1906

Southern Arizona

for the Settler

Southern Pacific

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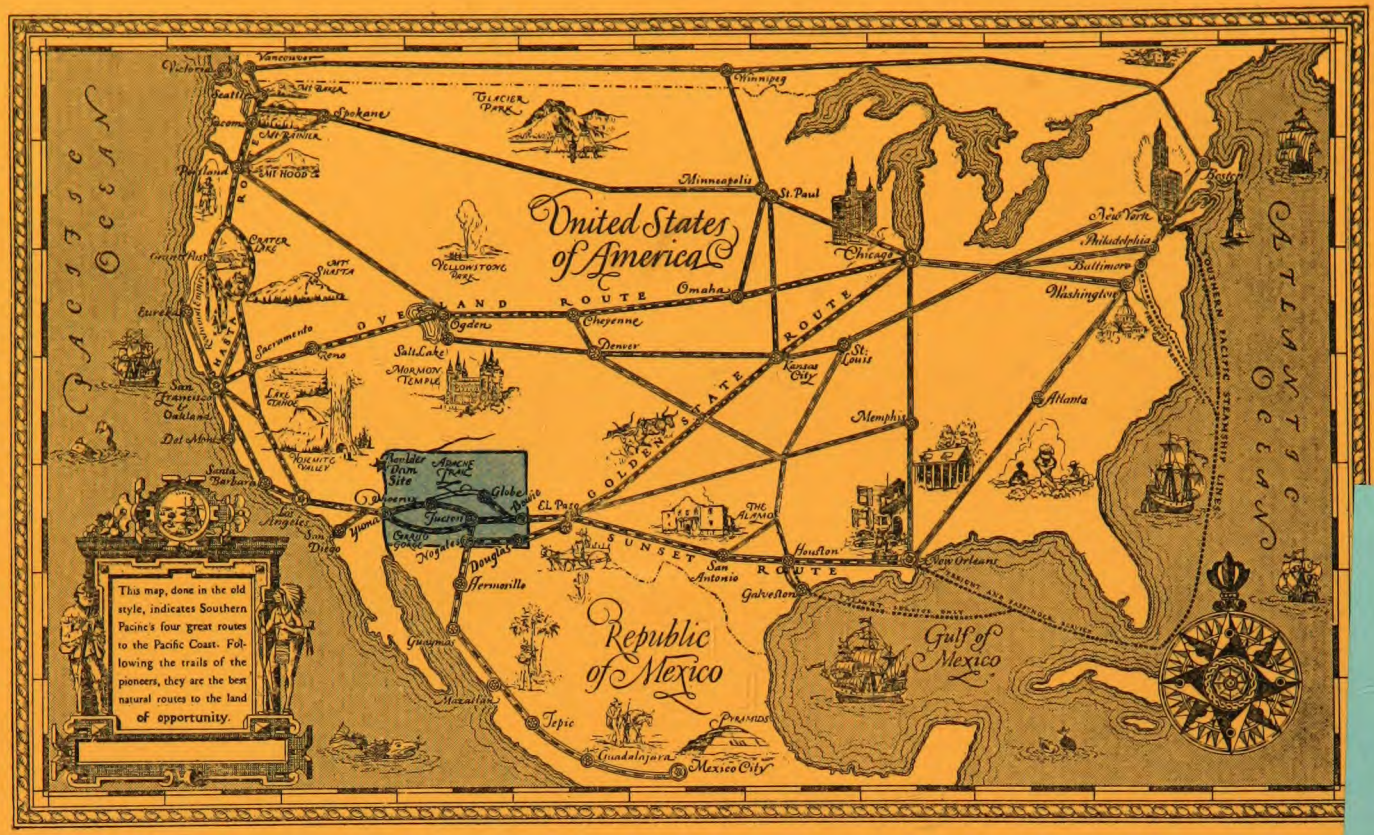


SOUTHERN ARIZONA
for the SETTLER

AN APPRECIATION OF *Arizona*

ARIZONA stands on the threshold of a relatively tremendous agricultural development. Among the factors that make this development inevitable are the following:

Arizona's attractive climate brings thousands of people into the State each year. The evident fertility and productivity of every irrigated section is so impressive that the story is carried to the four corners of the nation.

Every important remaining water resource is being carefully studied with the object of early development. Science is successfully meeting the problems of the Southwest, and the principles underlying irrigation farming are much better understood than they were only a few years ago. Greater knowledge and intelligence is apparent in the efficient use of our great range area for livestock production.

Arizona, the youngest of the States, has already developed a public school and road system that ranks with the best in the Union. This is attracting the highest type of farmer.

The population of the Western coast region is increasing so rapidly that it is growing less and less necessary for Arizona to look to the East for a market. Economic forces and nature's forces working together are building a great agricultural future for the State.

Arizona offers to home builders not only satisfactory economic returns but also the lure of magnificent mountains, wild game, fish in mountain streams and lakes. The feel of progress and well-being is in the air. All the satisfactions that make rural life attractive are to be found here. An especially warm welcome awaits the prospective home builder in Arizona.

P. H. ROSS, *Director*
Agricultural Extension Service
University of Arizona

Southern Arizona

FOR THE SETTLER

ARIZONA, the youngest State in the Union, offers excellent opportunity to the farmer and settler interested in irrigation farming. It has large tracts of fertile land which have long waited for water. Today southern Arizona is developing and placing a supply of water on this virgin soil.

This booklet contains information for the prospective settler and purchaser, describing the land of various southern Arizona irrigation projects served by the Southern Pacific lines. The facts contained herein were obtained by investigation made by the railroad.

The agricultural development of southern Arizona during the last decade has been outstanding. Its soil and climate are unusually favorable for the production of heavy crops. With the growing supply of water obtained from the various irrigation projects, the State has continually increased its production. Due to increased acreage, higher yield per acre and rising prices, the State's 1928 crop value was 20 per cent greater than the 1927 value.

Lands now available for farming vary in price and offer opportunity for those having only sufficient money for moderate investment, as well as for those who want developed acreage. For those seeking productive land and a beautiful country in which to live, southern Arizona offers some of the best.

R. E. KELLY, *Manager*
Development & Colonization Department
Southern Pacific Company
San Francisco

Facts About Arizona

1. Arizona is the fifth largest State in area, 113,000 square miles, and the fifth smallest in population.

2. It had the greatest per cent increase in population in the United States between 1910 and 1925. Since 1920 its population increased 40 per cent and now is 470,000.

3. In 1926 it had in cultivation a smaller acreage than any other State, but was only exceeded by Iowa and Illinois in the average yield per acre and value per acre of many crops.

4. It now has 600,000 acres of land under cultivation, compared with 400,000 acres in 1922.

5. The chief crops of the State arranged in the order of their farm value for 1928 are cotton, alfalfa hay and seed, lettuce, cantaloupes, wheat, corn citrus fruits, grain sorghums, barley, oats, white potatoes, deciduous fruit, sweet potatoes, beans, wild hay. The State is also a big producer of livestock. It shipped 418,000 head in 1928.

6. In the production of lettuce the State ranks second and in the production of cantaloupes it ranks third; in 1927 it shipped over 13,000 carloads of these two commodities.

7. The State has two harvests annually. Its climate is one of the best there is for agriculture; it has a growing season averaging 300 days, during which two crops can be grown.

8. Its leading industry is mining, which exceeds any other Western State in value of total metal production; the mining industry pays nearly half of the State's taxes and provides a near market for farm products.

9. In proportion to its population the State has one of the best highway and rail transportation systems in the country.

10. For the year ending June 30, 1928, the State Highway Commission provided in its budget the sum of $5,654,487 for expenditure on construction and improvement of highways.

11. The State's romantic association with its early Indian civilization, its climate and its scenery are three tourist attractions which invite visitors from all over the world. Fourteen new hotels, ranging in cost from $200,000 to $2,000,000 each, were erected during the twelve months ending June 1, 1928.

Southern Arizona

FOR THE SETTLER

The farm lands described in this booklet are arranged according to their price and their sources of water. The following group of eight irrigation districts obtain water from gravity or pumping systems. The price of land in these districts is low enough for purchase by settlers who have $3,500 to $10,000 capital with which to begin farming.

The number under the name of each district indicates the location of the district on the map on pages 22 and 23.

Beginning on page 32 under the title "Sources of Arizona Farm Income" is a statement pertaining to the main crops and livestock grown in southern Arizona.

Correspondence pertaining to lands in southern Arizona should be addressed to nearest Southern Pacific representative listed on inside of back cover or to R. E. Kelly, Manager of Development and Colonization, Southern Pacific, 65 Market St., San Francisco, California.

PART ONE

San Carlos Project
[16]
Cotton, Lettuce, Wheat, Cattle, Sheep

THE San Carlos Irrigation Project in Pinal County contains fifty thousand acres for general settlement.

The reservoir formed by the Coolidge Dam across the Upper Gila River supplies gravity water for this project. Congress in 1924 authorized the expenditure of five and one-half million dollars for the construction of the dam and the irrigation works connected with it. The dam has a maximum height of 260 feet, a crest length of 560 feet over three domes and two buttresses, and a spillway 150 feet wide at each end. It has storage capacity of approximately 1,200,000 acre-feet, or sufficient water to cover the 100,000 acres to be irrigated to a depth of twelve feet, which is four times the water required for one year's irrigation. The reservoir when full will extend up the Gila and San Carlos rivers for about twenty miles.

The Government has determined definitely the land area which will be irrigated by water from the Coolidge Dam. This is termed "designated land." It is important that the purchaser know whether the land he considers buying is within this designated area.

The land in the project lies at an altitude of 1300 to 1500 feet above sea level. The growing season is about nine months. June, July, August and September are warm during the day. However, the humidity is very low, so that the heat is not oppressive, and there is no cessation of activity on this account. The rainfall, which varies from year to year, is usually less than ten inches per annum. The soil is a sandy silt, easy to handle, free from excessive alkali, and heavily productive. Good water for domestic use can be pumped from depths of from 25 to 100 feet.

The crops that should be raised on this land during the first year or two of its development are cotton and alfalfa. When the price of lint is fifteen cents or more per pound, cotton makes a very satisfactory first-year crop because it produces abundantly on new land and brings a cash return. Other crops that give good promise in the San Carlos Project are truck crops such as lettuce and cantaloupes and grain, especially wheat. Dairying promises to be one of the basic industries, due to the fact that cheap feed is provided by alfalfa, which grows luxuriantly. It is possible to obtain as many as seven or eight cuttings of alfalfa per annum to provide fresh feed for cows throughout the entire year.

Specialty crops such as figs, dates, pecans, citrus fruits and onions are grown in this valley. On account of the highly speculative nature of these specialty crops, it is not recommended that large acreages be put in on the average farm.

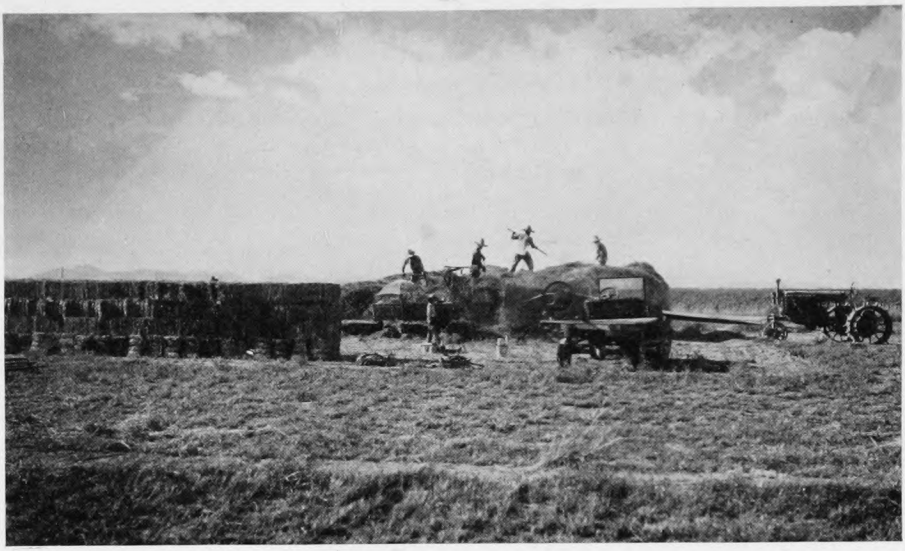
PINAL COUNTY PRODUCTION AND SHIPMENTS—1927

Estimated Value of Important Crops

Cotton	5,074 bales	$368,615
Cotton seed	4,396,710 pounds	43,967
Lettuce	94,388 crates	214,800
Wheat	90 cars	141,625
Cabbages	1,150,490 pounds	54,413

Livestock Shipped

Cattle	319 cars	$576,050
Sheep	339 cars	312,013



Continuous sunshine gives excellent quality to Arizona alfalfa.

Transportation

The Southern Pacific recently completed a new main line through the San Carlos Project which is now served by two through transcontinental routes. Highways are numerous in the valley, some of them hard surfaced and all of them good from the standpoint of transportation. It is easy to keep the roads in good condition on account of the low rainfall.

Schools and Churches

Arizona has one of the highest rated educational systems in the United States today. The school buildings are modern and the equipment adequate. Large sums are annually granted by the State for the support of the schools. Many church denominations are represented on the project.

Buying Lands

To provide support for a family in the San Carlos Project, not less than 40 acres should be secured, and 80 acres are better. A newcomer with $3,000 could establish himself on 40 acres, or with $5,000 on 80 acres of land. Land can be bought on time, and the Federal Land Bank will make loans at low rates of interest. The cost of raw land is from $100 per acre up.

Considering productivity of the soil, nature of crops and average prices, the buyer can afford to pay $100 per acre for raw land in this project. This land is also subject to a lien of about $80 per acre, which

represents a bonded indebtedness to the Government for the construction of the Coolidge Dam, diversion dam and irrigation system. The $80 can be paid over a long period of years at a low rate of interest. The development of hydro-electric power at Coolidge Dam may in part pay off this indebtedness. Drainage was provided for in the construction of the project. An estimate of $20 per acre is probably sufficient to cover the cost of clearing and leveling the major portion of the land in this valley.

Under Government contract with the settlers, one man cannot hold in his own name more than 160 acres of land. For this reason present holders of land who have more than this amount desire to dispose of their excess acreage.

The principal towns in the San Carlos Project are Florence, Casa Grande and Coolidge. These are growing communities centrally located on the railroad and highways. Each has a Chamber of Commerce which is at the service of visitors and land seekers.

Yuma Valley

[1]

Cotton, Alfalfa Hay, Alfalfa Seed, Cantaloupes, Lettuce

Yuma Valley is in the southwestern corner of the State. The total valley acreage in the Yuma Project is 65,000, of which 50,000 are in Arizona and 15,000 in California. The elevation of the irrigable area is from 80 to 140 feet above sea level.

Gravity water for the project comes from the Laguna Dam on the Colorado River. This is a diversion dam continually supplying water from the Colorado River. The dam is 4470 feet long and was built by the United States Reclamation Service at a cost of two million dollars. The water it diverts from the Colorado River is conducted down the west side of the river and carried under the river bed at Yuma by an inverted syphon.

The principal towns in the Yuma Valley are Yuma, Somerton and Gadsden. Yuma is one of the oldest cities in the Southwest. It is strategically located on the transcontinental line of the Southern Pacific and on a coast to coast highway. Its population is about 8000 and in addition there are about 3800 people living on farms adjacent to the city. In order to meet the needs of this growing community the Southern Pacific recently erected a modern $150,000 depot and yards. Two icing plants of large capacity furnish ice for domestic purposes and supply the ice for all the thousands of cars of fruit and vegetables hauled from and through Yuma by the Southern Pacific.

Fourteen public schools, fifteen church buildings and about twenty-four religious organizations are located in the area. There are also three banks.

Cotton stand in August on new land.

Yuma's climate is outstandingly favorable for agriculture. Few places have as much sunshine. The mild, dry winters are unsurpassed anywhere in the world. Average temperatures for twenty-nine years are: high 115 degrees, low 28 degrees Fahrenheit. The annual rainfall for a 40-year average is 3.1 inches. The growing season, too, is one of the longest. Government reports beginning many years ago show an average length of 357 days between killing frosts.

In the past the best money returns in this valley have been from cotton, alfalfa, cantaloupes and lettuce. These still are the important products. Cotton, however, has been grown on much of this land for a number of years, so that there is a need for crop rotation. Lettuce and cantaloupes mature early in this climate. The valley has two large plants for packing and shipping lettuce and cantaloupes. Diversification of crops is recommended for the valley. The University of Arizona maintains an experimental farm in Yuma Valley for the benefit of the farmer.

Dairy farming is increasing on the project, but has not yet reached its possibilities. A ready market for dairy products is found in Arizona cities and in Los Angeles, 250 miles away.

Land varies in price from $125 to $200 per acre, a low figure when the favorable conditions are considered. Long-term farm loans may be made at five per cent and short term at ten per cent.

Principal Yuma Valley Crops—1927

Crop	Acres	Average yield	Average price per unit	Return per acre
Alfalfa	13,751	2.4 tons hay 278 lbs. seed .8 ton straw	$9.77 .12 4.22	$50.75
Cantaloupes	2,905	108 crates	.41	44 47
Lettuce	1,880	126 crates	.54	68.27
Cotton	17,425	375 lbs. lint 673 lbs. seed	.20 .016	86.30

A total of 40,883 acres produced $2,708,078 worth of crops, averaging $66.24 per acre in 1927.

Roosevelt Water Conservation District

[13]

Cotton, Alfalfa, Small Grains, Sorghum

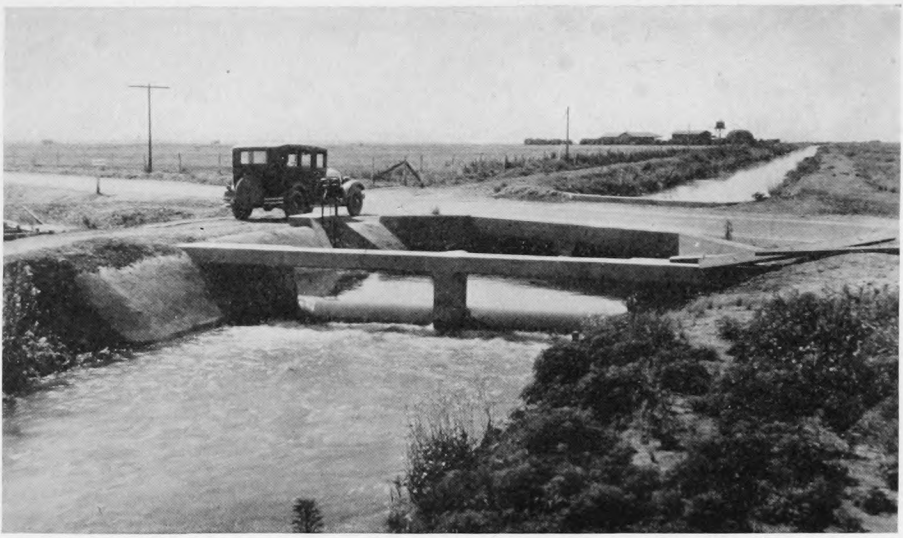
Twenty miles east of Phoenix in Maricopa County is the Roosevelt Water Conservation District, which includes 41,000 acres of land. The district was organized in 1921, but construction of water facilities did not begin until 1925.

Gravity water is provided from four sources. First, the district paid the Salt River Valley Water Users Association $889,000 to line with concrete the Eastern Canal which carries water from the Roosevelt Dam. In return the water conservation district receives free from the Salt River Valley Water Users Association the amount of water saved, or 74,000 acre-feet. Second, wells have been drilled around Higley to provide 60,000 acre-feet. Third, flood waters from the Salt and Verde rivers to the extent of 22,000 acre-feet may be used in the flood seasons. The water from the three sources mentioned should be sufficient; but for protection in dry years, the district has filed on the flood waters of Queen Canyon and is there building diversion dams and canals capable of diverting 44,000 acre-feet of flood waters.

In 1928, the third year of cultivation, the following crops were grown: cotton, 28,000 acres; alfalfa, 5000 acres; wheat and barley, 3500 acres; hegari, a grain sorghum, 500 acres; citrus, 200 acres; and dates, 50 acres.

The Roosevelt Water Conservation District headquarters are at the town of Higley, located near the center of the district. Towns close to this area are Mesa, Chandler and Gilbert. All of these market centers are on the Southern Pacific and the entire district is served by lines of this railroad.

Land in the district may be purchased at $100 per acre up. The buyer must assume his share of the bonded indebtedness of the district



Canal passing under Apache Trail in Roosevelt Water Conservation District.

for irrigation construction. This indebtedness per acre is $92.50. Considering the double cropping possibilities and the ease of farming, this land purchase price is reasonable.

Buckeye District

[8]

Alfalfa, Dairy Products, Beef Cattle, Small Grains

Twenty miles west of Phoenix lies the forty-year-old Buckeye Irrigation District. It is just north of the Gila River and extends over a distance of about seventeen miles. Its principal town is Buckeye.

Farmers in this locality have old water rights and a gravity irrigation system that is inexpensive and easily maintained. They have a bonded indebtedness of only $5 per acre.

The irrigation system is designed to serve 20,600 acres, of which about 16,000 acres are now being farmed. Much of the remaining acreage can be cropped by installation of an adequate system of drainage. A local plan is now on foot to re-use irrigation water by pumping it from the low section of the valley.

The chief products of the district are alfalfa hay and seed, dairy products, beef cattle and small grains, especially wheat and barley. For successful results, a farmer should have not less than 80 acres.

The price of land in the Buckeye District ranges from $100 to $200 per acre. The water assessment is from $2 to $3 per acre per year.

Immediately north of the Buckeye District is the Roosevelt Irriga-

tion District, a new district described elsewhere in this booklet. These two districts make a large adjoining territory where cooperative farming and marketing can be established.

Mohawk Municipal Water Conservation District

[5]

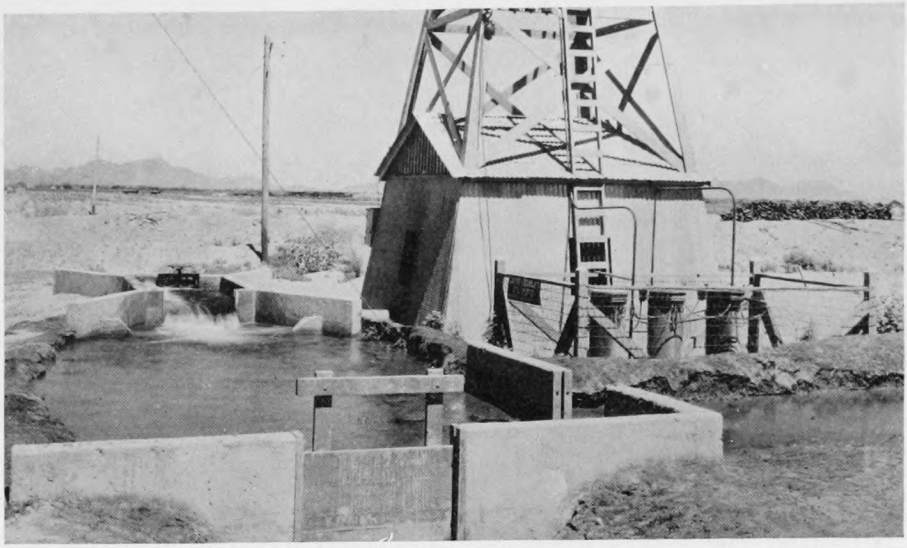
Cotton, Alfalfa

The districts previously described are all irrigated by gravity water, that is, by water stored in artificial reservoirs along Arizona's rivers or by waters diverted directly from the streams. Arizona's rivers run through very porous and gravelly beds and in some cases much of the flow of the river is below the ground surface. For this reason it is often possible to pump water for irrigation purposes by sinking wells down into this underground flow or into an underground water storage.

Forty-five miles east of Yuma is the Mohawk Municipal Conservation District. It comprises 18,305 acres of fertile bottom land in the Gila River Valley. The district proposes to supply water for this entire acreage by pumping the water from the underground flow of the Gila River. When the construction is completed there will be forty-five electrically driven pumps. After continuous pumping from the wells the water stands from 30 to 40 feet below the surface. In order to provide cheap power for pumping, an electrical district was formed and the electrical installation paid for by a bond issue of $3 per acre. Settlers buying this land obtain it with ditches and pumps installed. The bond issue against each acre for this service is $27 per acre, making a total bond issue against the land of $30. At the present time the system can supply 5000 acres with water. This acreage is being rapidly developed and brought into a high state of cultivation.

Power costs two cents per kilowatt hour, a low rate. The estimated annual cost of power to pump water is $6 to $8 for three acre-feet. This amount of water will probably be sufficient for the land. Land can be bought for $30 to $50 per acre. In addition the purchaser will have an expense of from $25 to $75 per acre for clearing and leveling the land. There is some woody growth (mesquite) on the land. The value of this wood at times pays for its removal.

A recent statement by the acting commissioner of the United States Department of the Interior, General Land Office, Washington, states: "The report submitted on this district shows that it has been ideally organized in accordance with the laws of Arizona and it has been also successfully financed. It has a valid water right sufficient for the reclamation of the land involved and the development work thus far performed has demonstrated the presence of an underground water



Electricity and water pumping equipment provide ample water.

supply adequate for the needs of all the irrigable land within its boundaries."

The Mohawk Valley land is similar in many respects to the Yuma Valley. The elevation is slightly higher. Practically the same crops may be grown here as in the Yuma Valley. The first-year crop is cotton. The district being new, it cannot yet be said that any crops have been established. In 1927 only about 1000 acres were in cultivation. In 1928 1200 acres cotton and 900 acres alfalfa were irrigated. It is probable that as the district develops the principal source of farm income will be from cotton, alfalfa, dairying and small grains. Pecans and lettuce are promising crops.

Records furnished by the county agricultural agent show that the cost of producing cotton in the Mohawk Valley is about $75 an acre, which includes picking and labor charges and interest on investment.

The soil is a rich alluvial deposit or sandy loam and in only a few places is there an excess of salts injurious to vegetation. Practically all of the land is included within the boundary of the Gila Valley Power District.

The new main line of the Southern Pacific runs through the entire valley from east to west. All of the land in this tract is either on the railroad or within a short haul to a railroad station.

Roosevelt Irrigation District

[9]

Cotton, Grains, Citrus, Alfalfa

The Roosevelt Irrigation District, comprising 41,000 acres, is seventeen miles west of Phoenix, and extends westward twenty-three miles along the Gila River. The irrigation system for this district was completed recently and in 1928, 14,000 of the 41,000 acres were put into crop, largely cotton.

The district obtains its water from fifty-two wells drilled at the southwest corner of the Salt River Valley Project. The water pumped is in reality drainage water from that project. This water is conducted by irrigation ditches to the main ditch which crosses the Agua Fria River in a flume. This 6000-foot flume is one of the longest straight flumes in the world. It is semi-circular, seven feet deep and fourteen feet across the top, with a capacity of four hundred second-feet.

A bond issue provided two and one-half million dollars for the construction of the irrigation system, including the wells and distribution system. This indebtedness is about $60 per acre. In addition to the cost of the water, the raw land in the district costs from $30 to $100 per acre. The land is excellent for irrigation on account of its gentle slope.

The Southern Pacific's main line traverses the entire length of the district, so that all farms are near the railroad. An excellent highway connects the district with Phoenix on the east and with Yuma on the west.

Casa Grande Valley

[15]

Cotton, Lettuce, Wheat, Sheep, Beef and Dairy Cattle

Surrounding the San Carlos Project, described on page 5, is a large area of Casa Grande Valley land which obtains water from wells. Pumping has proven very profitable on many farms. It is assumed that the underground supply of water for pumping purposes will be increased as a result of the underground flow of water from the San Carlos Project.

It is estimated that 50,000 acres will be developed in this locality by pumping. Reports show that it costs $7,000 to install a good pumping plant in a 240-foot well; although the water is found at a depth of 40 to 60 feet, deep wells are drilled because the flow of water is more steady. The total cost of water per acre-foot is about $2.50 on a 65-foot lift. The duty of water should be figured at three feet. In other words, the irrigation cost per acre per year would be $7.50. An economical and satisfactory method would be for four adjoining farmers, each with forty acres, to work together and drill one well, since one good well would provide enough water for 160 acres.

Arizona offers good markets to pork producers.

A power district has been formed which embraces most of the land in the valley. Bonds have been sold to the extent of $4 per acre to pay for the distribution of this power. The present cost of power for pumping is 1.56 cents per kilowatt hour.

The valley land outside of the San Carlos Project is naturally much cheaper and offers some opportunities as good as those found within the project. The same crops can be raised. Much of the land is just as good quality and, where the water table is not more than 40 to 50 feet below the surface, estimates indicate that water can be pumped as cheaply as it can be obtained from the Government gravity system.

The best of this land costs about $100 per acre, but well-located raw land can be purchased at $30 up. About $20 per acre additional, or a farmer's own labor, will be necessary for clearing and leveling the land during the first year. Alfalfa or cotton should be planted as a first crop. It is possible to produce as many as six to eight cuttings of alfalfa annually and nearly a ton an acre to the cutting.

Diversified farming is the most practical and safest. Agriculture in the Casa Grande Valley is more diversified and profitable because of the many "side lines" open to farmers. The most profitable of these are cabbage, cauliflower, honey, pork and mohair production from goats. Other sources of income are turkeys, grapes and figs. One farmer in the valley states that he has been in the hog business ten years and "it is the best hog country in the world." He now has three hundred Duroc Jersey hogs. Large acreages are being set to Kadota figs. These promise

to produce abundantly. If a satisfactory market for the product can be developed, figs will become an important product.

Local farmers around Casa Grande advise the newcomer to buy about forty acres of land in the pumping area. This acreage makes a farm large enough for profitable operation. It is advisable for a new farmer to put only part of his money in the land and save the remainder for development of the farm.

Farmers living in the valley have a good outlet to market over Southern Pacific westward to Phoenix and California points and eastward to the Atlantic seaboard. Good highways connect all the towns mentioned with both Phoenix and Tucson.

Sulphur Springs Valley

[21]

Beef Cattle, Alfalfa, Dairying, Mexican Beans, Milo and other Sorghum Crops

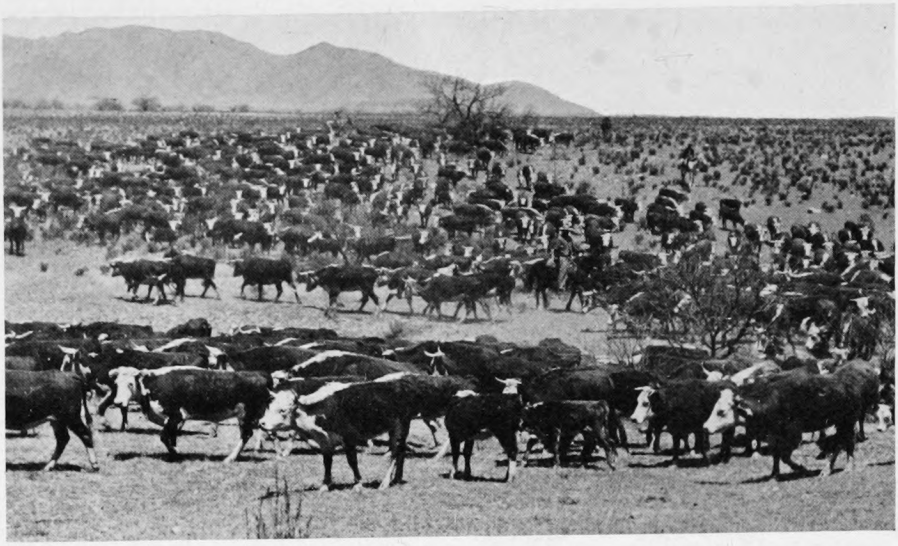
The Sulphur Springs Valley differs from most other farm areas in Arizona in that its elevation is from 3800 to 4300 feet. At this elevation the climate is cooler, with occasional freezing weather in winter time, although extreme cold weather does not occur.

The valley is about 130 miles long and from five to twenty miles wide. It extends from Mexico northward to Aravaipa Canyon in Graham County. A large part of it is used as range for beef cattle. Around Willcox, intensive agriculture is made possible by irrigation with pumped water. Development has been slow, due to antiquated pumping machinery and lack of cheap power for pumping. In spite of these handicaps, some very successful small farms have been developed. With the introduction of modern machinery water can be pumped more cheaply.

Willcox is the chief town in the farming area. It has a population of about one thousand people, with high school, grammar schools, banks and stores. It is on the main line of the Southern Pacific, which furnishes an excellent outlet for farm produce. It is one of the largest cattle shipping points on the railroad. Six hundred and four cars were shipped out in 1927.

A newcomer to the Sulphur Springs Valley should buy about 80 acres of land in the pumping district, of which he might develop 40 and hold the rest for pasture or for future development. It is essential that he be advised regarding land for purchase because some of it has water at too great a depth for economical pumping. Also there are lands with alkali content so high that it would greatly reduce the production value of the farm. The county agricultural agent will gladly help a newcomer select the best land.

Land can be purchased at from $10 to $20 per acre. No bonds are



A large portion of Arizona's open ranges is devoted to cattle growing.

outstanding against this land. Much of it is covered with mesquite wood, and the value of the mesquite may in part cover the cost of clearing the land.

In order to develop 40 acres of land, a settler should have about $5,000. Again, it would be advisable for three or four farmers to cooperate in sinking a six or seven thousand dollar well capable of supplying enough water to irrigate 160 acres, rather than for each individual farmer to put down a small well which at the best would be inefficient and costly.

Alfalfa farming and dairying are most promising in the valley. A good cash crop is Mexican beans. Milo and hegari are grown quite extensively for feed.

PART TWO

The following four irrigation districts offer lands at cheap prices. However, the investor should have sufficient funds with which to develop the lands.

YUMA MESA

[2]

Grapefruit, Oranges, Grapes

THE Yuma Mesa lies adjacent to the town of Yuma and is bordered by the Yuma Valley area on the west. The elevation is from 160 to 200 feet above sea level, enough higher than the Yuma Valley to provide for air drainage. This air drainage protects the mesa from frosts. This mesa is probably less subject to frost than any other agricultural area in the United States. The climate is dry, warm and sunny and the growing season is 365 days.

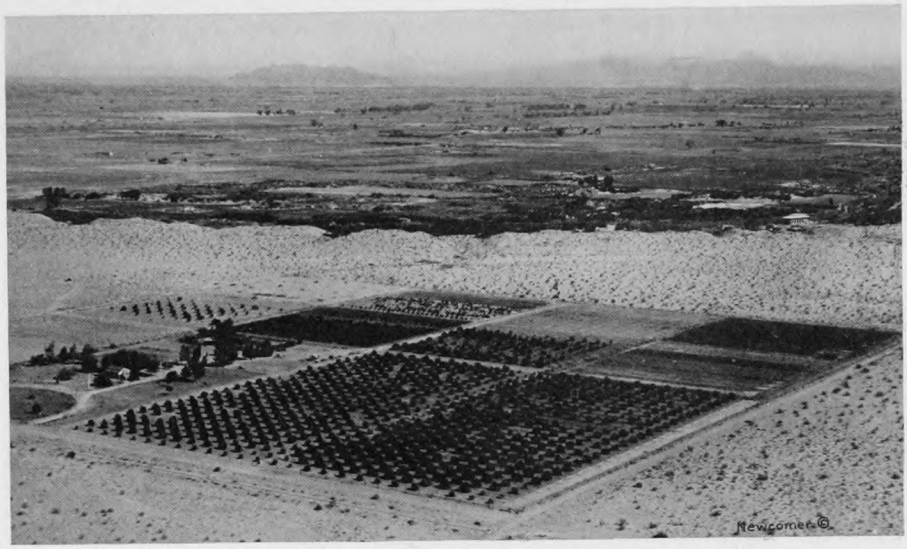
Water is supplied by the Government project. Water from the Laguna Dam is conducted in a canal down the west side of the Colorado River, syphoned under the river at Yuma, and lifted 60 feet by pumps. It is then delivered to the land through a Government system of distributive canals. The duty of water is about three acre-feet.

The mesa land requires some humus. This can be supplied either by growing alfalfa or by hauling fertilizer manure from the valley. A University of Arizona experimental farm located on the mesa assists farmers to solve their production problems.

The Government reclamation project on the Yuma Mesa comprises about 45,000 acres. It is the policy to develop compact subdivisions as rapidly as settlers come to take it up. Thirty-eight hundred acres are now ready for irrigation.

The climate is especially adapted to grapefruit and other citrus fruits on account of the freedom from frost. Some grapefruit has been grown on the mesa for a number of years, so that it is really a "proven" citrus belt. Land can be bought from the Government for $232 per acre. This includes the entire cost of both land and water. A man should buy at least ten acres if he intends to establish himself here as a fruit farmer. In addition to the first cost there is the expense of preparing the land for water. This is not costly because the land is level and free from woody growth. The cost of a young orchard at bearing age is from $600 to $1,000 an acre. In 1928, 850 acres had been set out to citrus fruits.

Although grapefruit now promises the highest returns, Valencia oranges and Thompson seedless grapes are also being set out. The grapes



A citrus development on Yuma Mesa, showing typical mesa land.

mature about ten days before the same variety matures in the San Joaquin Valley of California.

Santa Cruz County Irrigation

[19]

Dry Farming: Beef Cattle, Corn, Small Grains, Beans
Irrigated Farming: Dairying, Alfalfa, Poultry

Santa Cruz County is on the border of old Mexico. The larger part of the county produces livestock. Large herds of range cattle are very common. The county claims the largest herd of registered Hereford cattle in America. In this herd are 1200 head of breeding cows over three years of age. The owners reported a 97 per cent calf-drop in 1927.

In addition to beef cattle production, a certain amount of dry farming is carried on. Corn and small grains are raised, also some beans. Dry farming is practiced in certain portions of the county where the rainfall is sufficient. The usual rainfall is about fifteen inches per year.

Beside dry farming, there are some 9000 acres of land available for irrigation. This is level river bottom land. Water has not been developed for all of this land, however, as only 2637 acres were cropped in 1927. Additional acreage may be developed by pumping where the water lift would be around 30 feet. In the irrigated areas, the principal sources of farm income are dairy, alfalfa and poultry. The growing season is 150 days. An 80-acre farm is advised.

Nogales is the county seat and principal market of Santa Cruz County.

Sheep on winter pasture near Buckeye.

It has a population of about 8000 people on the American side and approximately 15,000 on the Mexico side of the International boundary line. It has an elevation of 3900 feet above sea level. Its climate is dry and clear, and without extremes of temperature. It is the main port of entry to the west coast of Mexico. Excellent public highways connect Nogales with other parts of the State. The Southern Pacific Railroad of Mexico joins the Southern Pacific through this gateway connecting with the main line at Tucson.

Romola District

[10]

Grapefruit, Cotton

The Romola District is located about twenty miles west of Phoenix. It comprises 40,000 acres of level land, for which some water has been provided very recently. The elevation is 1200 feet above sea level.

The Agua Fria River supplies water to the irrigation system of this district. The Carl Pleasant storage dam across this river was built with funds obtained from a bond issue of four and one-half million dollars, 30-year six per cent serial bonds, on which no principal payment is to be made for eleven years from date of issue.

In 1928, 13,000 acres were leased for cotton and about 90 acres set to citrus. This is a good showing the first year.

The district, originally known as the Beardsley District, is now largely owned by the Pacific Development Company, with headquarters in

College of Agriculture, University of Arizona, at Tucson.

Phoenix and Los Angeles. The company plans to plant a large portion of the area to grapefruit. It is selling land on the syndicate plan. For $1,750 it will deliver title to one acre, set it out to grapefruit and take care of it free for three years. The company is considering plans to make a permanent contract with the landowners, at the end of the first three years, by which contract it proposes to take care of the grapefruit for 25 per cent of the net returns. In addition to the cost of the land, the buyer must assume his share of the bond issue, which is $115 or more per acre.

Wellton Mesa

[4]

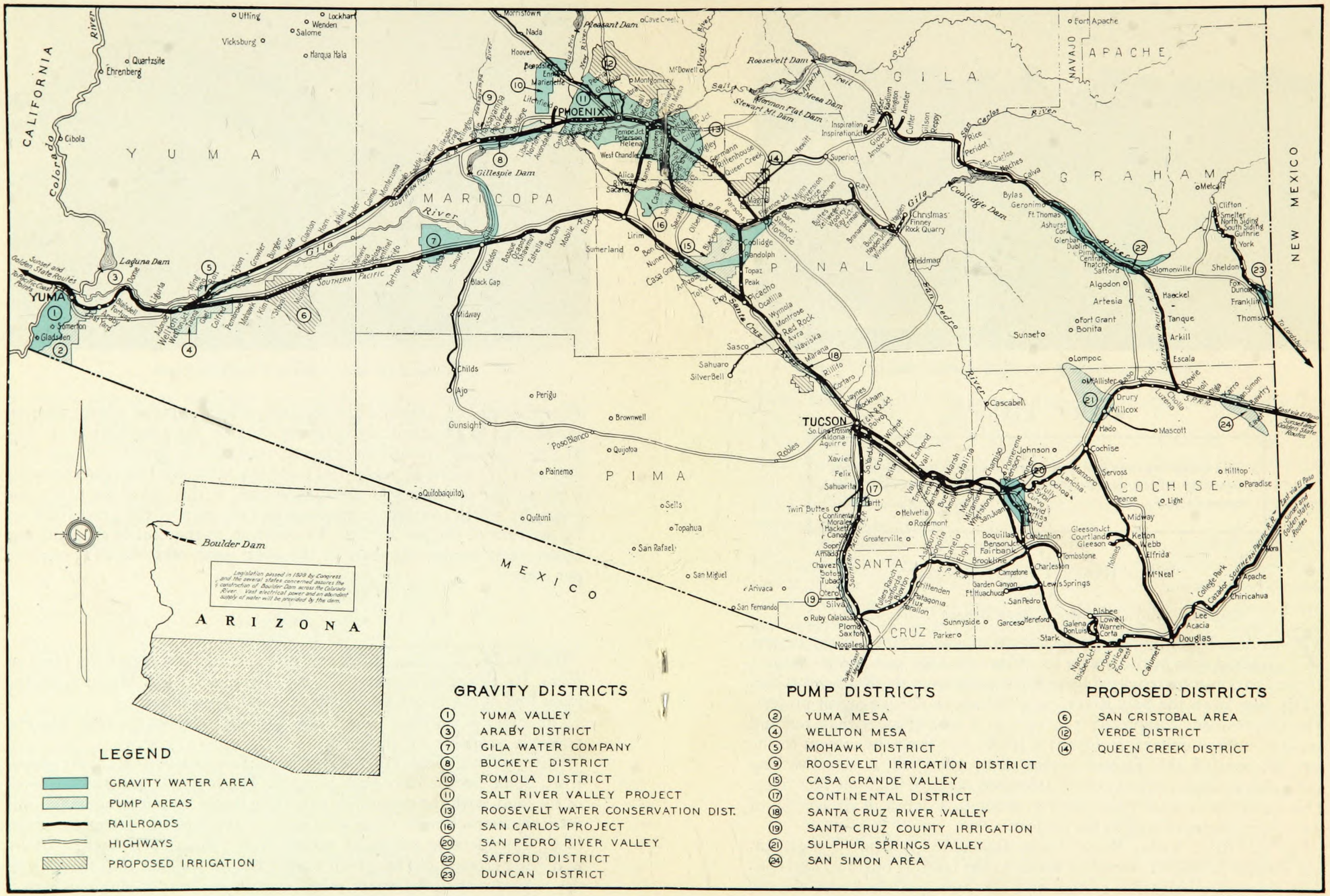
Citrus, Pecans

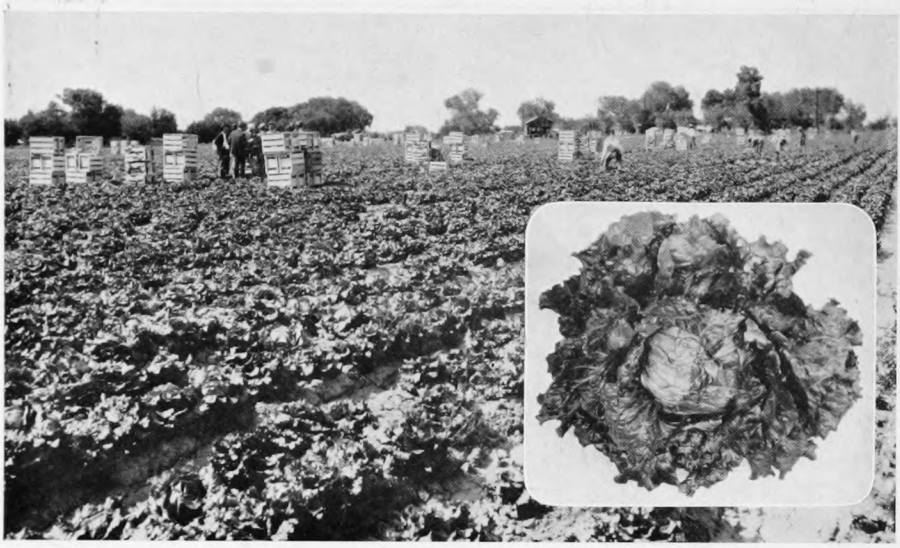
Wellton Mesa is forty miles east of Yuma. It is a high level plain or mesa. Its elevation is about 275 feet above sea level. Wellton, on the main line of the Southern Pacific, is a shipping point.

The water is supplied from wells. The lift is about 70 feet. Electric power is available for pumping.

The new development of this land is in citrus production, chiefly grapefruit. Some pecans have been planted. The low cost and the levelness of the land, with the possibility of getting water by pumping, make this territory attractive to those who wish to develop fruit farms on desert land. Considerable capital is necessary for this development. Alfalfa and other crops could be grown were it not for the fact that these crops use large quantities of water, which cannot be cheaply obtained here.

Southern Arizona Irrigation Districts





A spring lettuce crop in the Alhambra District near Phoenix.

PART THREE

The following four districts contain highly developed farm property which can be purchased by the newcomer with some capital.

Salt River Valley Project

[11]

Cotton, Alfalfa, Lettuce, Cantaloupes, Dairy, Citrus

The Salt River Valley Project in Maricopa County is the largest irrigated area in the State. Its altitude is 1100 feet and it contains about 240,000 acres irrigated by gravity water from the Roosevelt Dam.

The dam is on the Salt River, 70 miles above the irrigation project. The Government completed it in 1911 at a cost of more than ten and one-half million dollars. In height it is 285 feet from the stream to the top. Roosevelt Lake, formed by the dam, when full, is 30 miles long and holds enough water to cover 1,600,000 acres of land one foot deep. This quantity of water is enough to cover to a depth of six feet all of the 240,000 acres of land in the project.

The Salt River Valley Water Users Association is a public organization formed to deliver irrigation water to the land. It operates and controls the valley irrigation system and also manages the hydro-electric

The modern high school at Chandler is typical of Arizona's secondary schools.

power developed at the Roosevelt Dam and at additional dams which have been built below the Roosevelt Dam.

Few irrigation systems, if any, have been as successful as the Salt River Valley Project. The cost of the Roosevelt Dam is being rapidly paid. The electric power developed at this dam brings an income of about a million dollars a year. This money is used for the benefit of the farmers of the locality.

The cost of water is very low, three dollars for two acre-feet. The duty of water is three feet. The rate for electricity in the district is one of the lowest in the United States. Many of the farm homes have electric power and light and, according to the present plan, every farm home will be served with electric power. The power from the proposed Stewart Mountain Dam, construction of which was authorized May 8, 1928, together with power from the Mormon Flat, Horse Mesa and Roosevelt Dams, makes this electrification possible.

The acreage and value of the principal products of the Salt River Valley in 1927 were:

Crop	*Acres*	*Value*
Cotton	61,200	$5,260,000
Alfalfa	45,200	3,310,000
Lettuce	8,500	2,565,000
Cantaloupes	7,100	2,170,000
Citrus fruits (bearing)	2,300	1,450,000

The farmers in the Salt River Valley are active and progressive. They are organized for purpose of increasing their production. The Maricopa

Arizona has an excellent highway system, many miles of which are paved.

County Cow Testing Association reported some 2500 cows tested in the county in 1927. Of the cows tested during the entire year, the average yield was 7451 pounds of milk, containing 260 pounds of butter fat.

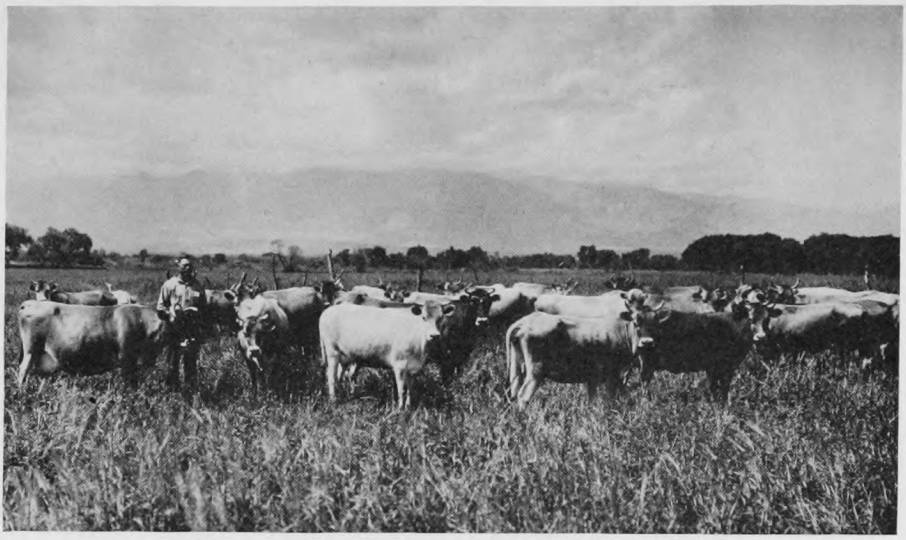
The valley also contains 22 cotton gins with daily capacity of 340 bales long staple cotton and 1400 bales short staple cotton.

The Salt River Valley has many cities and towns. Phoenix, the capital and the largest city, had, according to the 1920 census, over 29,000 population and now has a population estimated between 55,000 and 60,000 people. Other commercial and important shipping centers are Chandler, Tempe, Mesa, Glendale, Peoria and Gilbert. Large holdings are being divided around Chandler, where a buyer will find low-priced lands. Chandler is one of the largest alfalfa shipping points in the United States. Harvests of hay are cut every three or four weeks during the spring and summer.

The valley also has many schools and churches. Phoenix alone has eighteen grammar schools, a group of nine high school buildings and a junior college. One of the State teachers' colleges is located at Tempe. More than forty denominations served the religious needs of the people.

The valley is served by the main line of the Southern Pacific and several branches which give it direct connection with Pacific Coast and Eastern markets.

Farmers coming to this more populated section will find land well developed, with excellent farm homes, large mileages of paved county



Farmers can grow plenty of alfalfa and grain sorghums to feed dairy cows.

highways and many of the roadsides bordered by shade trees. Salt River Valley farmers have been prosperous for many years. On this account, the land prices are quite high and one may expect to pay for the privilege of farm life in this favored section. Land costs from five hundred to thirty-five hundred dollars an acre.

Safford District

[22]

Alfalfa, Cotton, Dairy, Wheat, Poultry, Beef Cattle and Goats on Ranges

Safford District, which has a population of about 14,000 people, is in the upper Gila River Valley, in the center of Graham County. There are 42,000 irrigable acres in the valley. Of these, 33,000 acres have decreed water rights and 30,000 acres of this is in crop. The Southern Pacific's Bowie-Globe line, serving the mining district of Globe and Miami, runs through the valley. The principal towns are Safford, Thatcher, Soloman and Pima.

The district is well developed, producing a high quality alfalfa and a heavy yield of cotton. Dairying is increasing in the valley. A great many eggs and other poultry products are shipped out of Safford. Forty acres are sufficient for a farm.

Graham County has about 65,000 head of beef cattle and 45,000 head of Angora goats. These feed on the ranges around the Safford District. In the valley are 3000 head of dairy cattle, 100,000 chickens and 8000 turkeys.

The district has gins for upland cotton, and a ready market for alfalfa hay. In the last few years much hay has been shipped to States east of the Mississippi River.

Duncan District

[23]

Alfalfa, Cotton, Dairy, Wheat

The Duncan District is farther up the Gila River in Graham County. It is a small, but very fertile valley separated from other areas by mountains and deserts, yet connected with markets and cities by the Southern Pacific and excellent highways.

There are about 8000 acres of land in the valley. This land has been developed and comfortable homes are found on the farms. In 1928 Graham County had about 16,000 head of range cattle, 3000 acres of land in cotton, 1200 acres in alfalfa and 1000 acres in spring lettuce.

Land, fenced and in good cultivation, can be bought at prices ranging from $100 to $150 per acre.

Araby District

[3]

Cantaloupes, Alfalfa, Cotton

This district is located ten miles east of Yuma and one mile from Araby station on the Southern Pacific. There are three thousand acres of well-developed river bottom land. Cantaloupes, alfalfa and cotton are the chief crops.

An Arizona farm home with desert plant garden.

PART FOUR

The following eight districts offer opportunity to those interested in the development of large agricultural projects. Some of the districts are in the process of being developed and seek new settlers; others contain large ranch estates which are to be broken up, and still others are extending or developing new water systems which will open new lands for farming. These developments will require more than the ordinary amount of capital.

Santa Cruz River Valley

[18]

Cotton, Poultry, Dairying, Alfalfa

Pima county is situated in the southern portion of Arizona. Much of the county is mountainous and furnishes range feed for 75,000 head of cattle and sheep. The largest irrigated area in the county is in the Santa Cruz River Valley adjacent to the city of Tucson. The water in the irrigated area is pumped from a depth of 30 to 110 feet. There is also a small amount of gravity water. The annual rainfall is between eleven and twelve inches.

In this county are grown more than one-half million dollars' worth of cotton, one-quarter million dollars' worth of alfalfa and one-quarter

million dollars' worth of dairy products. The district also produces four hundred thousand dollars' worth of poultry products. In the last eight years value of poultry products increased from $50,000 to $400,000. National egg-laying contests show Arizona to be a leading State in egg production per hen.

Tucson has grown in recent years to be a modern city of 40,000 people. It has a two million dollar United States Veterans Hospital, a 1280-acre airport and the State University. Recently the Pacific Fruit Express Company constructed $250,000 worth of buildings there. It is on the main line of the Southern Pacific, which has large shops and yards employing hundreds of men. It is also the junction of the transcontinental main line with the Southern Pacific Railroad Company of Mexico.

Continental District

[17]

Cotton

Cotton growing by pump irrigation is successful in the Continental District. This district is on the Southern Pacific and one of the direct highways between Tucson and Nogales.

Gila Water Company

[7]

Twenty-one thousand acres are being irrigated by water diverted by the Gillespie Dam in the lower Gila River. These lands are about halfway between Phoenix and Yuma. The shipping point is the town of Gila on the Southern Pacific.

Benson Area in San Pedro Valley

[20]

The Benson area comprises a part of the San Pedro Valley in the west central part of Cochise County. It lies about 42 miles southeast of Tucson. In 1924 a detailed soil survey of the Benson area was published by the Bureau of Soils of the United States Department of Agriculture. Reference should be made to this publication for details of the district.

The annual precipitation is between eight and nine inches. Part of the water for irrigation is diverted from the San Pedro River. Other water is obtained from artesian wells.

The principal towns are Benson, St. David and Pomerene. Transportation facilities are provided by the Southern Pacific.

Hegari, a grain sorghum, grows abundantly under irrigation.

San Simon Area

[24]

The San Simon area is on the main line of the Southern Pacific east of Bowie and near the New Mexico border. It is a large valley devoted to cattle raising. In the center of the valley around the town of San Simon artesian wells are found. Some of these are flowing wells; from others water is obtained by pumping. A study of the ground water in this valley has been made by the United States Geological Survey. For detailed information on the valley, one should go to this source. The published study states that the flow from each of 116 wells averaged 52 gallons per minute.

Other Districts Where Development Is Proposed

Some other districts for which efforts are being made to provide irrigation are the Verde District [12] lying immediately north of the highly developed Salt River Valley area, the San Cristobal Valley [6] south of the Gila River in western Arizona, and the Queen Creek [14] District located north of the San Carlos Project.

No attempt has been made to complete the list of undeveloped districts. Many small but attractive irrigated areas have been omitted for lack of space.

PART FIVE

Sources of Arizona Farm Income

Crops

Cotton

The largest crop acreage in the State is cotton. The 1927 acreage was 137,000 and the total estimated acreage for 1928 was 198,000. The average cotton yield per acre in Arizona for ten years ending 1926 was 280 pounds, which was more than the average yield of any other State. The varieties grown are Acala, a short staple or upland cotton, and Pima, a long staple cotton. It is very important in cotton production that good seed be selected. Cotton is grown in nearly every area described in this booklet. It does especially well on new lands and enables the farmer who is developing new lands to get a cash return during the first year.

Following is an estimated cost of producing one acre of upland cotton. An assumption in this table is that the land is valued at not to exceed $200 per acre. Higher-priced land means increased interest cost. The State's average acre yield for the three years ending 1927 is 335 pounds of lint, which is used as the production figure. Picking and ginning costs are dependent upon the amount of cotton produced.

Cost of Producing One Acre Upland Cotton

Interest on investment (where value of land, including bonded indebtedness, is about $200)	$15.00
Preparation of seed bed (would be much higher on new land the first year)	4.00
Seed planted	2.00
Irrigation (8 times): labor, $2.50; water, $5 ($3 to $15 depending upon the district)	7.50
Cultivation (8 times)	2.50
Hand labor (thinning and hoeing)	5.00
Interest and depreciation on machinery	3.00
Picking and ginning (varies directly with yield)	20.00
Total	$59.00

The average yield of lint for the years 1926 and 1927 was 337 pounds per acre, and the average price obtained during these two years was 20 cents per pound. In addition to the lint, cotton yields from 600 to 700 pounds of seed per acre with value of about 1.5 cents per pound. A study made from actual records shows that the cost of producing a pound of lint decreases very rapidly with increased production per acre. The following figures were prepared by J. W. Wright of the U. S. Depart-

A typical stand of the Pima cotton grown near Phoenix.

ment of Agriculture and formerly county agricultural agent, Graham County. It might be noted that the figures are somewhat lower than those given above. Generous labor and interest allowances in the above table account for this difference.

Production Cost of Cotton Lint

Yield per acre per pound	Net cost of production per acre	Net cost of production per pound of lint
250	$44.87	$0.179
500	56.19	.112
750	67.43	.090

Arizona can produce cotton as economically as can any place in the so-called "South," according to farmers who have grown cotton in both sections. Although occasional years occur when the prices obtainable do not cover the cost of production, yet it appears that Arizona's position as a producer of cotton is sound and that, should the demand for cotton decrease, Arizona would continue as a producer after the "South" will have stopped growing cotton. Returns from cotton are variable from year to year. The price of cotton changes with the demands of the country and with the quantity of the crop produced. Some years larger net returns are made than in other years. For this reason it seems wise to caution, especially the newcomer, against putting all his land in cotton. The production of more than one crop divides the farm labor

more evenly throughout the year and helps balance the income from one year to another.

The following statement pertaining to cotton production was made by a county agricultural agent: "Detailed studies made in Graham County of the farm operations involved in growing cotton indicate that approximately 32 hours of man labor and 43 hours of horse labor are required to grow an acre of cotton. This is exclusive of picking, which is almost universally done on a per pound basis by other than regular farm help. On this basis 40 acres of cotton will require 1280 hours of farm labor or approximately 150 working days for one man. Since, in this climate, there are approximately 300 working days in the year, the farmer who is growing cotton only will be employed but a part of the time during the year. Naturally, the man who works only half of the time cannot expect a full income."

It has also been shown in Arizona that the production of cotton is much larger where alfalfa is included in the crop rotation.

Alfalfa

Approximately 140,000 acres of alfalfa are harvested annually in Arizona. It grows in all of the districts, doing best, however, on well-drained, sandy soil where the water supply is abundant. The variety recommended is Hairy Peruvian, which excels because it grows abundantly after each of the many cuttings made during the long growing season.

Below is an itemized cost of producing an acre of alfalfa:

Interest on investment, and taxes (where value of land is around $250 per acre)	$20.00
Irrigation (8 times): labor, $2; water, $5 ($3 to $15)	7.00
Harvesting, cutting, raking and shocking	5.00
Bucking to the baler	2.50
Baling ($3 per ton, 4½ tons)	13.50
Total	$48.00

The following figures from Graham County show that increased production per acre reduces the cost production per ton:

Yield per acre	Net cost of production per acre	Net cost of production per ton of hay
4 tons	$47.59	$11.90
5 tons	53.45	10.69
6 tons	59.31	9.89
7 tons	65.17	9.31

The average alfalfa production in 1927 was 4.2 tons per acre.

The alfalfa yield varies greatly in different parts of the State and with different soil conditions. The number of cuttings varies from four to eight per year. The average production in 1927 was 4.2 tons per acre. This figure is low because in some localities one or more of the alfalfa crops are cut for seed. For example, in the Yuma Valley in 1927 the average yield of alfalfa per acre was, hay 2.4 tons and seed 278 pounds. The value of the hay was figured at $23.49 per acre and the value of the seed at $33.36 per acre.

Much Arizona alfalfa is baled in the field and shipped. Los Angeles is an important market for Arizona's hay. Traveling hay balers are being used to reduce the loss of leaves. The quality of the hay is superior to that raised under more humid conditions. During the last few years much hay has been shipped to Alabama, Georgia and other Southern States. Two other methods of disposal of hay are possible when the market price of hay is not high enough to justify shipping. The first is to pasture the alfalfa. In some parts of the State dairy cattle can pasture on alfalfa without danger of bloating. This advantage is not found in many sections of the United States. Again, when market price of alfalfa is low, good profits can be made by feeding the crop to beef cattle and sheep.

Alfalfa is the basic crop in Arizona. It adds organic matter which is practically the only constituent that Arizona's soil lacks. It requires more water, however, than most of the cultivated crops and cannot be grown profitably where water has to be pumped from a great depth.

It has this advantage, that once the field is set to alfalfa, little attention need be given it except in irrigating and harvesting. The stand will last for a number of years.

Lettuce

The lettuce acreage in Arizona varies from year to year. The crop is grown quite widely throughout southern Arizona and is placed on the market at different times of the year. In 1927 the acreage was 14,800; in 1928, 28,700. The yield per acre also varies greatly from year to year. The average yield for 1927 and 1928 was 160 crates. The average price received per crate in 1927 was $1.35 and in 1928 the price was $1.42.

The estimated cost of producing one acre of lettuce up to picking time follows:

Interest and taxes	$20.00
Fertilizer	5.00
Preparation of seed bed	3.50
Seed	5.00
Planting	1.00
Thinning	9.00
Cultivation	2.00
Irrigation: Labor, $2.50; water, $4 ($2 to $10)	6.50
Total	$52.00

In addition to the cost of production are the costs of harvesting, crating and packing. Harvesting cost varies with size of crops. About 50 cents per crate will cover the cost of crating and packing. The market on lettuce is variable. Most of the crop is sent to Eastern cities. In some years the returns are barely enough to pay the cost of shipping. In other years very large profits are made.

Experience is necessary for success in lettuce production, since the method of growing lettuce largely determines whether solid heads will be produced. It is also very important to get the lettuce ready for the market at the time when other producing areas are not flooding the market. The inexperienced lettuce producer should realize that profits are not assured in any one year. The season may not be satisfactory and the market may be overloaded. It is advisable that only a small portion of the farm be put into lettuce. An exception to this rule may be allowed the man with plenty of capital who can stand a loss one or two years to receive his returns the third year.

Cantaloupes

In 1927 ten thousand acres of cantaloupes were grown in Arizona; of these 7000 acres were grown in the Salt River Valley and 2900 in the Yuma Valley. A good quality cantaloupe is produced. The average

Cantaloupes grow abundantly in Arizona and the acreage is increasing.

yield for the two years 1926 and 1927 was about 185 crates per acre, and the average price obtained $1.26 per crate.

Some of the precautions necessary in growing lettuce must also be observed in growing cantaloupes. A year with extremely high prices may be followed by a year when prices are very low. For those producers who have experience and capital, there is good profit to be made over a period of years. The average farmer should grow only a few acres in order to avoid loss when markets are unfavorable and to reduce the cost of production by more even distribution of labor on his farm.

Wheat

Fifty-eight thousand acres of wheat were grown in Arizona in 1927, with a production of 1,450,000 bushels or 25 bushels per acre. The average price received that year was $1.35 per bushel. Wheat provides certain definite returns each year. Of course, wheat cannot be grown profitably on high-priced land or where water cost is high. As in other sections of the country, there is always a ready market for wheat.

Corn and Sorghums

Arizona's farmers raised 44,000 acres of corn in 1927, with an average yield for the two years 1926 and 1927 of 30 bushels per acre and an average price of $1.17 per bushel. The crop is used as a feed for livestock. As a substitute for corn, a grain sorghum is often grown. Hegari is a popular sorghum crop. Corn or sorghum can be grown after the harvest of a grain or other spring crop.

Citrus

Citrus acreage in Arizona is not large at present, but it is growing rapidly. The principal producing area, the Salt River Valley, has about 2000 bearing acres. While the acreage referred to is small, Arizona plans to develop several thousand acres in the next few years. Of this, probably two-thirds or more will be grapefruit.

The American people could consume much more grapefruit than they do at present. Stimulating a market demand for grapefruit will be the growers' chief problem in the next few years. The potential grapefruit market can be developed by cooperative advertising and marketing of grapefruit.

The quality of Arizona grapefruit is excellent and the consuming public has endorsed it. The young orchards are of the Marsh Seedless variety.

The principal Arizona areas producing grapefruit are the Camelback section, a few miles north and east of Phoenix and Yuma Mesa land near Yuma. Both areas have good air drainage. A number of the newly developed irrigation districts are planting some grapefruit.

A frost-free area is essential for the growing of grapefruit. Prospective growers should plan for returns only after a period of years. It requires about four years before the first grapefruit is produced and about seven years before full production can be expected. The planting of trees is expensive. The cost may vary from $600 to $1,000 per acre to prepare the land, plant trees and care for them the first three years. Consequently, a heavy investment is required. However, any farmer having land in the frostless belt could set out a small area at reasonable cost.

Beef Cattle

A large portion of the State of Arizona is devoted to the raising of cattle on the open range. One of the largest privately owned ranges in America is found in southern Arizona. Five hundred thousand head of beef cattle, valued around $20,000,000, feed on the grass and desert shrubs. It takes from 15 to 25 acres of land to provide feed for each animal.

A good supply of water is essential on the cattle range. Many valleys in Arizona have running water at certain seasons of the year and at other seasons water may be obtained by pumping.

Facilities for loading and shipping cattle are provided. Probably no other mountain range country has such ample railroad facilities as has southern Arizona. Arizona packing houses slaughter about 90,000 head per year. Of 1927 interstate shipments, 81 per cent went to California, 7 per cent to Texas and 12 per cent to other States.

A typical orange grove near Phoenix.

Sheep

Over a million and a quarter sheep are grown on Arizona ranches. They are valued at $12,000,000. The production of wool and mutton has been very profitable. Cheap ranges, supplemented in some cases by grain stubble pasture and alfalfa hay, furnish a sound basis for the sheep industry.

Dairying

Dairying is a flourishing farm undertaking in a number of sections of Arizona. There has always been a demand for dairy products in the State. It has one dairy cow for each 13.6 persons, while in the United States there is one dairy cow for each 5.5 persons. If Arizona were to have as many dairy cows in proportion to its population as the entire United States, then Arizona's 35,000 milch cows and heifers would have to be increased to 86,000. The principal breeds of dairy cattle are the Holstein and the Jersey.

On the following page are average yearly dairy production figures from Graham County herd records:

Receipts per cow:		
Inventory increase	$ 13.81	
Separated milk	12.70	
Veal and miscellaneous	12.39	
271 lbs. butterfat	135.32	
Total receipts per cow		$174.22
Expenses per cow:		
Feed: Alfalfa hay (6.5 tons)	$66.54	
Ensilage (2.0 tons)	9.98	
Concentrates (480 lbs.)	6.71	
Pasturage	2.35	
Labor: Man (113 hours)	33.90	
Horse (1.3 hours)	.13	
Truck	3.75	
Housing, $7.74	.93	
Machinery and equipment, $15.20	1.82	
Taxes, $100	2.86	
Interest on investment, $129	7.74	
Transportation to market	1.56	
Inventory decrease and miscellaneous	3.40	
Total expense per cow		$141.67
Margin of profit per cow		$ 32.55

Dairying provides an unfailing source of income. Arizona dairy farmers can raise plenty of alfalfa hay and grain sorghums to feed their dairy cows. Where alfalfa is harvested the year around, it is probably the best and cheapest feed for dairy cattle. The climate is such that expensive barns for protection of the animals is not necessary.

Hogs and Poultry

In the United States there is one hog for every nineteen people; in Arizona there is one hog for every twenty-eight people. This indicates in a general way that Arizona offers a good market for pork products. Los Angeles is also a good nearby market for these products.

Hogs and poultry are valuable in the utilization of farm by-products, such as skimmed milk and waste grain. Turkeys have been especially profitable as a "side line" on Arizona farms. Turkeys grow best in a dry climate such as is found in Arizona.

Arizona Experiment Station Bulletins

THE University of Arizona has prepared a number of publications on the farming problems in Arizona. Some of the late publications especially helpful to farmers are listed below. They may be obtained without charge by addressing a letter to the Extension Service, University of Arizona, Tucson, Arizona.

Bulletin Number	Title
123	Alkali Soil Studies and Methods of Reclamation
120	The Use and Duty of Water in The Salt River Valley
119	The Propagation of Date Palms from Offshoots
117	Essentials to Successful Fruit Culture in Arizona
114	Character of the Ground-Water Resources of Arizona
112	The Stovepipe or California Method of Well Drilling as Practiced in Arizona
109	Fattening Lambs in Arizona
108	Cattle Feeding in Arizona
107	Preparation of Hegari for Finishing Yearling Steers
104	Green Manure and Soil Building Crops for Arizona
103	Dry-Farming in the Sulphur Spring Valley
101	Use and Waste of Irrigation Water
99	Motor-Driven Irrigation Pumping Plants and the Electrical District
98	The Sorghums in Arizona
97	The Design and Construction of Small Concrete-lined Canals
90	Growing Cotton in Arizona
84	Dry-Farming in Arizona

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Maricopa	H. A. Stewart	Box 785, Phoenix
	C. H. Coulson, *Assistant*	Box 785, Phoenix
Navajo	C. R. Fillerup	Box 37, Snowflake
Pima	C. R. Brown	227 W. Congress St., Tucson
Pinal	K. K. Henness	Casa Grande
Santa Cruz	J. P. Sexton, Jr	Nogales
Yavapai	G. Hobgood	Prescott
Yuma	S. L. Owens	Yuma

Home Demonstration Agents

Apache-Coconino-Navajo	Miss Rosa Bouton	Box 1154, Flagstaff
Maricopa	Miss Grace Ryan	Box 785, Phoenix
Pima	Miss Evelyn A. Bentley	227 W. Congress St., Tucson
Yuma	Miss Eleanor Murphy	Yuma
Pinal-Cochise	Miss Laura M. Seward	Casa Grande

Cooperative Specialists

C. F. Rowe, Extension Specialist in Poultry and Dairying ..... Tucson
E. S. Turville, Extension Specialist in Agronomy and Irrigation Practice ..... Tucson
C. U. Pickrell, Extension Animal Husbandman, 134 S. Central ..... Phoenix
D. A. Gilchrist, Rodent Control, U. S. Biological Survey, 134 S. Central ..... Phoenix

Agricultural Education Service

State of Arizona

H. W. Miller, Supervisor,
Phoenix, Arizona.

Teacher	*School*	*Address*
Owen Allen	Gilbert High	Gilbert
Mark Bliss	Peoria High	Peoria
John Fuller	Chandler High	Chandler
H. A. Henderson	Marana High	Marana
D. E. Heywood	Snowflake Union High	Snowflake
George Jenks	Yuma Union High	Yuma
L. L. Kreigbaum	Phoenix Union High	Phoenix
V. G. LaTourrette	Tempe Union High	Tempe
Leo Mortensen	St. David High	St. David
Douglas Murdock	Thatcher Junior High	Thatcher
Frank A. Murphy	Casa Grande High	Casa Grande
Joseph Reed	Benson Union High	Benson
R. R. Robinson	Phoenix Union High	Phoenix
Joe Skousen	Duncan Union High	Duncan
R. B. Smith	Ft. Thomas High	Ft. Thomas
W. K. Whitney	Patagonia Union High	Patagonia

Commercial Organizations

In Southern Arizona From Which Information on Irrigation Districts Can Be Obtained

Graham County

Safford ..... Graham Co. Chamber of Commerce

Maricopa County

Chandler ..... Chandler Chamber of Commerce
Gilbert ..... Gilbert District Chamber of Commerce
Gila Bend ..... Gila Bend Commercial Club
Glendale ..... Chamber of Commerce
Mesa ..... Mesa District Chamber of Commerce
Peoria ..... Peoria Chamber of Commerce
Phoenix ..... Arizona Industrial Congress
Phoenix ..... Chamber of Commerce
Tempe ..... Tempe Civic Club

Pima County

Tucson ..... Chamber of Commerce

Pinal County

Casa Grande ..... Chamber of Commerce
Florence ..... Chamber of Commerce
Coolidge .....

Santa Cruz County

Nogales ..... Chamber of Commerce and Mines

Yuma County

Yuma ..... Chamber of Commerce

Where to Get More Information on Southern Arizona

Your nearest Southern Pacific representative will give you full information as to passenger fares, Pullman reservations, time schedules, etc. He will also attend to such details as tickets, hotel and Pullman reservations, etc., for you, or help you with your shipment of household and personal effects. If there is a Southern Pacific agent in your city, he will gladly call at your office or home and personally help you arrange your trip. Phone or write him.

ARIZONA REPRESENTATIVES

PHOENIX, ARIZ., 101 North Central Ave.....J. H. McClure, *General Freight and Passenger Agent*
PHOENIX, ARIZ., 101 North Central Ave.....S. J. Schwartz, *District Passenger Agent*
TUCSON, ARIZ., Score Bldg., 233 East Congress St.....Dick Smith, *District Freight and Passenger Agent*

OFF LINE REPRESENTATIVES

ATLANTA, GA., 216 Healey Bldg.....D. Asbury, *General Agent*
BALTIMORE, MD., 209 Morris Bldg., N. W. Cor. Charles and Saratoga Sts., W. B. Johnson, *General Agent*
BIRMINGHAM, ALA., 405 Woodward Bldg., 1931 First Ave.....S. J. Brown, *General Agent*
BOSTON, MASS., 294 Washington St., Room 209.....E. S. Leavitt, *General Agent*
BROWNSVILLE, TEX.....M. L. Love, *General Agent*
BUFFALO, N. Y., 204 Ellicott Square Bldg., 297 Main St.....G. H. Vogel, *General Agent*
CHICAGO, ILL., 33 West Jackson Blvd.....J. H. Desherow, *General Agt., Passenger Dept.*
CINCINNATI, OHIO, 205 Dixie Terminal Bldg., Fourth and Walnut Sts.....Robt. McDowell, *Gen. Agt.*
CLEVELAND, OHIO, 1116 Hippodrome Bldg., 726 Euclid Ave.....E. G. Cook, *General Agent*
DENVER, COLO., 102-3 Boston Bldg., Seventeenth and Champa Sts.....E. H. Williams, *General Agent*
DETROIT, MICH., 205-7 Majestic Bldg.. Cor. Woodward and Michigan Ave....W. W. Hale, *General Agent*
HOUSTON, TEX., 913 Texas Ave.....E. J. Peters, *Division Passenger Agent*
INDIANAPOLIS, IND., 418 Merchants Bank Bldg., 11 South Meridian St.....Lyon Liston, *General Agent*
KANSAS CITY, MO., 113 Railway Exchange Bldg., 705 Walnut St.....F. W. Sedgwick, *General Agent*
MEMPHIS, TENN., 716 Exchange Bldg., 130 Madison Ave.....C. A. Bevis, *General Agent*
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.....A. C. Ziegan, *Division Passenger Agent*
OKLAHOMA CITY, OKLA., 924 Perrine Bldg., 116 North Robinson St.....J. A. Eads, *General Agent*
PHILADELPHIA, PA., 706 Packard Bldg., 111 South Fifteenth St.....F. T. Brooks, *General Agent*
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FOREIGN AGENTS

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TURIN, ITALY, Via La Grange, 23.....
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LONDON, ENGLAND, 49 Leadenhall Street..... { A. B. Reynoldson, *General Agent for Great Britain* / N. R. P. Bonsor, *Assistant General Agent, London*
MEXICO CITY, MEX., Avenida Cinco de Mayo, No. 32....F. V. Stark, *General Agent for Southern Mexico*
MONTEREY, MEX., Langstroth Bldg.....Alfonso Marquez, *General Agent for Northern Mexico*
PARIS, FRANCE, 3 Rue Tronchet.....H. Desmidt, *General Agent for France, Belgium, Portugal and Spain*
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