

THE HESPERIDES, OR ABOUT THE GOLDEN APPLES OF ARIZONA

By FRANK T. BINGHAM, '25

Arizona's Citrus Industry Has Arrived and on a Sound and Healthy Basis
—Growers Reap Golden Profits for the Year 1925—Many Thousands of Acres are Fast Being Planted to Citrus

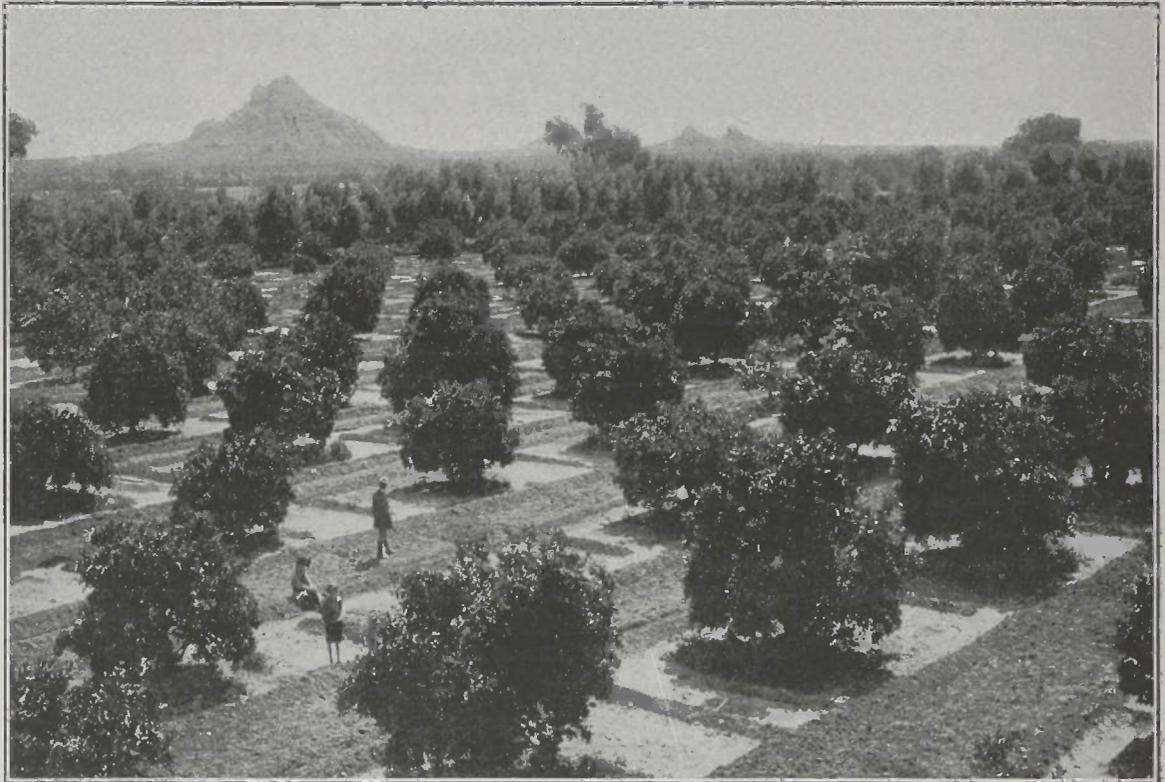
MOST of Arizona's claim to economic fame is based upon her three "C's" copper, cattle and cotton, but she can rightly feel proud of a fourth "C," her citrus industry. This "Baby State" already famous for her vast mineral resources is about to become more widely known for the production of nuggets of a different sort in the form of luscious golden and yellow citrus fruits.

Citriculture is one of the compara-

was practically undeveloped in regards to water supply. The cost of pumping or diverting necessary water for this crop almost prohibited its expansion to any great extent. However, with the completion of the Roosevelt Dam near Phoenix and the developing of a water supply from the lower Colorado River near Yuma, many thousands of acres were made suitable for the growing of this crop. Then came the rigid quarantine law, which, deplored by some people at the

else but grow and bud his own or accept the alternative and wait until he could obtain stock by contract for future delivery. But today the grower is able to secure sufficient stock and at a reasonable price.

Besides keeping out infected nursery stock, the quarantine law is functioning in another very favorable manner. Since all the nursery stock must be grown within the boundaries of the state, certain nurserymen have adopted the admirable practice of



Producing Citrus Grove in the Salt River Valley, Arizona. Orchards Such as These are Irrigated by the Waters Impounded by the Roosevelt Dam

tively new industries of Arizona. This is indeed true despite the fact that citrus fruits have been grown here for the past 37 years or more. It is only within the last decade, however, that the industry has grown to proportions sufficient to attract national attention. But Arizona's citrus, although little delayed on the way, owing to a most worthy restriction, has arrived and on a sound and healthy basis.

In the beginning, the area adaptable to the growing of citrus fruits

time of its enactment, has made Arizona almost entirely free from serious insect pests and diseases today. This law, however, the virtues of which cannot be dispelled, retarded the number of citrus planting to no mean extent. There being no sufficient amount of nursery stock available within the confines of the state and no means of getting the same shipped in on account of the stringent quarantine law which prohibited the importation of nursery stock, the prospective planter could no naught

using only pedigreed budwood, that is, buds selected from trees of a very high performance record. Thus the present day grower is enabled to secure stock which will not only be well adapted to the particular environment to which it is to be subjected, but also more certain to be prolific and of better quality than the ordinary nursery citrus tree.

The culture of citrus in Arizona today is confined almost entirely to the Salt River Valley in which is contained the prosperous city of

Phoenix, and to the Yuma Mesa territory adjacent to the city of Yuma. The former is the largest producing area at the present time. The latter, however, is the greatest in extent, but is comprised mainly of young orchards. About 7,500 acres of both young and old trees constitutes the entire plantings in the state.

The bulk of the fruit grown in the Salt River Valley is handled through the Arizona Citrus Grower's Association, a co-operative organization. This organization maintains its own packing plant which is most capably managed by Mr. I. de R. Miller, a man possessed of wide experience and rare foresight. This plant secures for the members of the Association the advantages of the latest methods and machinery in the economical preparation of fruit for the market.

The Arizona Citrus Growers' Association packing plant was established in 1921 and has a capacity of 1500 cars per season. The machinery was installed by the Stebler-Parker Machine Co., of Riverside, California. The latest and most novel addition to this unit is the adoption of a stamping machine by which each individual fruit is stamped with a brand, or trade name. This particular machine was designed by Dr. Phillips of Orlando, Florida. When speaking of this contrivance Mr. Miller was all praise. "I find it to be of great value for the identification of the fruit on the market and an efficient and economical means of advertising Arizona grown fruit," he stated.

The Arizona season extends from October to June and very closely parallels that of Florida. The packing of Arizona citrus is little different from the practices ordinarily in vogue in other and larger communities. From the field the fruit is taken directly to the packing house where it is cleaned, graded and packed. Upon arrival at the packing house the fruit is taken to the sweating rooms in the field boxes. Here it is artificially colored by a new process which is somewhat as follows: The method consists of releasing a measured amount of ethylene gas into an ordinary sweat room. When the enclosures are reasonably tight, one cubic foot of gas to five thousand feet of air space is usually sufficient to color the fruit nicely. One cubic foot of gas morning and noon, and followed by two at night is the com-

mon procedure. Seventy-five to eighty degrees F. is the optimum temperature for colorings. The advantages of this gas is that it is easily handled, and penetrates evenly throughout the fruit and room thereby coloring the fruit evenly. It has also been found that the fruit will develop additional color for twenty-four hours after being removed from the room. Thus it is not necessary to leave the fruit exposed to the gas until it is fully colored. This same method has been used by certain Eastern firms for the blanching of celery and the ripening out of green tomatoes. The former method of artificial coloring, of citrus fruits, was by the use of carbon monoxide gas expelled from a small gas engine located within an enclosed room.

After the fruit is properly colored, it is started through the process of cleaning which consists of a series of dry brushings. Fortunately at this juncture, Arizona fruit does not have to be washed owing to the ideal conditions under which it is produced.

The next step is grading. Women specially adept in this work are employed. All damaged fruits, greatly oversized and undersized and odd shaped fruits are removed entirely. The remaining fruit is then separated according to grade and carried on separate conveyors to the sizer.

Fruits entirely free from blemish are classes as first grade, and fruits slightly damaged or odd shaped are classed as seconds. The tendency now is to establish more uniform regulations regarding grading, to market certain grades under established brands and never to ship under such brands any but good fruit coming up to the specified grade. It has been found that the uniformity of grading and the dependability of the grades do much to develop the reputation of the particular brands on the market.

The trade names used for the oranges are: First grade, Sunflower; second grade, Goldenrod; For the grape fruit the brands are: First grade, Arizona Desert Sweet; second grade, Cactus. Almost all the fruit is stamped with the Phillip's machine in addition to being wrapped in an attractive wrapper bearing the name of the fruit contained.

Separate sizers are provided for each grade and one bin for each size of a grade. Accuracy in sizing is of great importance in determining the

appearance of the pack and the price secured for the fruit on the market.

After the fruit is sized properly it is ready for the packers. The fruit is placed in the box in its respective order of arrangement according to size. Each size of fruit has its own order of arrangement and the size is designated in the packing house and on the market not by the diameter of the fruit, but by the number required to fill a box. The sizes are as follows:

ORANGES

Size (No per box)	Av. dia. in inches
96	3 3-8
112	3 1-4
126	3 1-8
150	3
176	2 7-8
200	2 3-4
216	2 5-8
250	2 1-2
288	2 3-8

The most common sizes in the above are 126, 150, 176, 200 and 216 to the box.

Size (No. per box)	Av. dia. in inches
64	3 5-8
80	3 1-2
96	3 3-8
126	3 1-8
150	3

The entire crop of the Arizona Citrus Growers' Association is handled by the Mutual Orange Distributors of Redlands California, the second largest concern of its kind on the Pacific Coast. About four-fifths of the Arizona grapefruit crop is marketed in California. The orange shipments range from El Paso east to New York City.

The first Naval pool of the Arizona Citrus Growers opened on the twenty-third day of October and closed the same date in November. This pool was comprised of approximately 50,000 field boxes of fruit. Incidentally, this is the largest Navel crop that has been harvested in the Salt River Valley for a number of years. The increase over last year was fifty per cent, and the yields in the different groves ran from ten to two hundred per cent greater. The fruit was unusually early, juicy and sweet. The bulk of the crop was large fruit, sixty per cent running to 150's and larger, but a careful high pack was put up by the Arizona Citrus Growers which met with splendid success on the Eastern markets. The skin quality of this year's crop was

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FEEDING HENS FOR WINTER EGG PRODUCTION

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- 25 pounds bone meal
- 25 pounds charcoal
- 15 pounds fine ground oyster shell
- 5 pounds fine ground salt
- Grain
- 50 pounds wheat
- 100 pounds yellow corn
- 25 pounds barley
- 25 pounds mila maize or Hegari.

Following are some possible changes that may be made without materially affecting the chemical analysis of the entire ration.

In the Mash

If wheat is grown on the farm and more of it is desired to be used in the ration, 200 pounds of ground wheat may take the place of the 100 pounds of bran and shorts. If a heavy grade of oats can be obtained, ground oats may be substituted for the ground barley. If skim milk is available for the poultry it may be substituted partly or entirely for the meat scraps. Figure that about three gallons of sour skim milk or butter milk per day for each 100 hens is

necessary to completely take the place of the meat scraps in mash. Feed the skim milk to the bird in a sour condition each day, as sour milk is more easily digested than sweet milk. This should be fed in wooden troughs or non-metal containers, as the chemical action of the lactic acid in the milk in contact with the metal often causes serious trouble in the birds.

In the Scratch Feed

The barley or milo maize may be replaced by a heavy grade of oats. One hundred pounds of wheat may be used instead of 50, but it is not advisable with the present high prices of that grain or during cold winter weather.

Care should be taken never to feed mouldy grains, as sick birds and a greatly decreased production will result from such practice. It is well not to use mash hoppers that hold a month's supply of mash because the mash becomes stale and unpalatable when more or less exposed for so long a time.

A good feeder should handle a few of his birds occasionally to note their body condition. If they are too fat-increase the amount of mash con-

sumed by cutting down on the scratch and increasing the amount of moist mash, using milk with which to moisten it. If they are too thin, increase the scratch grain consumption and cut down on the amount of moist mash. Make all such changes gradually and judiciously.

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better than ordinary, but not as good as last year.

Packing started shortly after picking. The first car was sent to Milwaukee on October 28th when it sold for \$9.00 per box delivered. This was the price on all sizes from 150's down. The 126's brought \$8.00 and the 100's and larger \$7.50 delivered. The fruit was sold quite generally throughout the East, almost entirely by private sale, though a few auction sales at Cleveland and Chicago brought returns above the average of even the private sales. This was due to the quality of the fruit and the excellence of the pack.

Tulare County, California started shipping at the same time as Arizona, but fortunately did not increase very rapidly in volume, and for two weeks was far behind our schedule. One thousand cars were shipped during the week of November 16th from this locality, and on November 23rd caused a drop in prices, but the season as a whole was a very successful one.

At the present writing Mgr. Miller of the Arizona Citrus Grower's packing house estimates that the average price on the first Navel pool will return the members about six cents on the pound. "This is rather a remarkable price, and one entirely satisfactory to the growers," he stated.

The best quality of the Valencia oranges sold for a price not equaled in several years. Some of the auctions paid as high as \$11.00 and \$12.00 for the sizes most in demand. The 176 and 200 sizes drew a premium, with marked declines for the larger and smaller fruit.

Twenty-eight cars of grapefruit of the Clayson variety were shipped on the first grapefruit pool, four going East and the remainder being distributed along the Pacific Coast from Vancouver to San Diego. The average price received was a little better

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