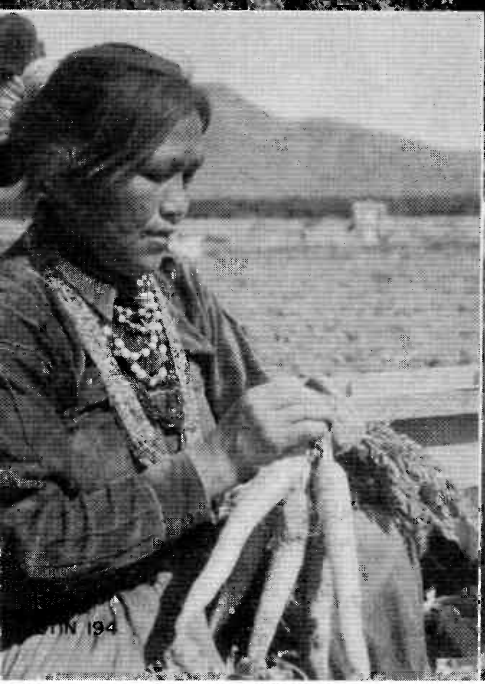
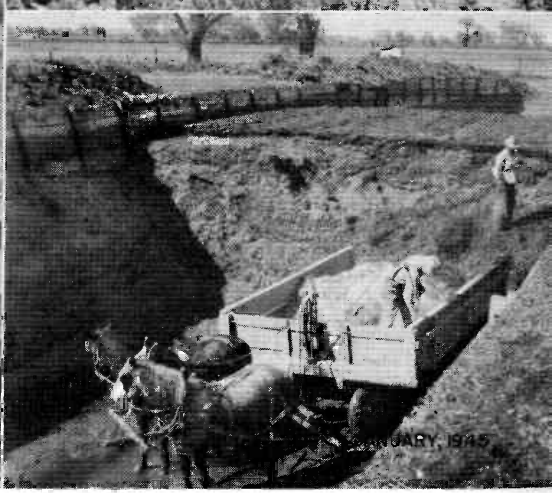
ARIZONA AGRICULTURE 1945





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Pictures on cover as follows:
Cotton in Safford Valley
Native American (Navajo) bunching carrots
Removing grain sorghum silage from trench silo

Last two pictures courtesy state office Agricultural Adjustment Agency

ARIZONA AGRICULTURE
1945

PRODUCTION, INCOME, AND COSTS[1]

By George W. Barr

More than two and one half million acre-feet of water was applied to Arizona irrigated farms in 1944. Two fifths of this was used on alfalfa, one fifth on cotton, one fifth on small grains and sorghums, one tenth on vegetables and citrus, and the remainder on pasture and miscellaneous crops. This water came from river flow, reservoir storage, and groundwater storage in the following valleys: Salt River and tributaries, 1,000,000 acre-feet; Santa Cruz River, 450,000; Gila River above confluence with the Salt and not including the Santa Cruz, 450,000; Gila River below confluence with the Salt and including the New and Agua Fria rivers and the Roosevelt Irrigation District, 400,000; Colorado River not including tributaries, 225,000; and the Little Colorado River and tributaries, 50,000. The amount of water given represents measured quantities delivered to farmers on large projects and estimates of water pumped or delivered to farmers on small projects or on individual farms, calculated from crop acreages and amounts of water these crops use. A much greater amount of gravity water is diverted from streams than that delivered to the farms.

Groundwater supplies made available for agricultural use by pumping were a more important source of irrigation water in 1944 than that diverted from river flow and from reservoirs. About 1,300,000 acre-feet was pumped and 1,200,000 acre-feet was considered gravity water, although a small portion of this gravity water had to be lifted by pumps to reach the land which it irrigated. An increase of 60 per cent in the amount of irrigation water pumped in the three-year period, 1940-43, was indicated in a report by the Ground Water Division of the Geological Survey. This study was confined to the Upper Gila Valley and the Santa Cruz and Queen Creek areas. Part of the increase in pumping was due to certain reductions in the electrical power rate. More important is the fact that the power cost for irrigation in 1944 was a much smaller percentage of the total value of the crop than it was in prewar years.

The underground storage from which comes all the irrigation water used in the Santa Cruz Valley is being rapidly depleted, particularly in the lower portion, according to reports of extensive studies made by the University of Arizona Department of

[1]In issuing this fifteenth consecutive annual publication on Arizona's agriculture the University is indebted to many sources for data and comments. Crop acreage and production figures were largely collected by the Federal Crop and Livestock Reporting Service, Phoenix.

Agricultural Engineering. It is indicated that this valley in the years ahead will provide a diminishing share of the state's crop production.

Cash Income

Cash income to Arizona agriculture amounted to about 124 million dollars in 1944, unchanged from 1943. Item by item, the amounts are given in Table 1. Larger returns were obtained from citrus, feed grains, dairy, and alfalfa, while other items were either unchanged or lower. The cash income from all livestock and livestock products amounted to 45 million dollars, while the income from all crops totaled 79 million dollars. Lettuce and other truck crops provided 29 million dollars of this income; cattle, 28 million; cotton lint and seed, 18 million.

What Is Irrigated Land Worth?

In the last six months of 1944 cotton-alfalfa land without buildings in the Chandler area of the Salt River Valley sold for

TABLE 1.—CASH INCOME FROM ARIZONA FARM AND RANCH PRODUCTION (IN MILLIONS OF DOLLARS)

Commodity	1944	1943	1934-43 average
Lettuce and other truck crops[a]	$ 29.0	$ 31.0	$13.6
Cattle and calves	28.0	28.0	16.3
Cotton lint and cottonseed	18.0	21.0	16.0
Alfalfa and other hay	9.0[b]	8.0	2.9
Dairy products	8.0[c]	7.5	4.2
Citrus fruits[a]	7.4	3.8	1.4
Commercial feed grains (corn, oats, barley, sorghums)	5.0[b]	3.0	1.1
Eggs, chickens, and turkeys	3.7	3.0	1.8
Sheep, lambs, and wool	3.5	4.0	3.0
Seed crops	2.6[d]	3.9	1.8
Miscellaneous crops	6.5	6.1	2.4
Miscellaneous livestock and livestock products	2.0	3.0	1.0
Conservation payments (AAA)[e]	1.3	1.7	2.5
Total cash income[b]	$124.0	$124.0	$68.0

[a]For the year ended August 31. For citrus, return figured for fruit "on the tree."

[b]Figures in the table represent cash sales. In addition to cash income, in 1944 hay fed by producers had an estimated value of 6 million dollars; grains and sorghums fed by producers, 2 million dollars; dairy and poultry products consumed on producers' places but not including output of home gardens, 2 million dollars.

[c]Federal subsidy paid to farmers of $1,130,000 included.

[d]Alfalfa seed $900,000; Bermuda seed $750,000; sugar beet seed $700,000; also vegetable seeds and guar. Does not include normal percentage of other crops used in Arizona for seed nor the sorghum grain shipped to points outside the state for seed.

[e]AAA payments for 1944 made for soil conservation practices were $1,060,000, and for alfalfa seed production $197,000. Prior to 1944 the figures shown include amounts paid farmers for adjusting cotton and wheat acreage.

about $250 per acre, while alfalfa-vegetable land in the Glendale area sold at $275 to $300 per acre. A study made by the Bureau of Agricultural Economics of noncitrus land transfers in the Salt River Project during the third quarter of 1944 shows an average sale price of $318 per acre on forty-three transfers. This compared with $305 in the third quarter of 1943 and $196 in the third quarter of 1942. The forty-three properties transferred averaged only slightly more than 40 acres in size. The sale price included buildings and other improvements, which often added substantially to the value of small properties.

The purchaser of land is not interested in what the price was at some time in the past, but what the land is worth over a long period of years. A close relationship exists between prices of commodities in one year and prices of land in the following year. Figure 1 shows this relationship for cotton-alfalfa land in the Salt River Valley from 1928 to 1944. The dashed line showing crop prices represents the income from 7 tons of Arizona No. 1 baled alfalfa hay priced in the field, from 1 bale of short-staple cotton lint at the gin, and from 1 ton of grain (barley, grain sorghums) delivered at the mill. Land prices shown represent typical sale prices for land without important building improvements, or after deducting for building improvements. While there is some variation from year to year, it appears that the sale prices of cotton-alfalfa land in the Salt River Valley depend rather definitely upon the prices received for the preceding year's crops and that, roughly, an acre of such land without buildings has

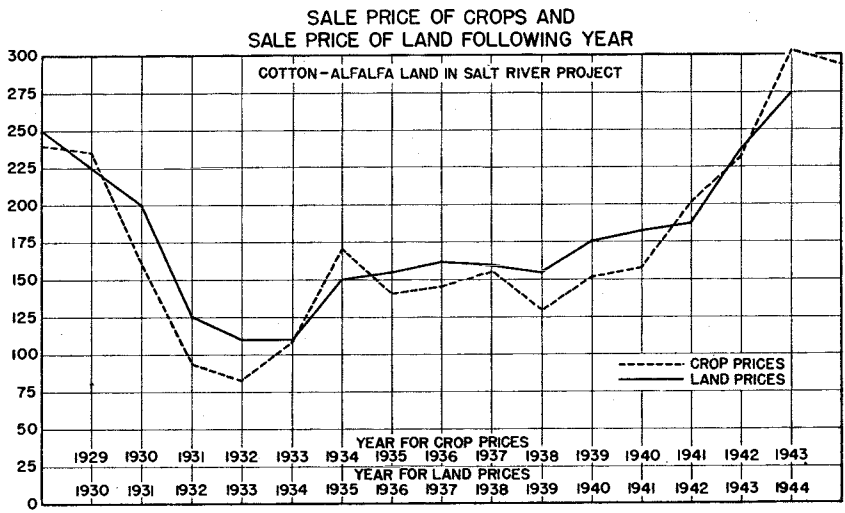

Figure 1.—The price of land in the Salt River Project in any given year is determined by the price of crops in the preceding year. The dashed line represents the total value of 7 tons of hay, 1 bale of cotton, and 1 ton of grain.

sold for approximately the same amount as the combined return for 7 tons of hay, 1 bale of short-staple cotton, and 1 ton of grain.

Land prices in 1945 and in the immediate years ahead will likely follow the trend of prices of the crops grown. Crop prices, and hence land prices, will be enhanced by any inflation but will be adversely affected by any lowering of the national income, which is the chief determining factor in the value of farm products.

Prices of Agricultural Products

The year 1944 marked the end, or at least a halt, in the upward movement of farm and livestock prices. Alfalfa and grain prices were lower late in the year (Fig. 2). The line showing price of milk includes the direct government subsidy to dairymen. December prices for 1944 as well as for 1943 are shown in Table 5, page 15. Price comparisons at any one time in the year may be misleading because the historic seasonal price swings do not follow the usual pattern, due to the influence of price ceilings. Furthermore, prices as reported tend to apply to the same quality from year to year, while the product on the average falls in a lower grade in times when harvesting is delayed by labor scarcities. Dollar profits are readily made by almost all producers while prices are rising. On the other hand, some cannot make a profit, and almost all operate with less profit when prices are stable or falling.

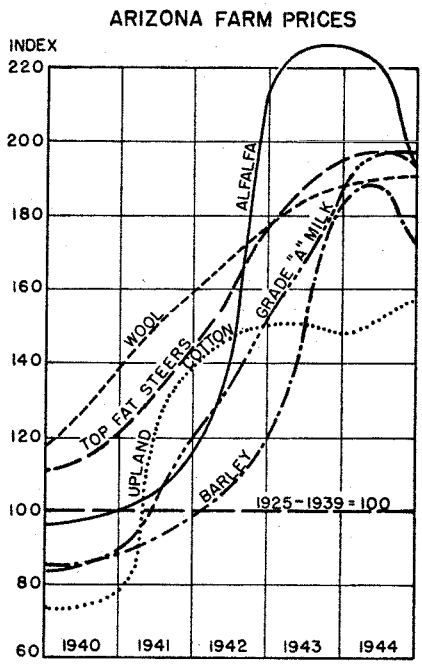

Figure 2.—After four years of sharply rising prices for farm and ranch products, Arizona producers were faced in the fall of 1944 with sharply lower prices for alfalfa hay and grain.

Crop Acreage Adjustments

The total acreage irrigated in the state in 1944 was almost the same as in 1943, but the crops differed in amounts grown (Table 6, page 16). More grain and alfalfa substituted for cotton. The trend in acreage of crops in the five counties having the most irrigated land is shown in Figure 3. Most striking is the change in acreage of American-Egyptian cotton, which dropped from 129,000 acres in 1942 to 8,000 acres in 1944.

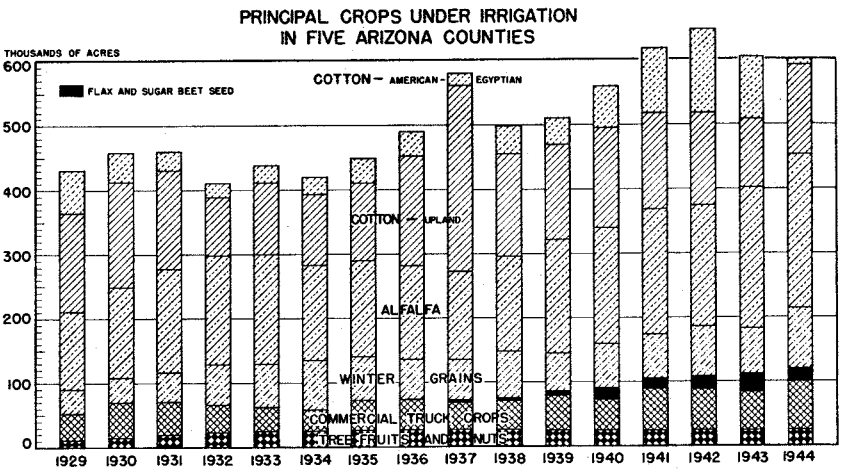

Figure 3.—Arizona's 1944 acreage of American-Egyptian cotton was the smallest since 1916. On the other hand the acreage of alfalfa, winter grains, and truck crops was the largest of the sixteen years shown.

COTTON

In 1944 cotton continued to be Arizona's leading crop, although the cash income therefrom was exceeded by the income from the combined vegetable crops. A major adjustment took place in cotton production. American-Egyptian cotton was produced on 8,000 acres, compared with 95,000 in 1943 and 129,000 in 1942. The change was brought about by a decreasing interest on the part of the federal government in American-grown extra long-staple lint for war uses, with a consequent reduction in the support price.

While the year 1945 opened without any apparent interest on the part of producers in long-staple cotton production, yet it is too early to predict that this crop will no longer be important. Of course, if foreign cottons of long-staple lengths are imported in postwar years without tariff restrictions, it now appears likely that American-Egyptian cotton will play a small role in Arizona agriculture.

Acreage of upland cotton, on the other hand, increased in 1944 to 139,000 compared with 107,000 acres in 1943. The ten-year, 1934-43 average, was 155,000 acres. Prospects in January, 1945, point to further increase in short-staple cotton acreage for at least four reasons. (1) The federal government guarantees a price for upland cotton at 92½ per cent of parity, calculated as of August 1, 1945. This indicates a price for the 1945 crop somewhat similar to that obtained for the 1944 crop, which was considered profitable by those who were able to get the cotton picked without long delays. (2) Farmers expect that German prisoners will be available for picking cotton in 1945, possibly in greater numbers than in 1944. Without such labor supply it is difficult to see how the

crop could be picked. (3) Looking forward to a time when the federal government may limit cotton acreage throughout the United States, many growers will plant cotton to preserve and maintain their "cotton history." (4) Reduced reservoir water supplies, especially for Pinal County farming, is a factor encouraging the substitution of the lower water-consuming cotton for alfalfa.

The cost of producing upland cotton as estimated for 1945 will be between 17 and 18 cents per pound in the Salt River Valley Water Users' area (Table 2). While costs, especially labor costs, have risen very rapidly in recent years, the prospects are, as of January, 1945, that labor costs will not be particularly higher this year than in the preceding year. These costs represent one area only and one yield only. With higher than average yields, costs per pound of cotton lint are less. Upland cotton may be insured in 1945 under the new federal crop insurance program. The cost of this insurance is not included in Table 2.

TRUCK CROPS

The important place taken by Arizona in providing winter vegetables and early season melons is the result of intensive cultivation of a rather small acreage. Seventy-four thousand acres, using only 6 per cent of the state's irrigation water, produced about 34,000 carloads or carlot equivalents of truck crops. The 1944 acreage was 20 per cent larger than that of 1943, production also larger, but total returns somewhat less than in 1943.

Lettuce

The 1943 fall lettuce deal consisted of 16,000 acres, about 12,000 of which were in the Salt River Valley; 4,000 in Yuma Valley; and 200 in the Santa Cruz Valley at Sahuarita. The production amounted to about 8,500 cars, including trucked shipments and lettuce loaded in mixed cars. The equivalent of some 11,300 cars of spring lettuce was produced in Arizona in the spring of 1944. This came from 23,000 acres. Shipments of the fall deal of 1944 through January 16, 1945, amounted to 4,960 cars from the Salt River Valley and 1,635 from the Yuma area, or a like quantity to shipments through the same date a year earlier.

Cantaloupes and Honeydew Melons

Cantaloupe shipments from Arizona producing areas in the summer of 1944 amounted to 3,954 cars, or 500 more than in the year 1943, and compared with a ten-year, 1934-43, average of 3,181 cars. Of these, 2,775 cars were produced on a reported 7,200 acres in the Salt River Valley and nearly 1,200 cars on 3,340 acres in the Yuma Valley. Prices f.o.b. shipping point averaged around $2.50 to $2.75 per jumbo crate.

TABLE 2.—CALCULATED COST OF PRODUCING UPLAND COTTON PER ACRE, SALT RIVER VALLEY WATER USERS' AREA, 1945[a]

Interest, taxes, and water:		Harvesting costs:	
Interest 5% on $275	$13.75	*Per bale* of 479 pounds net lint from 1,400 pounds seed cotton.	
Land tax	2.00	Picking at $2.50 per cwt., including contractor, weighing cotton, and securing and hauling workers	$35.00
Water (3 acre-feet)	5.00	Hauling cotton	1.25
Total	$20.75	Ginning	4.60
Cultural costs:		Bags and ties	1.85
Seed	$ 1.50	Insurance for twenty days and sterilizing seed	.54
Machinery operation, including machine labor[b]	16.00	Less return from 809 pounds[d] cottonseed at $53 per ton	21.42
Hoeing and thinning	6.00	Net harvest costs per bale	21.82
Irrigation and ditch labor	4.00	*Per acre* net harvest costs on yield of 420 pounds net lint[e]	$19.15
Dusting two times[c]	4.00		
Fence and miscellaneous	1.00	Calculated cost of producing 420 pounds net lint on 1 acre, management and risk of crop failure not included and no allowance made for land depreciation	$73.40
Production credit	1.00		
Total cultural costs	$33.50		

[a]This table represents a budget based upon typical costs on owner-operated farms, assuming average yields, and wage rates as of January, 1945.
[b]Plowing; disking twice, once with stalk cutter before plowing and once afterward; floating, twice before planting, and dragging or harrowing after planting; furrowing; planting; and five cultivations.
[c]One application of 18 pounds of 15 per cent Paris green in sulphur dust at $7 per cwt. for dust and $4 per cwt. for airplane application would cost $2 per acre. If this maximum application were made six times the cost would be $12 per acre.
[d]After deducting 8 per cent trash.
[e]Average 1941-43 yield on Salt River Project.

Shipments of honeydew melons from the state amounted to 1,211 cars compared with 1,062 in 1943. These came from both the Salt River and Yuma valleys.

Other Truck Crops

Other vegetables of major importance in the year ended August 31, 1944, included watermelons, 3,900 acres; fall carrots, 2,500; spring carrots, 3,600; onions, 2,400; cauliflower, 1,700; broccoli, 1,300. Cochise County's more than 400 acres of chili brought farmers over $100,000.

LIVESTOCK

Beef Cattle

Range producers and cattle feeders received total cash income of 28 million dollars, counting each animal only once and after deducting the value of cattle brought into the state. Cattle marketed from Arizona ranches and feeding pens totaled 470,000 head in the twelve-month period ended November 30, 1944. This number compares with 445,000 in the preceding year. The 1944 figure is made up of 343,000 head shipped from the state and 127,000 head slaughtered within the state, determined from records of the Livestock Sanitary Board. More than four fifths of these cattle originated on Arizona ranges, since the State Veterinarian reports show importations of only 83,000 head in the twelve-month period ended June 30, 1944. Importations into Arizona continued at the same rate in the last six months of 1944. About 60 per cent of the cattle shipped into Arizona in 1944 came directly from Old Mexico.

The principal market for Arizona live cattle in 1944 was California, 92 per cent going to that state. Cattle on pasture in irrigated valleys in southern Arizona were reported to number 125,000 in December, 1944, and in addition, 28,000 were reported in feed lots. The use of feed per animal both on pasture and in the feed lots is probably less than in the prewar years, due to the tendency to ship cattle without as much finish.

Sheep, Lambs, and Wool

The number of breeding ewes in Arizona for the year 1944 amounted to only 488,000, according to the Bureau of Agricultural Economics. This figure compares with 514,000 in 1943 and a ten-year average of 626,000. These figures indicate a continued decline in the relative importance of the sheep and wool industry in Arizona. Shearing reports indicate that 632,000 sheep shorn produced 4,200,000 pounds of wool in 1944, or an average of 6.6 pounds per pelt. This estimate includes an allowance for wool produced on Indian-owned sheep on the reservations in Arizona.

Mohair

Arizona ranks third among the states in the production of mohair. Texas is the leading state, with New Mexico producing only slightly more than Arizona. Arizona's production was figured by the Bureau of Agricultural Economics for the year 1943 at 824,000 pounds, the production coming partly from Indian-owned goats and in part from producers in the central part of Arizona. The central Arizona-produced mohair is shipped largely from Kirkland in Yavapai County, from Clifton in Greenlee County, and from Winkelman in Pinal County. The Arizona Mohair Growers' Association reported that the average price received this year for both the spring and the fall clip was 55 cents for the mohair from goats and 75 cents from kids.

CITRUS

Arizona citrus plantings now average about fifteen years of age and have reached or shortly will reach the period of maximum production. Sixty per cent of the grapefruit and the same percentage of the orange trees were planted in the four years 1929 to 1932 inclusive.

Grapefruit

The total desert grapefruit production in the year ended August 31, 1944, amounted to 5,225,000 packed box equivalents of 65 pounds net weight each. To this production Maricopa County contributed 3,600,000 boxes, Yuma County 440,000 boxes, and the remainder was grown in Riverside and Imperial counties, California. Of the Arizona production a little more than one half was processed. Maricopa County's 11,500 acres produced an average yield of 10.1 tons per acre, while Yuma County's 1,160 acres averaged 12.4 tons per acre, or the highest yield of any of the desert grapefruit counties.

The return to growers for fruit "on the tree" averaged about $35 per ton, since the fruit sold as fresh fruit brought about $45 and the processed fruit about $26. Growers of grapefruit in Arizona numbered about eight hundred in December, 1944. Nearly 60 per cent of the acreage was owned by two hundred eighty growers, each having 10 or more but less than 100 acres. Only 25 per cent was owned by growers having 100 acres or more. About one hundred fifty of the growers had less than 3 acres. Many of the grapefruit growers had orange groves as well as grapefruit groves.

The desert grapefruit marketing program effective October 7, 1944, regulates by grade and size the sale of grapefruit for consumption in the state of Arizona. Its purpose is to establish and enforce minimum standards for grapefruit, and juice and other products of grapefruit; also to carry out research, advertising, and trade promotion. This marketing program supplements a marketing agreement order of the Secretary of Agriculture in operation since 1941 regulating the shipments of desert grapefruit into interstate commerce. Since 1941 a California program has regulated the shipment of desert grapefruit from and to points within that state.

Juice is no longer a by-product. It is now a **major** product of the grapefruit industry and is likely to hold this position in the immediate years ahead. In the season 1943-44 there were twenty-seven plants that packed fresh grapefruit in Arizona. Of the reported fresh shipments of nearly 2 million boxes of Arizona-produced grapefruit, 58 per cent went to California, 2 per cent to Arizona points, 16 per cent to nine other western states, 14 per cent to all other states, 5 per cent to Canada, and 5 per cent to other export.

Oranges

A production of 1,100,000 boxes of oranges in Arizona for the year ended August 31, 1944, was an all-time high record for the state and compares with a ten-year 1934-43 average of 408,000 boxes. The December 1, 1944, forecast for the 1944-45 crop was 1,220,000 boxes. Dollar returns for both oranges and grapefruit have been large in the past two seasons due in the main to the unusual demands of wartime.

Evidence now available points to a return of times during which it may be difficult to market the large American production of citrus fruit. Studies being made by grapefruit and orange producer organizations to find new outlets and new uses for these fruits may make easier the marketing of citrus in the postwar period.

HAY AND FEED

The largest alfalfa hay acreage in the history of the state, 237,000 acres, is reported for 1944. This increase in acreage from about 160,000 in 1939 resulted from higher prices received for hay. For a time in 1944 it appeared that there would be far too much hay produced to find a ready market outlet. Large acreage does not mean large production of hay, however, because the yield per acre varies greatly, depending upon the amount of irrigation water available.

Determination of the amount of irrigated hay and pasture is rather difficult under the ordinary reporting systems. In the Salt River and San Carlos projects the total amount of water delivered to land owners, less the probable amount of water required for the production of crops other than hay and pasture, indicates major changes in the production of this kind of feed in the eight-year period 1937-44. A large production in 1937, about 650,000 tons of alfalfa hay and pasture on a hay equivalent basis, was followed by lower production on succeeding years until only 300,000 tons was produced in 1940. Following the heavy rains in the winter of 1940-41, about 600,000 tons were produced each year until 1944, when the amount was estimated at 500,000 tons. Less accurate data are available for the remainder of the state, but it appears that an acre-foot of water will produce about 1 ton of this kind of feed, and in 1937 the state's production amounted to about 1,250,000, decreasing to around 900,000 tons in 1940 and increasing again to 1,150,000 tons in 1943, with a reduction to 1,100,000 tons in 1944.

It now appears that alfalfa acreage may be smaller in 1945 than in 1944, due to a somewhat less favorable outlook for water supplies and due to the encouragement offered to the growers of cotton, its chief competitor for the land. No guaranteed support price has been granted alfalfa growers by the government as has been done in the case of cotton.

Plantings of alfalfa on the newly developed lands of the Yuma Mesa are expected to total 1,800 acres by March, 1945, and possibly as much as 4,000 acres by March, 1946. Under the Reclamation

Service's program of development and with the application of rather sizable amounts of fertilizer, these new lands may be expected to produce a rather substantial quantity of high-quality hay. Much of this may move to the Los Angeles market area in place of alfalfa that in recent years has moved to that market from more distant points in Arizona.

It will cost the average producer $15.25 per ton to produce alfalfa in the Salt River Valley Water Users' area in 1945, according to the anticipated costs listed in Table 3. These costs assume a yield of 4 tons per acre. Higher yields reduce the cost per ton but take more water. Water is a principal limiting factor in production. A sixteen-year record of the costs of producing alfalfa is shown in Figure 4. Some cost items have remained rather constant for the last ten years. Among them are interest, property taxes, and water. As land has increased in value, interest rates have tended to come down. The addition of sales taxes to the state program of taxation may have been responsible for the reduction in property tax per acre. The cultural costs, and especially the harvesting costs, have risen rapidly since 1941. This change may be attributed largely to the high wage rates paid for labor.

Barley and Grain Sorghums

The large production of grain in Arizona in 1944 was an outstanding achievement. Not only did the acreage of the winter feed grains, principally barley, exceed the acreage of these grains in any year in the past two decades, but also the acreage of grain sorghum was the largest in the history of the state, and the yields were good, resulting in a large crop. It appeared for a time in the season that the grain crop of barley and later the crop of sorghum

TABLE 3.—CALCULATED COST OF PRODUCING ALFALFA PER ACRE, SALT RIVER VALLEY WATER USERS' AREA, 1945*

Interest, taxes, and water:		Harvesting costs:	
Interest, 5% on $275 valuation	$13.75	Mowing and raking—4 cuttings	$ 8.00
Land tax	2.00	Baling—4 tons	16.00
Water (4 acre-feet)	6.50	Total	$24.00
Total	$22.25		
		Total cost per acre, through harvest	$61.00
Cultural costs:			
One fourth of seed cost	$ 2.00	Cost per ton	$15.25
One fourth of land preparation and planting cost	3.50		
Irrigation and ditch labor	9.25		
Total	$14.75		

*These calculations represent anticipated costs during 1945 on owner-operated farms, assuming a yield of 4 tons per acre. No item was included for farm automobile expense or for management and no return credited for pasture.

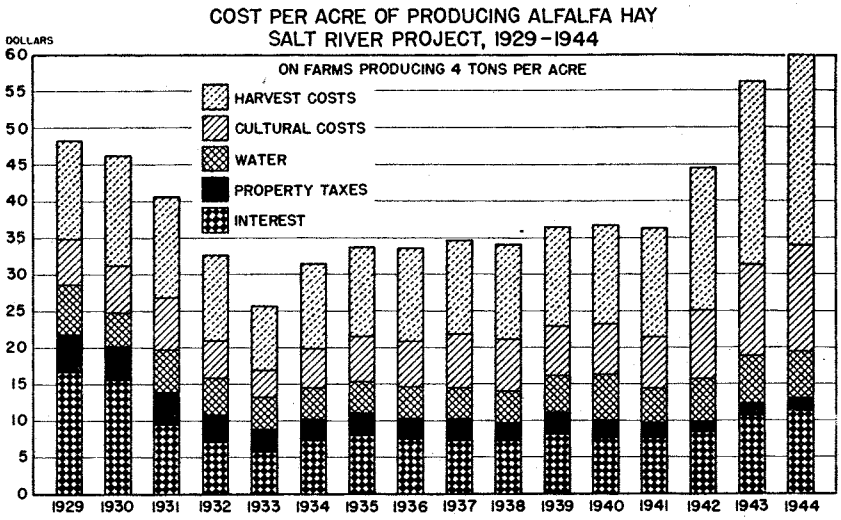

Figure 4.—Although farm and ranch prices were lower in 1944 than in 1943, costs of production continued to rise, especially those costs involving large amounts of labor such as cultural and harvesting costs.

would not all move into the normal market channels, but national demand for grain and the unusually large demand for Arizona sorghums to be used for planting in the other states have definitely relieved the market situation.

It is estimated that 8,000 to 9,000 tons of grain sorghums were shipped out of Arizona for planting purposes in 1944 from the certified seed crop of 1943. This movement is expected to continue in 1945, and the shipments from the 1944 harvest may be on an increased scale.

The lower price for grains in the winter of 1944-45, if continued, probably will result in less winter grain in 1945; and if continued until summer will result in a lower crop of grain sorghum. The large acreages of grain in Arizona in 1944 apparently are the result of a war demand and high prices and do not indicate a permanent change in the direction of grain farming.

Production costs for growing grain in 1945 have been estimated for the Salt River Valley Water Users' area at $45 per acre for barley and $48 per acre for grain sorghum (Table 4). These costs cover interest, land tax, and irrigation water and an adequate amount to pay for the usual machinery operations on a contract basis. Only one crop on the same land per year was the plan used in the calculation of these costs. The double-cropping system sometimes used tends to reduce the immediate cost, especially in that interest and taxes may be divided between two crops. In following such a practice it must not be overlooked, however, that a land-depreciation item should be included when more than one crop is grown on land in a given year.

THE DAIRY OUTPUT

Arizona dairymen with about 48,000 dairy cows produced 260 million pounds or 130,000 tons of milk in 1944. A rather accurate determination of the amount of milk was possible because of records available through the subsidy program. Subsidies were paid through the Agricultural Adjustment Agency on 98,000 tons sold as whole milk and 5,000 tons sold as fat. Allowing for a little incompleteness in reporting, it may be assumed that about 105,000 tons of milk equivalent were sold and an estimated 25,000 tons were used on the places where the milk was produced. The government's direct subsidy program began in October, 1943. The rates of payment during 1944 were as follows: January and February, 50 cents per cwt. for milk, 6 cents per pound for fat in cream; March and April, 60 cents for milk, 8 cents for fat; May to August, 45 cents for milk, 6 cents for fat; and September to December, 70 cents for milk, 10 cents for fat.

The commercial production came from about two thousand dairies, while a very sizable part of the noncommercial milk was produced on places with only one or two cows. Three fourths of the state's commercial producers resided in Maricopa County in 1944. Graham and Pinal counties had seventy each; Cochise, Greenlee, and Yavapai about forty each. Of the product sold in the form of cream, half was produced in Maricopa County and a fifth in Graham County. Reported sales of whole milk reached

TABLE 4.—CALCULATED COST OF PRODUCING BARLEY AND GRAIN SORGHUMS PER ACRE UNDER SINGLE-CROP PLAN, SALT RIVER VALLEY WATER USERS' AREA, 1945*

	Barley	Grain sorghums
Interest and land tax	$15.75	$15.75
Water (2½ acre-feet for barley; 2¾ for sorghum)	4.25	4.60
Cost of seed	2.00	.20
Plowing	3.00	3.00
Disking and dragging	2.50	2.50
Bordering	.75	.75
Disk, harrow attached, after preirrigation	1.00	1.00
Drilling or planting	1.25	1.25
Irrigation labor, four to six irrigations	2.25	2.25
Ditch work and miscellaneous expense	.75	1.00
Cultivating, $2.50; hoeing, $1.00	.....	3.50
Combining	5.50	6.50
Sacks	3.50	3.20
Hauling	2.50	2.50
Total cost per acre, through harvest	$45.00	$48.00
Cost per ton	$36.00	$38.40

*These calculations represent anticipated costs during 1945, assuming a yield of 2,500 pounds of grain per acre. No item is included for management, farm automobile, fencing, or insurance. On the other hand, no income is credited for pasture.

a seasonal peak in March and April of 9,050 tons per month and a low in September and October of 7,400 tons per month.

The amount of commercial production was not materially different in 1944 from that in 1943, according to the best indicators available. The amount of noncommercial production may have increased a little, and the farm production of butter, which is a small factor in Arizona, may have increased somewhat.

SEED CROPS

Arizona produced about 2,700,000 pounds of recleaned **alfalfa seed** in 1944 on 37,000 acres. While the acreage may not be much different than in recent years the production was lower than in any other of the eighteen years for which records are available, in spite of the encouragement to production through a government subsidy payment of $3.50 per acre and 2½ cents per pound. The total of the subsidy payments was $196,500 for the crop year. In the preceding ten years Arizona production of recleaned seed averaged 5½ million pounds or about 9 per cent of the entire American crop. Acreage and production of seed by counties in 1944 were as follows: Maricopa County, 17,000 acres and 1,200,000 pounds; Yuma County, 16,000 acres and 1,000,000 pounds; Pinal County, 2,600 acres and 410,000 pounds; Graham County, 500 acres and 56,000 pounds; Pima County, 450 acres and 10,700 pounds; Coconino County, 140 acres and 9,200 pounds.

The major portion of the American crop of **Bermuda seed** comes from Yuma County. The Mohawk and Yuma valleys lead the country in this production. The North Gila and South Gila valleys are also important producing areas. Most of the remaining Bermuda seed comes from the Blythe area and Imperial Valley of California. Production was encouraged by the government up through last spring, since the Army had taken all the crop that was available at 53 cents a pound for unhulled seed. Now the Army has withdrawn from the market and the growers may be called upon to adjust to a somewhat lower demand.

A total of 5,470,000 pounds of **sugar beet seed** was produced on 2,405 acres in 1944. The yield of 2,274 pounds per acre was the best in the entire ten years in which sugar beet seed has been grown on a commercial scale in Arizona. The average of the preceding nine years was 1,416 pounds. Acreage planted for 1945 harvest is as follows: Maricopa County, 1,314; Graham County, 831. Contract price for recleaned seed for the 1945 crop is 13 cents per pound.

About 2,000 acres of **vegetable seeds** were planted for harvest in 1944. A somewhat smaller acreage was harvested due to some abandonment. The major part of these seed crops was grown under lend-lease arrangements. Important from the standpoint of acreage was the onion seed crop and from the standpoint of return, garden varieties of red beet and mangel seed. Grown also was a substantial acreage of carrots for seed and lettuce for

seed, the latter almost exclusively in the Yuma Valley. Vegetable seed acreage planted for harvest in 1945 is about 1,200 acres and consists mainly of red beets, mangels, and onions.

Nine hundred acres of **guar** was produced for seed in 1944. The production was estimated at 650,000 pounds. More than half of the acreage was contracted at 8 cents per pound for recleaned number 1 seed.

TABLE 5.—PRICES OF AGRICULTURAL PRODUCTS IN ARIZONA

Commodity	December 1944	December 1943	December average 1934-43
Alfalfa hay[a] (per ton)	$23.00	$25.00	$14.35
Alfalfa seed[b] (per cwt.)	33.33	31.00	17.35
Barley[b] (per cwt.)	2.21	2.71	1.48
Beef cattle[c] (per cwt.)	15.00	14.90	9.71
Cotton lint[b] (per lb.)			
American-Egyptian	.465	.46	.28
Upland	.206	.19	.13
Cottonseed[b] (per ton)	52.00	53.00	32.15
Eggs[b] (per doz.)	.58	.56	.39
Grain sorghums[b] (per cwt.)	1.76	2.40	1.34
Lambs[b] (per cwt.)	11.30	11.20	8.06
Milk fat[d] (per lb.)			
In Grade "A" milk	1.09	1.01	.60
In churn cream	.64	.59	.40
Wheat[b] (per cwt.)	2.68	2.58	1.69
Wool[b] (per lb.)	.37	.33	.27

[a]Arizona No. 1, baled at the ranch in the Salt River Valley.
[b]Prices on 15th of month, as furnished by the Bureau of Agricultural Economics.
[c]Top fat steers at Phoenix, from Central Arizona Cattle Feeders' Association.
[d]Delivered to creameries in Salt River Valley, and including direct federal subsidy.

TABLE 6.—PRINCIPAL ARIZONA CROPS IN 1944—ACREAGE BY COUNTIES AND PRODUCTION FOR THE STATE

Crops	State total[a]	Apache	Cochise	Coconino	Graham	Greenlee	Maricopa	Navajo	Pima	Pinal	Yavapai	Yuma
Alfalfa: acres	237,000	4,800	1,600	700	6,800	1,300	160,000	2,200	1,700	26,000	3,700	26,000
Tons cut for hay	628,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cotton												
Upland: acres	139,000	0	.....	0	10,000	.....	41,000	0	7,000	78,000	0	.....
Bales of cotton	138,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
American-Egyptian: acres	8,000	0	.....	0	3,600	.....	3,100	0	1,100	600	0	.....
Bales of cotton	4,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Feed grains												
Barley: acres	74,000	1,000	500	500	3,700	300	48,500	200	2,700	12,000	600	3,000
Tons of grain	67,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Corn: acres	38,000	10,600	800	5,100	800	600	900	10,600	900	2,200	1,300	400
Tons of grain	10,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grain sorghums: acres	83,000	600	2,300	400	900	800	50,400	800	1,600	20,100	800	2,700
Tons of grain[c]	78,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wheat: acres	24,000	1,700	1,100	2,000	700	200	8,100	1,600	900	3,700	800	900
Tons of grain	16,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dry edible beans: acres	15,000	1,200	600	7,700	100	.....	100	1,500	800	600	1,300	.....
Tons harvested	3,200	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Vegetable crops[d]: acres[b]	74,000	.....	600	.....	1,700	.....	52,000	.....	1,000	1,000[g]	.....	17,500
Cars shipped[b]	34,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Flax: acres	19,000	.....	.....	.....	.....	.....	200	.....	.....	.....	.....	18,800
Tons harvested	12,800	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grapefruit: acres[b]	12,600	.....	.....	.....	.....	.....	11,500	.....	.....	.....	.....	1,160
Tons harvested[e]	130,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oranges: acres[b]	7,300	.....	.....	.....	.....	.....	7,000	.....	.....	.....	.....	300
Tons harvested[e]	41,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Acres irrigated[b]	750,000[f]	13,000	10,000	3,000	33,000	5,000	400,000	8,000	25,000	170,000	10,000	73,000

Source.—The Federal Crop and Livestock Reporting Service, Phoenix, except as otherwise noted.
[a]State totals include estimates for Gila, Mohave, and Santa Cruz counties.
[b]Estimates of Department of Agricultural Economics, University of Arizona.
[c]Includes grain in silage, and forage.
[d]Year ended August 31, 1944. Does not include 6,000 acres Irish potatoes.
[e]Year ended August 31, 1944.
[f]Figures represent both irrigated crops and irrigated pasture. In addition, it is estimated that dry-land crops were harvested from approximately 65,000 acres.
[g]Not including War Relocation Authority area.