AGRICULTURE
in Arizona's
VALLEY of the SUN

THE VALLEY OF THE SUN IN RELATION TO THE STATE OF ARIZONA

The Valley of the Sun, so called because it lies within the maximum sunshine and minimum humidity belt for the United States, is also known as the Salt River Valley. This is a wide, level area approximately 100 miles long, fringed with low mountains, which runs diagonally across Maricopa County, just south of the center of Arizona. That which is said of agriculture in this area will also apply to Pinal County to the south, and to other irrigated areas of Arizona's desert. Although Arizona is the fifth largest state in the nation, 82% of it is owned by the Federal government in the form of Indian reservations, national parks and monuments, forest reserves, military areas, and reclamation areas. Only 1½% of the state's area is economically suited to agricultural crop production. Of this amount, about ⅛ is dryland farmed and ⅞ is irrigated. All farming in Maricopa County is dependent on irrigation. Of the total number of acres irrigated in Arizona—775,000—Maricopa County has 400,000 and Pinal County 175,000.

AN AREA OF INTENSE PRODUCTIVITY

Maricopa County ranks fifth in the entire United States in the value of its crops. This area produces from 50% to 75% of the total of various crops grown in Arizona, and is surpassed only by Pinal County in cotton. Maricopa County (of which the Valley of the Sun constitutes the major cultivated portion) has the state's greatest wealth and most dense population. Cash received by Arizona producers for crops sold off the farm and range in 1945 reached the all-time record of $134,000,000, and a very high portion of that went to Valley of the Sun producers.

IRRIGATION THE KEY TO AGRICULTURAL WEALTH

Once the Valley of the Sun, now lush with citrus groves, truck gardens and green fields, was a desert area, on which grew only cacti and desert shrubs. Irrigation, defined by Webster as the procedure used "to moisten land by causing water to flow over it by artificial means," has unlocked the wealth of the soil. From where does this water come?

Steps in the process of irrigating the Valley's crops. Lower left: main canal which carries water from dams to valley. Above: Water is diverted from canal to large ditch beside fields. Lower right: Water flows from ditch between furrows of a planted field.

IRRIGATION IN THE VALLEY OF THE SUN

The streams of Arizona rise in the mountains and the higher plateau areas of the north, and, with a few exceptions, drain in a general southwesterly direction through the Gila River and its tributaries into the Colorado River at an extreme southwestern point of the state. These streams flow the year around in the mountains, but as they break through the mountain barriers and emerge into the lower desert country, the flow is intermittent, the water sinking into the dry sandy beds of the streams. With melting snows in the spring, or the torrential summer rains, they become raging rivers for a short time. On some of these streams dams have been constructed to form reservoirs for storing water for irrigation. The largest and best known of these dams is Roosevelt, completed in 1911. Roosevelt Dam is the principal source of supply for the irrigation water used in the Valley of the Sun. Over a period of years, a vast system for irrigation has been established, including reservoirs, power facilities, flood control dams, diversion dams, canals, laterals and other related units. Through this complex system, water stored at main reservoirs is diverted to canals and ditches, finally flowing onto cultivated lands prepared for irrigation by borders and furrows.

Another method of irrigation is through pumping of water which has drained underground. This is done with electrically operated pumps located in valley regions.

It appears that the peak of central Arizona's irrigation development has been reached for the present. No new lands can be opened up in this area until new sources of water for irrigation have been secured, or far greater than normal rainfall on the watersheds occurs. Contemplated reclamation projects will make possible the use of water from the Colorado. The State of Arizona and the Bureau of Reclamation are committed to the principle that any supplemental water from the Colorado River will be used to protect existing developments. This will probably mean that very little, if any, new land will be brought into production.

Should any additional water supplies from the Colorado make possible the opening of new federal lands for cultivation, this new land will first be offered for sale to veterans of World War II, if proposed national legislation becomes law. Present indication shows that all such land will be taken by them if it is ever offered. It should be carefully noted that there is no homestead land available in Arizona, as all such land was withdrawn by federal act in 1934.

LAND VALUES AND FARM OPERATION COSTS

Irrigation, which makes possible the great productivity of land in Arizona's Valley of the Sun, also increases the cost of farm operation. Power to operate pumps, and the cost of water, are important factors. Cost of water may vary from year to year. In areas where irrigation is by pumping, the water cost depends on the distance which the water must be lifted to the surface. Land prices with water rights seem high in the Valley of the Sun and have, like land prices in other parts of the country, risen in recent years. However, when income possibilities of this land are considered, prices are not proportionately high. Arizona's all-year growing climate makes double annual crop production possible in many cases. This area's very warm winter climate ripens many precious crops during the winter months when they are not being grown in other parts of the country, making premium prices possible. Average value of crops per acre in this area in 1945 was about $145.00. Here, farm investments are higher, but so are farm incomes!

WINTER TRUCK CROPS

The greatest asset Arizona's Valley of the Sun has to offer the agriculturist is free! It is the sun itself, the warm winter sunshine which makes truck crops ripen when prices are high. Truck crops were number one in agricultural sources of income in Arizona during 1945, providing a cash income of 38 million dollars. Of the total 75,000 acres planted in vegetable crops, 50,000 were harvested in Maricopa County. Important among the winter vegetables grown in this valley are cabbage, cauliflower, broccoli, and carrots. Some celery and potatoes are also grown. Local gardeners also produce green beans, squash, tomatoes and other crops for home consumption.

ONE FIFTH OF THE LETTUCE PRODUCED COMMERCIALLY IN THE NATION IS GROWN HERE

Chief of all truck crops grown in Arizona's Valley of the Sun is iceburg type head lettuce. It is grown in two different seasons. The first planting is in September, and is harvested in late and mid-winter. The second crop is planted in November and harvested in the early spring. About 21,000 acres are used in the production of this crop. The quality of this winter head lettuce is excellent. It goes to most of the principal markets throughout the nation. If the timing is right, so that the crop ripens when other areas are not offering lettuce to the market, incomes are high. Lettuce is usually planted in larger acreages by operators capable of harvesting, packing and marketing rather than by small truck farmers, because the former are better equipped to handle the financing and risks involved.

Chief summer truck crops in the Valley of the Sun are cantaloupes and honeydew melons. 6,200 carloads of cantaloupes and 7,200 carloads of honeydews were shipped in the 1945 summer season.

Truck crop production, like all farming in Arizona's irrigated sections, is an intensive and specialized business, requiring particular skill in management and a considerable knowledge of irrigation-agriculture. In order to be successful, a prospective farmer should have not only experience in agriculture, but also a knowledge of crop production methods on irrigated farms. Of the six major factors affecting the earning power of an agricultural enterprise—size of farm, types and proportions of various crop and livestock enterprises, yields, prices received, production expense, and the operator's managerial ability—the most important factor is managerial ability in determining success.

CITRUS FRUIT PRODUCTION

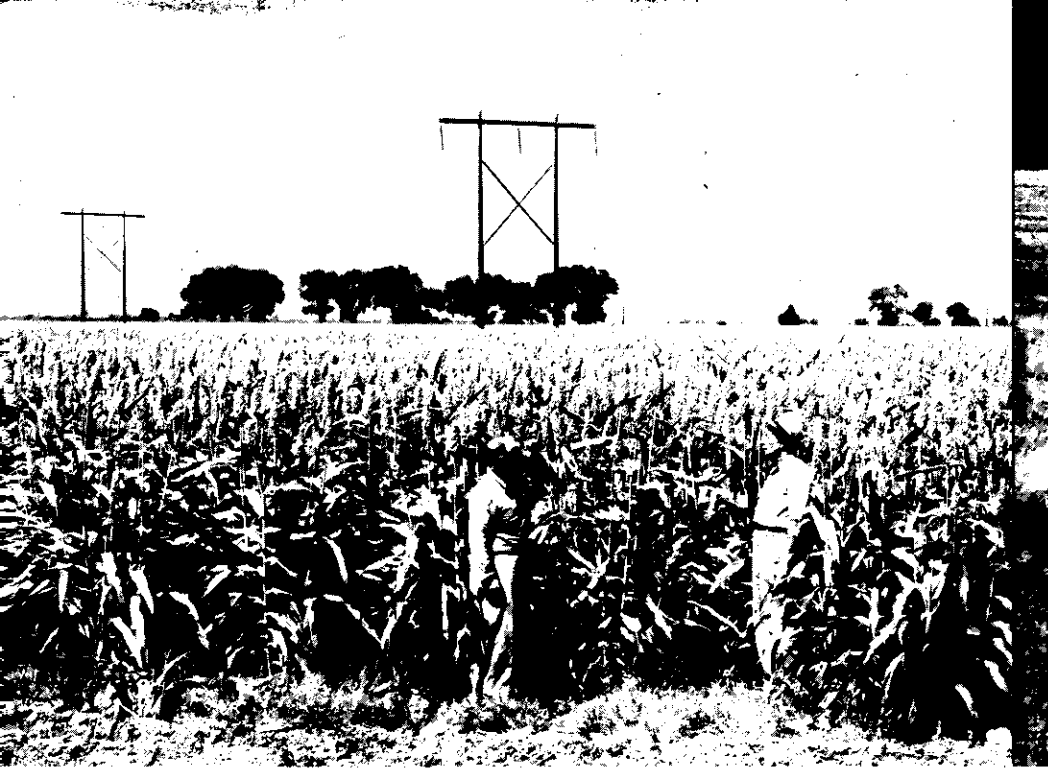
Citrus fruit advanced from tenth to fourth place during the first part of this decade as a source of agricultural income. Of the several types of citrus fruit grown in Arizona's irrigated areas—grapefruit, oranges, lemons, tangerines—desert grapefruit ranks first in importance. The desert variety of grapefruit is known to be particularly flavorful and high in Vitamin C content. 83% of the state's output of desert grapefruit was grown in the Valley of the Sun. 60% of the Arizona crop was shipped out of the state as fresh fruit, and about 36% of the entire crop was processed. The Valley has its own fruit- and juice-packing and processing plants. About 11,500 acres of this valley are planted in desert grapefruit. This area is virtually free from frost that endangers citrus fruit in other states, and smudge pot use is not practiced.

The leading variety of oranges in Arizona's Valley of the Sun is the Valencia, of which there are 3,000 acres; navels, 2,350 acres; and sweet seedlings, 1,500. A record Arizona orange crop was produced for the year ending August, 1945, almost all of which was grown in this valley. Not much additional acreage has been planted in citrus fruit in recent years. The future value of this crop cannot be accurately predicted.

COTTON PRODUCTION

Arizona's desert area is the birthplace of American-Egyptian long staple cotton, similar to that produced along the Nile. Only when it brings growers two and one half times as much as the shorter staple variety does the acreage planted in this American-Egyptian variety increase. More important is the shorter staple, upland variety of cotton. Recent figures show that of the state's total of 155,000 acres planted in cotton, Maricopa County has 41,400 and Pinal County has 87,500 acres. $16,215,000 is the latest estimated annual value of Arizona's cotton crop, this figure including incomes from both lint and seed.

Most of the water for irrigating cotton crops in Pinal County is pumped from ground-water storage. Since the cost of pumping water is almost directly proportional to the pump lift, the distance the water must be lifted is the most important variable factor in the cost of producing an acre of cotton in Arizona. Pump lifts vary from about 40 feet to about 240 feet. The cost of water where the pump lift is 80 feet runs about $10 per acre; and at 160 feet, about $20 per acre. "Out-of-pocket" costs of cotton production approximate 60%, the balance goes into interest on investment, depreciation, maintenance, insurance, etc. As the cost of water increases there is a tendency for taxes on the land itself to be lower. Higher water charges are also reflected in lower sale prices of land.



GRAIN PRODUCTION

The principal grains produced are sorghums, barley, wheat and oats. The usual practice is to sow winter grain in October, and pasture it through the winter until early February. It can, however, be planted any time from mid-September to mid-February. Stock is then taken off the fields and a grain crop is produced. There is also considerable grain sown in the alfalfa fields and pastured through the winter. The first cutting of grain and alfalfa makes hay of splendid quality. Some corn is also grown here for silage. This crop is usually planted after a crop of winter grain has been harvested, in June or July, and the corn matures in the fall.

Principal grain sorghums are milo, hegari, feterita, manko, and Kafir corn. These are also planted after the winter grain crops are harvested, and mature in about 90 days. Some of the sorghum is used for grain as a substitute for corn, some of the hegari is used for silage, and much is shipped to other states as registered seed. 37,000 acres were planted in grain sorghums in Maricopa County in 1945, and 53,000 acres were planted in barley, these two being the largest grain acreages this year.

ALFALFA HAY

153,000 acres are planted in alfalfa in Maricopa County according to recent figures. Alfalfa is one of the Valley of the Sun's most important crops. It is used for winter pasture for sheep and for fattening cattle, and later harvested as hay after the stock have been removed. Under favorable conditions, and when the alfalfa is not pastured, as many as five cuttings or more may be made in a single year. Recently alfalfa prices have risen sharply.

SEED CROPS

Alfalfa seed was Arizona's most important seed crop in 1945. For many years Arizona was the principal source of supply for alfalfa seed in the United States. The largest acreage of sugar beets for seed for several years has been planted in 1946. Maricopa County produces about one-third of all sugar beet seed in the U. S. The Valley of the Sun is particularly adapted to the production of seed crops, due to its lack of rain, low wind velocity and long growing season. The University of Arizona and the federal government are engaged in constant research to develop new types of seed production here. Vegetable seed crops are now being grown experimentally.

BEEF CATTLE FEEDING

There is cattle feeding but not cattle ranching in the irrigated sections of Arizona. The value of land in the irrigated districts makes it almost prohibitive to handle those districts on a cow and calf basis. With the exception of small herds of prize thoroughbred stock kept in the Valley of the Sun, beef cattle are not raised here. However, in normal times more cattle are fed in the Valley of the Sun, within a 40 mile radius of Phoenix, than in a like area anywhere else in the world. Alfalfa and grain pasture in the valley, hay, ensilage, cotton-seed meal or cake, and grain mixtures are used.

Ranching is carried on in the vast grazing, desert and forested areas of the state. When the calves are weaned, or if having been held on the ranch, when they reach yearling age, they are sold to the cattle feeders who are located in the irrigated districts. The grazing area of Arizona consists of privately owned land, state owned land, and federally owned land. Most ranches include two or all three types of land. In most cases, the ranch buildings are on land owned by the rancher. This land may also supply the bull pasture, weaning pasture, and holding pasture, as well as corrals, loading chutes, etc. The basic range, however, is on leased land which, if state, is under the rancher's control. The number of head is controlled by government agencies on federal land.

It is impossible to give the area necessary for any definite number of cattle, as this varies widely throughout the state. The average carrying capacity for the state as a whole is nine mother cows to the section. This varies, however, from a few excellent grazing areas which will take fifteen or twenty head to the section, year-round, to other areas which will support only one animal to the section, year-around. From a practical standpoint, any area which supports less than three animals to the section is not an economical ranch unit on a year-round basis, as the animals expend too much energy in obtaining their feed to allow for normal growth and development.

In ordinary times ranches sell on the basis of the number of animals the ranch will carry, rather than on the number of acres. The price of the land, including lease rights, is approximately the value of the number of animals the ranch will carry on a year-round basis. At the present time land prices are out of line, and ranches are being sold at prices well above that figure. It is generally conceded that the minimum number of animals which can support one family is about 250 breeding cows. The breed commonly raised in Arizona is Hereford.

SHEEP AND LAMBS

Sheep, like cattle, are brought into the Valley of the Sun from range areas. Unlike cattle, however, the entire herd is moved and the young are born in this area. Each fall, several hundred thousand head of sheep are driven from the high altitudes and pastured all winter in the warm valley on alfalfa and green young grain crops. Early lambs are produced which are finished for the middle west and coast markets, and sell at a premium because many of them are produced for the Easter trade. Arizona is said to have the longest sheep drive in the world, from the mountains of the north over great desert distances, across rivers and into the Valley of the Sun. Numbers of sheep raised in Arizona are diminishing. As land prices rise, sheep numbers tend to decline. Some of the grass lands of the state have been found to be better adapted to cattle. No device has ever been found for the replacement of herders. Most Arizona herders are Spanish-Americans or Basque. Few young men are entering the sheep industry at the present time.

HORSES

While horse breeding is not an industry, there is much interest in developing fine saddle horses in this area. Many Valley horse fanciers specialize in western types, such as the Palomino, Quarter-horse, cross-bred Arabian, and fine roping horses for ranch work.

POULTRY IN THE VALLEY OF THE SUN

Commercially raised poultry in this area consists chiefly of laying hens, mostly the White Leghorns. Most of the year there is a good market for eggs and some are shipped out when available, chiefly to mining towns in other parts of the state. Most of the poultry for the local market, including fryers, broilers, and fat hens, are produced here, though at certain seasons some are shipped in. Nearly every farm and ranch dweller in the Valley raises poultry to supply family table needs. Both chickens and turkeys thrive in this climate. Because of the warm winters, less shelter is required for them than in other parts of the country. Also, it is possible to produce very early spring fryers.

DAIRYING

Conditions in the Valley of the Sun are favorable for economical milk production. Alfalfa hay and pasture form the basis for the dairy ration, and high yields of grain sorghums for ensilage can be produced. Small grains sown in alfalfa stands provide some pasture during the winter months. For concentrates, cotton seed meal from locally grown cotton and locally grown barley are normally available. Recent food research has shown that butter produced in the area is unusually high in Vitamin A content.

During the war, high prices for competing crops and unreasonably low ceiling prices on milk and milk products have prevented the development of milk supplies adequate for the increased population of the state.

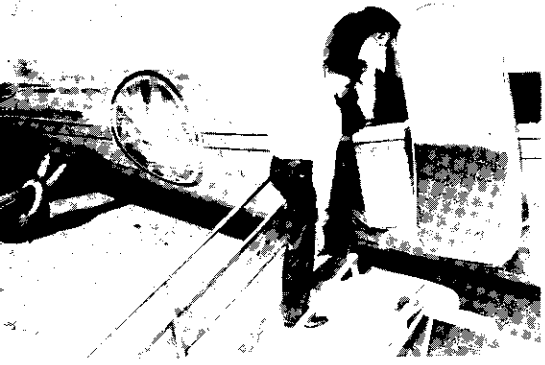
Modern plants are available for the processing of fluid milk and cream, evaporated milk, butter and cheese.

With the return of normal price relationships, which is to be expected, dairy farming will assume an increasingly important position in the agricultural economy of the area.

DATES AND OTHER UNUSUAL CROPS

Date growing is not one of the most important of agricultural activities in Arizona's Valley of the Sun, but it is one of the most interesting. The climate, being similar to that of Egyptian desert regions, is particularly suitable to the growing of dates. Sometimes, however, rains in the late summer or fall, when dates are ripening, may spoil the fruit. Waterproof paper covers placed over the fruit clusters help prevent this. All date trees must be pollinated by hand. Not many more than 500 acres of dates are grown in the entire state of Arizona, but the per-acre value of this crop is high. A good date grove may be made to produce about 6,000 pounds of marketable dates per acre annually. During pre-war years the average date grove was not a profitable enterprise. Most recent figures, however, indicate an excellent profit per acre during the past season! A larger income may be produced from a small acreage with dates than with almost any other crop, providing management is good and conditions are favorable. Here again, however, investments are high and much technical knowledge is required in this particular field.

Another valuable tree crop is pecans. This crop was valued at $1,750 per acre during the past season. Only a very few pecans are grown here. Olives are also grown, and some of them are canned by valley packing plants. Figs thrive, but have no commercial importance except locally.



SHIPPING OF ARIZONA PRODUCTS

Arizona's Valley of the Sun is advantageously located for easy shipping of her products. Highways are excellent and convenient for the truck-owner who brings his own produce to market, and for the motor transport lines which haul produce from packing sheds to all major markets. Maricopa County is crossed by four transcontinental highways which also connect with other parts of the state and with the towns of the Valley. There is a total of 650 miles of hard surfaced roads in the county. They have been so placed through the farming areas that most farms are on a paved highway or within a mile of such a highway. Railways run the entire length of Arizona's Valley of the Sun. Both Santa Fe and Southern Pacific Railways serve this area. A recent development in shipping facilities is airfreight service, which makes it possible to place Arizona's precious, perishable crops in Eastern markets within a few hours, saving shipping loss and insuring premium prices. Such crops as fresh dates are advantageously shipped by airfreight. A number of products are processed in Arizona's Valley of the Sun. Examples are the canning or quick-freezing of fruits and vegetables, the manufacturing of cottonseed cake, and the grinding of alfalfa.

AGRICULTURAL EDUCATIONAL FACILITIES

The State Agricultural College is at Tucson, as a College of the state university. Yearly it publishes a complete report on Arizona agriculture. The state experiment station is located near Mesa. Maricopa County is one of the few counties in the U. S. that has a building exclusively used by the County Farm Bureau and the County Agricultural Agent and his staff. Yearly, in the late autumn, a State Fair is held at Phoenix.

ADVANTAGES OF LIVING CONDITIONS IN THE VALLEY OF THE SUN TO THE FARM FAMILY

Much has been said about various types of opportunities in agricultural enterprises to be found in Arizona's Valley of the Sun, but what about opportunities for better living? It is the happiness and health of the family that is of prime importance, aside from getting a living. Arizona's superb climate is a most important attraction. Here is constant warm, dry sunshine, almost no fog or wind, and an ideally healthful altitude varying from 1,000 to 2,000 feet. The Valley has 84% of sunshine possible in daylight hours. Both work and play are more enjoyable in this dry, bracing air.

Homes are attractive, in modern, Spanish or ranch-house style. All modern conveniences are available. Farm homes here have electricity, and liquefied petrolium gas fuel is used beyond the city gas mains. Schools are excellent and numerous, and school bus service is provided. All communities have fine High Schools, and a college is located in Tempe, and a Junior College in Phoenix. Many churches of all denominations are located in this area. Near the center of Arizona's Valley of the Sun is the city of Phoenix, a thriving metropolitan community of over 160,000. Large department stores, shops, theatres, medical facilities, and opportunities for recreation and social life are features of Phoenix enjoyed by farm families of this Valley.

Excellent highways and transportation service make Phoenix and other parts of the Valley of the Sun easily accessible to rural residents. Every member of the family will find exceptional opportunities for enjoyment of life in Arizona. Such scenic wonders as the Grand Canyon, the Painted Desert, the Petrified Forest and prehistoric Indian ruins offer suggestions for week-end trips.

For the fisherman, there are trout streams and bass lakes not far away in northern Arizona, and deep-sea fishing on Mexican coasts below the border. Big game hunting opportunities abound in mountain regions. In the winter, there is skiing on the snow-covered slope of San Francisco Peak near Flagstaff. Families will enjoy desert picnics in nearby foothills during the winter, and camping trips in pine forests at higher levels in the summer. Horseback riding, rodeos, swimming, and sports of all types are other opportunities for the enjoyment of all-year outdoor life.

HOME GARDENING IN ARIZONA'S VALLEY OF THE SUN

It is possible, with careful planning, for home gardeners to have some kind of fruit and vegetable ripe and some kind of flower blooming, during every one of the twelve months of the year in this climate. Some of the fruits which may be easily grown at home are grapefruit, oranges, lemons, dates, figs, pomegranites, apricots, peaches, pears, plums, grapes, strawberries and blackberries. Apples and cherries are almost the only fruits which do not thrive in the desert climate. Many ornamental trees and shrubs are well adapted to the climatic conditions and grow so rapidly that it is possible to landscape and beautify one's home very quickly. Lawns can be kept green all year.

Various types of flowers bloom at different times throughout the year, but early spring is the peak blooming season for many kinds. The main planting season for flowers is the fall of the year. Varieties which bloom during May and June in cooler climates will be at their best during March and April in the Valley of the Sun.

VEGETABLE PLANTING CALENDAR FOR THIS AREA

Vegetables	Time of Planting	Time of Maturity from Planting
Beets	October 1 to December 1	75 to 90 days
Cabbage	Seedbed: Sept. 15 to Dec. 1	
	Field: Oct. 1 to Jan 1	90 to 120 days
Carrots	September 15 to April 1	60 to 90 days
Cauliflower	Seedbed: Sept. 15 to Dec. 1	
	Field: Oct. 1 to Jan. 1	100 to 120 days
Celery	Seedbed: May 1 to May 15	
	Field: Oct. 1 to Nov. 1	120 to 150 days (from Transplant)
Lettuce	September 20 to Jan 1	90 to 120 days
Onions	Seedbed: Sept. 25 to Oct. 10	5 to 6 months
	Field: Dec. 1 to March 1	8 to 12 months
Parsley	September 1 to October 1	80 to 120 days
Parsnips	September 1 to January 1	100 to 120 days
Peas (English)	September 20 to March 1	60 to 100 days
Radishes	September 15 to April 1	40 to 60 days
Spinach	September 20 to March 1	45 to 74 days
Swiss Chard	September 15 to December 1	60 to 90 days
Turnips	September 15 to March 1	90 to 120 days

Tomatoes, sweet corn, cucumbers, bell peppers and cantaloupes are planted in the early spring for summer harvesting.

To sum up, Arizona's Valley of the Sun has much to offer the prospective land owner, both as a place to live and as a place to earn. Before moving to this area, however, the wise purchaser will investigate the investment required for the successful operation of the particular agricultural endeavour in which he may be interested. He will make sure he is sufficiently informed to assume responsibilities for the management of the more complex irrigation-agricultural project.