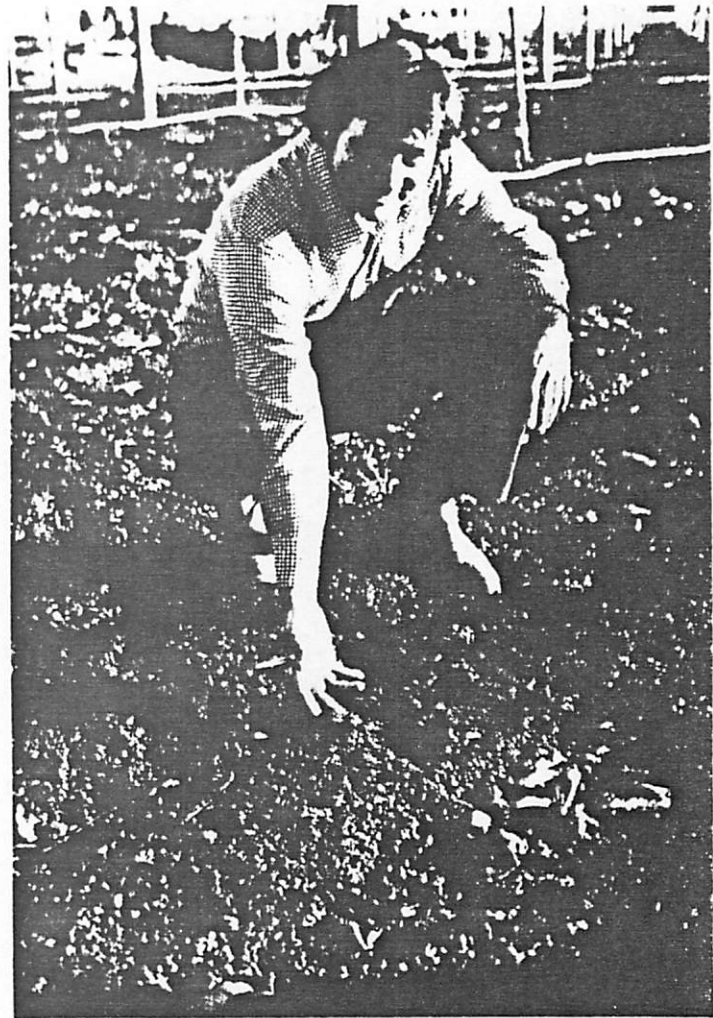
This packing plant, as well as Alkop plantings, have required a continuing infusion of capital. This in turn has kept Alkop on a very sound financial basis, so much so, in fact, that it has recently been granted the first agricultural loan on Kiwi fruit by either a commercial bank or the Farm Land Bank.

"This loan was granted us by the Crocker National Bank, and it represents a major breakthrough as far as the future of Kiwi fruit production in California is concerned," Allen says.

During all of their turmoil they seemed to stimulate continued interest in other investors as they now have three additional plantings

Alkop Uses Permanent Clover Cover Crop

Bob Allen says permanent clover cover crop provides Alkop Farms with up to 80 pounds of useable nitrogen each year. Also, deep clover roots aid water penetration. Cover crop also helps keep dust down.



which they are supervising. Two more on their Chico property which were completed in early December, and a 31 acre planting near Gridley which has been completed in late December. This now provides Alkop with a 1976 total of 94 acres.

From this acreage, Allen eventually expects to obtain an average production of 5 pounds per plant, by the fall of 1977. He estimates a production of 52,000 pounds from this acreage, and by the fall of 1978 he expects this production to triple to 150,000 pounds.

Commercial Scale

"Even by the fall of 1977, we expect to be on a commercial operating basis," Allen points out. "With our own fruit supplemented by fruit from other growers, we should pack at least 20,000 flats next fall."

All of Alkop plantings are on drip irrigation and overhead sprinklers.

"We figure the drip irrigation will save us a year in reaching production," Allen points out. "The overhead sprinklers, on the other hand, will provide us with both frost and heat control, as well as a supplemental irrigation system as the vines grow older."

These vines are being transplanted from the Alkop nursery at two years of age, which Allen says gives them a good start. In this nursery, Alkop grows the new vines from seedlings, and then grafts them over to male and female tops in the desired ration of one male to every 9 female plants.

Vine Plantings

The vines are planted approximately three feet out from seven foot high wooden crossarms. They are staked until reaching the wire that runs the length of the rows, in a system very similar to that used by

grape growers. After the vines reach this trellis wire, the fruiting wooden is trained to run along the wire in both directions. This height simplifies harvesting of mature vines.

Allen says they have found few disease problems to date with their kiwi plantings. Diazinon provides them with a good general insecticide, he says for which they have a variance, even though Kiwi are not on the label for this chemical which requires them to use it at their own legal risk. The summer heat that often reaches 110 degrees in the Chico area eliminates mildew as a problem. To keep dust down and facilitate fall travel in the plantings, Alkop has also constructed all weather gravel access roads.

As a general rule, Allen says the deciduous Kiwi plant requires 40 days of below 40 degree temperature to set fruit buds properly. "Our area, of course, is ideal in this respect," he says.

Remain Optimistic

Allen and Kopfer remain highly optimistic about the future of Kiwi fruit. And they remain determined to use the best possible production techniques, on their own plantings as well as those they manage for others.

"For example," Allen says, "we recently planted a legume cover crop between our Kiwi rows, using a special Pel-Kote mix we obtained through Ramsey Seed, Inc., of Maneca. This seed was inoculated with specific strains of rhizobia for fast seed germination and rapid stand establishment."

In addition to providing Alkop with cleaner rows, this cover crop will provide from 30 to 80 pounds of available nitrogen a year, through the nitrogen fixation process of the legume plants.

"Also," Allen says, "the deep roots of these cover crop plants will increase water penetration, providing

Bob Allen makes check on Kiwifruit ready for shipping. Alkop Farms has turned marketing over to Blue Anchor. Kiwi are pre-cooled and stored in converted PFE refrigerated vans.



better utilization of irrigation water."

At present, Alkop Farms has 10 full time farming employees, including three graduates of agricultural colleges with extensive Kiwi growing experience.

Blue Anchor Contract

Alkop has signed a contract with Blue Anchor to market its fruit. "They have the greatest experience in Kiwi marketing of any sales organization in the fruit industry," he says. "Also, with their refund program, they offer us the lowest cost marketing program available. Blue Anchor is also a major marketer of Kiwi from New Zealand during the summer months, which enables them to supply retailers with Kiwi fruit year-round."

Joel Wilson of the Blue Anchor field department works closely with Allen in coordinating Alkop's packing and shipping activities with the Blue Anchor sales department in

Sacramento. In addition to Alkop's production, this sales department also handles marketing for several other Kiwi fruit growers in other areas of the state.

Growing

After a start that would certainly defeat many people, Allen and Kopfer believe they have really turned the corner with Alkop Farms. "The fact is we now have people coming to us," he says.

Commitment to Success

With this commitment to success, supplemented by an obvious degree of continuing enthusiasm on the part of Bob Allen, Alkop Farms appears on its way to becoming one of the leaders of the new California Kiwi industry, which has already grown to over 2,000 acres within the last few years and appears headed towards several thousand additional acres within the next few years.

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