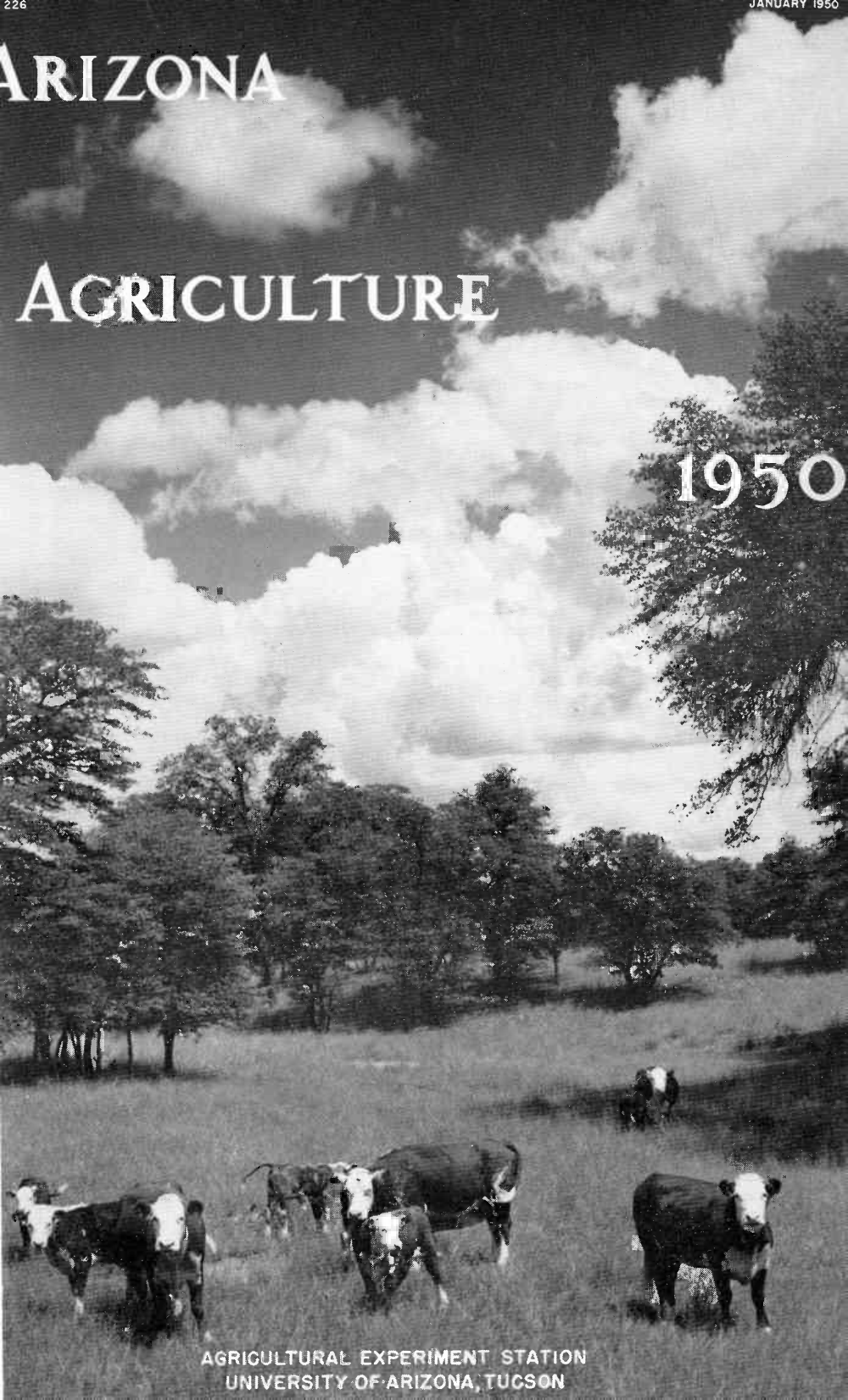
ARIZONA AGRICULTURE 1950



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Picture on cover: San Rafael Ranch, Green Cattle Company, Western Ways Photo by Ray Manley.

ARIZONA AGRICULTURE
1950

PRODUCTION, INCOME, AND COSTS [1]

By George W. Barr

A total of 1 million acres of land was irrigated in Arizona in 1949 after an almost uninterrupted growth through the half century. At the beginning of the century only 200,000 acres were irrigated, nearly half of which was in the area now constituting the Salt River Project (Figure 1). At the beginning of 1950 Maricopa County led in irrigated area with 475,000 acres, more than half of which was outside of the Salt River Project. Pinal had 280,000 acres and Yuma 100,000. Acreages in other counties are shown in Table 8.

A record agricultural income was achieved in the year 1949. Cash income amounted to $235,000,000 compared with $219,000,000 in 1948. This highest Arizona agricultural income was made in a year when the national agricultural income declined about 9 per cent. The increased income could be credited almost entirely to cotton and to the spring lettuce deal while lower cash returns

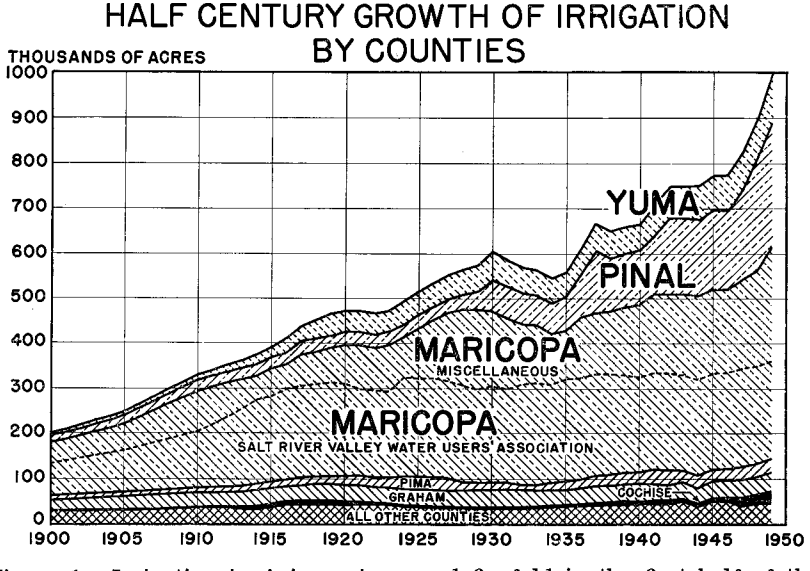

Figure 1.—Irrigation in Arizona increased fivefold in the first half of the twentieth century.

[1]In issuing this report for the twentieth time the University has received data from the Phoenix office of the Federal Crop and Livestock Reporting Service, from the state office of the Production and Marketing Administration, from many farm co-operative organizations and from Arizona buyers of farm and ranch products.

TABLE 1.—CASH INCOME FROM ARIZONA FARM AND RANCH PRODUCTION (In Millions of Dollars)

Commodity	1949	1948	1939-48 Average
Cotton lint and cotton seed	$87	$59	$26.8
Cattle and calves	45	47[a]	29.1
Lettuce and other truck crops[b]	43	50	27.5
Dairy products[c]	11	11	6.9
Alfalfa and other hay[c]	9	10[a]	6.3
Commercial feed grains[c]	9	10	4.1
Seed crops	5.5[d]	5	3.1
Eggs, chickens, and turkeys[c]	5	6	3.3
Sheep, lambs, and wool	4	4.8	3.7
Citrus fruit[b]	2.2	1.5	3.6
Miscellaneous crops	11[e]	12	5.5
Miscellaneous livestock and livestock products	2	2	1.6
Federal government payments	1.3	.7	2.3
Total cash income	$235	$219[a]	$123.8

[a]Revised figures.
[b]Year ended August 31. Value citrus fruit "on the tree."
[c]Represents cash sales only. In addition, in 1949, hay fed by Arizona producers had an estimated value of 3 million dollars; feed grains fed, 2 million dollars; and dairy, poultry, and other products consumed by producers, 2.5 million dollars.
[d]Alfalfa seed, 3.1 million dollars; sugar beet seed, 1.5 million dollars; also Bermuda grass and vegetable seeds.
[e]Includes flaxseed, 3.7 million dollars; white potatoes, 2.5 million dollars; wheat, 1.2 million dollars.

were common to the producers of many Arizona agricultural products. More than a third of the income came from cotton lint and seed ($87,000,000). Beef cattle and truck crops accounted for another third. The 1949 income by major commodities is shown in Table 1.

Nineteen forty-nine was a year of average rainfall, the average of all Weather Bureau stations being 13.8 inches for the year ended with October, or about the same as the average of all years since 1895. Rainfall in the years 1942-48 averaged only 11.6 inches. The runoff into the man-made reservoirs of central Arizona was greater in 1949 than for several years and a small supply, 633,000 acre-feet, was carried over into 1950 compared with 145,000 acre-feet carried over from 1948 to 1949. The water table of the underground reservoirs continued to fall in the major pumping areas of the state, the chief exception being the Upper Gila Valley. Water pumped from wells in Pinal, Pima and Santa Cruz counties and in the Salt River and Safford valleys increased from 884,000 acre-feet in 1941 to 1,717,000 acre-feet in 1944 to 2,800,000 acre-feet in 1948. The Ground Water Division of the Geological Survey had not made its report for 1949 when this was written but there is evidence that the water table dropped again in 1949 because of heavier pumping.

The pumping area of Pinal County was further developed in 1949: natural gas in the amount of 2 billion cubic feet was con-

sumed for pumping compared with 1.4 billion in 1948. The amount of electricity used for pumping in that county outside of the San Carlos Project was about the same in both years. The additional gas should have supplied water for 25,000 additional acres, with enough gas left over to lift all the water pumped by gas from a 7-foot lower level. Other developments of the year included an addition of several thousand acres in Cochise County, bringing the irrigated area of that county to 30,000 acres.

Yuma County, too, shared in the growth of irrigation. In the Colorado River Indian Reservation near Parker, 8,300 acres were developed for irrigation in the year ended June 30, 1949, and 6,700 acres are being developed during the year ending June 30, 1950. In the Gila Project contracts have been let for construction of part of the canal system, designed to serve about 70,000 acres of land in the Wellton-Mohawk area where only 8,000 acres were irrigated in 1949.

Transportation Rates

Six interstate freight rate increases applicable to agricultural products hauled on railroads have occurred since June, 1946. Throughout the country the over-all increase in this period has been about 50 per cent. In January, 1950, it cost 33 cents per hundredweight to ship alfalfa hay from the Salt River Valley to Los Angeles. This, with federal tax added, amounted to $6.80 per ton. Cotton which formerly moved to the eastern seaboard in large part by water route now goes by rail at a cost per 500-pound bale of $7.72 including tax. Cantaloupes can be shipped to New York for a little under 3 cents per pound with standard refrigeration and top icing added. Of course, in addition, the shipper must furnish the top ice and the salt. For other rates see Table 2.

Conservation Programs

Conservation payments authorized by Congress, when appropriated and divided, are estimated to be $1,669,000 in 1950 compared with $1,302,000 in 1949. The 1949 payments were used principally for water development on range land and for land leveling, ditch lining, and head gate construction on farms. In some counties this money was pooled and used to help build permanent diversion structures for canal companies. The greatest payment which may be made to one owner or tenant in 1950 is $2,500. The top limit was $750 in 1949 and $500 in 1948.

The farm program under the direction of the Production and Marketing Administration includes acreage allotments on the following products in 1950: cotton, wheat, sugar beets, peanuts, rice, and potatoes. Marketing quotas have been set up for cotton and peanuts.

At least two other self-imposed limitations on marketing are effective in Arizona. Grapefruit shipments are restricted to certain grades and sizes under state and federal marketing orders.

TABLE 2.—RAIL FREIGHT RATES FOR SELECTED ARIZONA AGRICULTURAL PRODUCTS—January, 1950

Product	Point of origin[a]	Destination	Freight rate per hundred-weight[b]	Minimum weight per car, in lb.
Alfalfa hay	Phoenix	Los Angeles	$ .33	24,000
	Yuma	Los Angeles	.21	24,000
Barley, grain, and sorghums	Phoenix	Los Angeles	.31½	60,000
Cantaloupes[c]	Arizona	Chicago	1.75	20,000
	Arizona	New York	2.16	20,000
Cattle	Phoenix	Los Angeles	.67	24,000
Cotton[d]	Arizona	Charlotte, N. C.	1.50	50,000
	Arizona	Greenville, S. C.	1.50	50,000
	Arizona	Memphis	1.38	37,500
	Arizona	Boston	1.61	50,000
Grapefruit and oranges	Arizona	Chicago	1.73	39,200
	Phoenix	Los Angeles	.37	20,000
	Arizona	Seattle	1.14	26,700
	Arizona	Denver	1.35	39,200
Lambs[e]	Phoenix	Los Angeles	.67	20,000
	Arizona	Kansas City	1.29	20,000
Lettuce and carrots[c]	Arizona	Chicago	1.75	20,000
	Arizona	New York	2.16	20,000
Wool[f]	Arizona	Boston	3.08	24,000

Source: Southern Pacific Freight Office, and Pacific Fruit Express, Phoenix.
[a]The same rate applies from most Arizona points to the above destinations other than Los Angeles.
[b]Carload rate. In addition, 3 per cent federal tax is charged.
[c]Cost of refrigeration not included. Standard refrigeration for cantaloupes to Chicago is $105.80 per car; to New York, $125.64. Salt extra. When top icing is added, additional charge to Chicago is $14.55; to New York, $18.52 and shipper furnishes the ice. Lettuce and carrots, top icing only, to Chicago, $30.42 and shipper furnishes the ice.
[d]Does not include compressing in transit.
[e]Double-deck car.
[f]Grease wool in bags.

Lettuce growers voluntarily plowed up a part of their fall 1949 acreage to prevent the wastes that occur when more lettuce arrives in the market place than can be sold at prices sufficient to cover the cost of harvesting, packing, and marketing.

Prices

A substantial reduction in price received by the producers of some Arizona commodities occurred during the twelve-month period ending January, 1950. Cottonseed dropped from a price of $62 to $45 per ton; alfalfa hay from $34 to $23 per ton; eggs from 68 cents to 62 cents per dozen; barley from $2.60 to $2.19 per hundredweight. Some commodities like milk, beef, lambs, and cotton are bringing more in terms of real buying power than they did in the fifteen-year period 1925-39; some, such as eggs and barley, are bringing less (Table 7).

Price Supports

Crops harvested in 1950 will be supported by the Commodity Credit Corporation in accordance with the Agricultural Act of

1949. Under this legislation wheat, cotton, and peanuts will be supported at 90 per cent of parity; wool, honey, and Irish potatoes between 60 and 90 per cent of parity; milk and milk products between 75 and 90 per cent of parity. All other commodities produced in Arizona may be supported within the discretion of the Secretary of Agriculture at a level between zero and 90 per cent of parity. The Secretary has announced the 1950 support on flax at 60 per cent of parity which will amount to around $2.60 per bushel in Arizona. By comparison, farmers received for the 1949 harvest, $3.85 per bushel; for the 1948 harvest, $6.25. The Secretary is directed "insofar as practicable," to announce the level of price support for field crops in advance of planting season.

Farmers may find it of major importance to have storage facilities available, either in commercial warehouses or on the farm. Present policy is toward furnishing price support only for commodities which can be stored and to the extent adequate storage facilities are available. Adequate inside storage is available for less than one-half of the Arizona grain crop, and practically no storage is available for cottonseed other than at the oil mills. The Commodity Credit Corporation has authorized loans for building farm storage. These loans have been used by fourteen Arizona farmers to provide 154,170 bushels of farm storage.

Industrial Insurance

The 1950 farm rate for industrial insurance has been set at $3.72 per $100 of payroll. This compares with a 1949 rate of $3.37 and a 1948 rate of $3.62. The Arizona Industrial Commission office advises that when a farmer hires a contractor he should get in touch with the Commission to see if the contractor is covered by insurance. If the contractor is not covered, then in order to be protected, the farmer must insure his labor.

Farming by Contract

Producers are calling more frequently than in past years on custom operators to perform jobs. A producer, whether he is large or small, contracts work done for which he does not have the equipment or the time. This is part of the general movement toward specialization in agricultural production. A vast range of services is being offered by custom operators. They include plowing at $3.50 per acre; use of land plane, $5; discing, $1.50; cultivating, $1.25. From the air, a farmer can have his alfalfa seeded for 4 cents per pound; his cotton dust applied for 3½ cents. He can have his alfalfa baled for $4 per ton; his cotton picked mechanically for about $35 per bale; his dairy cows artificially inseminated for $5 to $7 each. (See Table 6 for more detail.)

COTTON

Arizona's record-breaking cotton crop of 540,000 bales was produced on the largest acreage ever planted to cotton, 373,000 acres, and with the highest yields ever obtained, nearly 700 pounds lint per acre. No state has ever exceeded or closely approached this

annual yield except California and there only in 1940, 1947, and possibly in 1949. The acreages by counties are shown in Table 8. Cotton has had a very important place in the Arizona economy for more than a quarter century. Cotton lint and seed provided 37 per cent of all farm and ranch cash income in Arizona in 1949, compared with 23 per cent in the twenty-five-year period ending with 1948. Cotton accounted for 37 per cent of the acreage of all irrigated crops in 1949, and for 30 per cent in the same twenty-five-year period.

While part of the increased yield may be attributed to a favorable growing season and an especially favorable harvesting season, other factors must not be overlooked. Among these are improved cultural practices, more effective insect control, use of improved seed, and probably also the use of fertilizer. Between 17 and 18 million pounds of insect control materials were applied to the 1949 cotton crop according to Dr. J. N. Roney, Extension Entomologist. This is twice the amount used on the 1947 crop. About 65 per cent of this dust contained 5 per cent DDT and 75 per cent sulphur, and about 15 per cent contained 10 per cent DDT. About three-fourths of the dust was applied by airplane. The remainder was applied early in the season while the plants were small by "ground" application.

Control Program

The permitted acreage in Arizona for 1950 was established at 232,000, based on the 1949 Congressional Act, compared with 373,000 harvested in the previous year. Of course, Congress may increase the acreage allotment. The price is supported at 90 per cent of parity which may produce an average return of about 27 cents per pound lint.

Number of Cotton Farms

The number of cotton farms in Arizona was 2,033 in 1949 according to the State PMA office. Of this number, 650 were in Maricopa County; 644 in Pinal; and 355 in Graham. The average cotton farmer had more acreage of cotton in the late 1940's than he had a decade before. The average acreage of cotton per farm in the state in 1948 and 1949 was 172. By comparison the acreage of short-staple cotton per farm in 1938 and 1939 was 63, although a few of the short-staple cotton farms also grew long-staple cotton in 1938 and 1939. The increase in the size of short-staple cotton operations in the decade is even more striking when county figures are used. For example, acreage per farm in Pinal County averaged 261 acres in 1948 and 1949 compared with 73 acres in 1938 and 1939; Maricopa, 190 compared with 78; Graham, 57 compared with 29; Yuma, 58 compared with 26.

Picking Machines

About one-tenth of Arizona's cotton crop was picked by machine in the 1949-50 season. This harvesting was done with about 140 International pickers. The output per picker in good cotton

was about 8,000 pounds during a ten-hour day or a little more than half a bale per hour. The first mechanical picker arrived in Arizona about 1939. Ten pickers were used on the 1947 crop and between thirty-five and forty on the 1948 crop. The rapid movement toward mechanization of cotton harvesting has been one of the most striking features of Arizona agriculture in 1949. Not only are machines owned by some of the larger producers but custom operators are serving the needs of small and medium-sized farmers.

Defoliation

Substantial acreages of cotton may be defoliated in 1950. Defoliation, according to V. T. Walhood of the U.S.D.A. Experiment Station at Sacaton, accomplishes two purposes: (1) it aids harvesting by making machine harvesting more practical and by attracting hand pickers to the field; (2) by removing leaves, it permits the sun to dry out and open the lower bolls in fields of rank growth. Experimental results show about 90 per cent complete defoliation in 1949.

Crop Insurance

Federal crop insurance is being offered in Pima and Pinal counties in 1950 as a part of the Government's experimental insurance plan. The Pima County plan provides coverage up to $60 per acre in the Flowing Wells area and $74 in the balance of the county at a cost of $3 per acre. In Pinal County the 1950 plan is similar to the 1949 plan. On the average, growers are insured for 266 pounds of lint instead of 251 pounds as in 1949 and the premium rate is 13 pounds of cotton lint. Discounts on premiums are made on larger tracts. The discounts increase with the size of the operation and for 500 acres or more amount to 20 per cent. In the 1949 year, ninety-three cotton contracts covering 28,500 acres were written for Pinal County.

Cost of Production

During the decade of the '40's the cost of harvesting cotton constituted more than 40 per cent of the total cost of producing cotton when no deduction is made for seed return (Figure 2). The harvesting cost was substantially under 40 per cent in the decade of the '30's. The increased cost of harvesting may be attributed to labor scarcity during and following the war, but regardless of cause, the fact that the labor cost did rise has encouraged a shift in the direction of mechanical harvesting. Producers may well look toward harvesting as the place where reductions in cost can be made. Throughout the years the total cost is about the same in all cotton producing parts of the state. High water costs tend to be offset by lower interest and taxes.

It will cost from $105 to $114 to produce a bale of lint on an acre in 1950 according to budget estimates (Table 3). These costs assume conditions that should produce a bale per acre. When higher yields are obtained, there are added costs per acre for

TABLE 3.—COST OF PRODUCING UPLAND COTTON PER ACRE, CENTRAL ARIZONA PUMP AREAS WITH 150- AND 250-FOOT WATER LIFTS, AND SALT RIVER VALLEY WATER USERS' AREA, 1950[a]

	Central Arizona pump areas		Salt River Valley Water Users' area
	Lift 150 ft.	Lift 250 ft.	
Interest, taxes, and water:			
Interest, 5% on $300	$	$	$ 15.00
Interest, 6% on $100	6.00	.....	.....
Interest, 6% on $50[b]	.....	3.00	.....
Land tax	2.50	1.50[c]	3.00
Water, 3¼ acre-feet	.....	.....	12.00
Water, 3½ acre-feet			
Power at 1.1 cents per kwh	12.00	20.00	.....
Other pumping costs[d]	7.50	12.50	.....
Total	$ 28.00	$ 37.00	$ 30.00
Cultural costs:			
Seed	$ 2.25	$ 2.25	$ 2.25
Machinery operation, including machine labor[e]	16.00	16.00	16.00
Hoeing and thinning	6.00	6.00	6.00
Irrigation and ditch labor	5.75	5.75	5.75
Dusting[f]	6.00	6.00	6.00
Production credit and miscellaneous	2.00	2.00	2.00
Crop insurance[g]	4.00	4.00	4.00
Industrial insurance ($3.72 per $100)	2.00	2.00	2.00
Total	$ 44.00	$ 44.00	$ 44.00
Harvest costs (assuming a yield of one bale of 479 pounds net lint from 1,400 pounds of seed cotton):			
Picking at $2.50 per cwt. $35.00			
Weighing cotton and hauling pickers at $ .25 per cwt. 3.50			
Hauling Cotton 1.65			
Ginning 5.60			
Bags and ties 3.25			
Insurance for 20 days and sterilizing seed 1.20			
Less return from 800 pounds cottonseed at $43.00 per ton 17.20	$ 33.00	$ 33.00	$ 33.00
Calculated cost of producing 479 pounds net lint on 1 acre, management not included and no allowance for land depreciation	$105.00	$114.00	$107.00

[a]This table is a budget showing costs on an owner-operated farm, assuming average yields and wage rates as of January, 1950.
[b]Figured only on land for which pump facilities are provided.
[c]Each acre of cropland charged with 2 acres of taxes in this area.
[d]Interest, maintenance, and depreciation on well, pump, and motor.
[e]Plowing; discing twice, once with stalk cutter before plowing and once after; floating; furrowing; planting; dragging or harrowing after planting; and five cultivations.
[f]Sixty pounds of dust containing 5 per cent DDT, 75 per cent sulphur for three applications at 7 cents per pound of dust and 4 cents per pound for application, will cost $6.60.
[g]Federal crop insurance available in Pinal and Pima counties. When no insurance is carried, risk is assumed by grower.

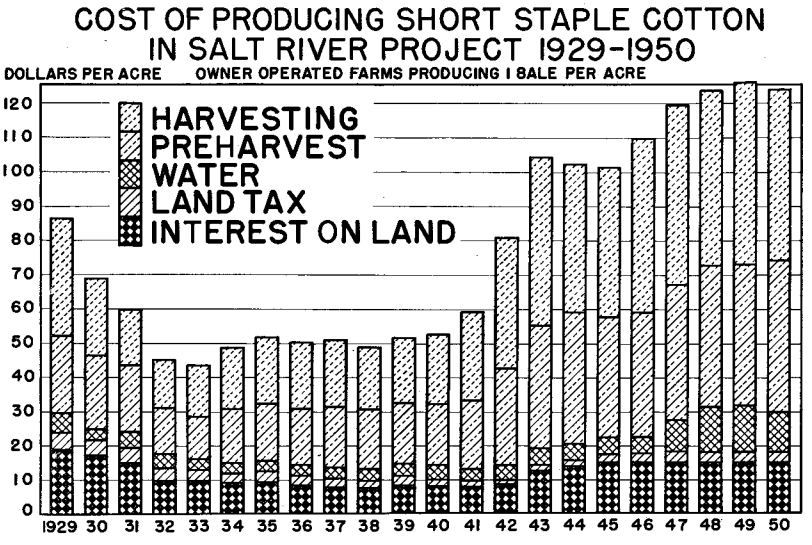

Figure 2.—Total costs of producing cotton have increased from a 1933 cost of $43 per acre to a 1949 cost of $124 per acre before crediting seed return.

more weed control, more water, more dusting, and possibly additional outlays for fertilizer and defoliation. An effort will be made by many producers using some of these devices to get higher yields on the limited acreage permitted in 1950. Picking costs are likely to be lower in 1950 than in 1949. Other costs may remain somewhat the same except where the pumping lift is becoming greater. Where the pumping lift is around 250 feet, electric power alone will amount to about $20 per acre, while interest, maintenance, and depreciation on the well, pump, and motor will cost about $12.50 additional.

Substitute Crops

A major problem for the cotton grower in 1950 is to determine how to use the land thrown out of short-staple cotton production by the government program. In parts of the state where water is plentiful and cost is low the farmers may substitute alfalfa or feed crops. But in areas where water costs are high the finding of a profitable substitute crop is a rather difficult problem. A farmer's decision as to whether to farm the land retired from short-staple cotton depends upon his source of power (gas being cheaper), on his history of yields as compared to county yields, on the actual lift of water in his own well during the pumping season, and on the size and availability of equipment for producing a substitute crop.

There are some good arguments for letting the land lie idle, especially where the pump lift is more than 200 feet. These in-

clude (1) weeds can be controlled; (2) soil fertility can be saved[2]; (3) the manager's energy and machinery can be concentrated on the short-staple cotton crop; (4) an adequate supply of water can be assured for the short-staple cotton; (5) in areas with a falling water table the life of the area for the production of the most profitable crop can be extended provided farmers let part of their land lie idle.

American-Egyptian

American-Egyptian cotton is likely to become an important product in Arizona in 1950 after a period of six years in which the size of this crop has averaged less than 3,000 acres. Greatest crops on record were in 1920 with 200,000 acres and in 1942 with 129,000. The return to long-staple cotton varieties in 1950 results from the government program restricting short-staple cotton acreage and production.

Long-staple cotton has been treated differently in government programs than has short-staple cotton mainly in respect to import restrictions, acreage controls, and support prices. There is an embargo against the importation of short-staple cotton while a substantial amount of long-staple cotton is admitted to U.S. entry every year. Acreage controls do not apply to American-Egyptian cotton in 1950 and American-Egyptian cotton is treated as a "non-basic" commodity with the Secretary of Agriculture authorized to establish a support price anywhere between zero and 90 per cent of parity.

For the 1949 season American-Egyptian cotton was supported at 55.87 cents per pound for No. 2 grade, 1½ inches. If the Secretary fixes the support price at the maximum possible, that is at 90 per cent, the growers may expect an average price of about 50 cents per pound in 1950. If the Secretary should support the price at 75 per cent of parity, this could result in growers getting around 40 cents.

The cotton producer who has well, pump, and motor to furnish plenty of water for a substitute crop on land retired from short-staple cotton will be making out a budget to determine the chance of increasing his return by growing American-Egyptian cotton. The per-acre budget for a farmer in Pinal County pumping water 250 feet with electricity may look something like this.

Cost of electric power (Table 3)		$ 20
Cultural costs, including $2 extra seed cost (Table 3)		46
Harvesting costs:		
for one bale, assuming 1,600 pounds of seed cotton per bale, a $5 picking rate, and an 80 cent ginning rate (also see Table 3)	$83	
for 220 pounds[3]		38
Total cost per acre		$104
Return for 220 pounds net lint		
at 40 cents		$ 88
at 50 cents		$110

[2, 3]For footnotes, see following page.

Under these conditions there would be little or no return to management and there was no interest, depreciation, or maintenance allowed for the well, pump, and motor, no allowance for land depreciation, and no charges for interest or taxes on the land itself.

Now in the five-year period ended with 1949 the United States Field Station at Sacaton obtained a 44 per cent higher yield for "Pima 32" than for SxP or Amsak. If the grower can get Pima 32 seed and can realize 44 per cent larger yield than the average yields of SxP in past years he would increase his harvesting costs from $38 to $55 and would increase his gross returns to $127 at 40 cents per pound, or to $158 at 50 cents.

LIVESTOCK

Beef Cattle

The net movement of cattle out of Arizona amounted to about 280,000 head in 1949 compared with 285,000 in 1948 and a ten-year, 1939-48, average of 335,000. The net marketings in 1949 comprised 305,000 head shipped out of the state and 100,000 head slaughtered, less 125,000 shipped into the state in the year ended June 30, 1949.

Large changes in the prices of top fat steers occurred in 1948 and 1949. Highest prices were paid during August, 1948, around $33 per hundredweight, f.o.b. cars at Arizona loading points. From then until February, 1949, the prices declined to about $21.50. The last several months of 1949 prices remained rather steady, between $25 and $26.

The cattleman's prospects are tied up rather closely with financial prosperity throughout the country. This is especially true of the prices he will receive for quality beef. It appears that cattle numbers are increasing in the United States. Some national policy formers are encouraging this trend. Hog numbers have increased and hog prices have taken a large drop from the 1948 high. On the encouraging side, beef feeders in Arizona have available better valley pasture than a year ago, abundant hay supplies at lower prices, and grain available at lower prices.

The broad extension in the use of a salt-concentrate mixture has greatly changed the supplementary feeding practice on the range. In the use of this mixture, consumption is regulated by the amount of salt an animal will take. The mixture is used in both pellet and meal form.

Sheep, Lambs, and Wool

After a long period of years of declining sheep numbers in Arizona there appears to have been no liquidation of sheep out-

[2]Present per-acre cost of fertilizer necessary to replace the nitrogen and phosphate removed by a half-bale crop of American-Egyptian cotton is $2.80 and a crop of sorghum, $1.80.

[3]The average yield of SxP cotton in Pinal County in the five years 1938, 1939, 1941-43, was 220 pounds. No record is available for 1940 and acreage has been very small since 1943.

fits during the year 1949 although some growers made small reductions in the number handled because they were discouraged by the high price of pasture in the winter of 1948-49. Wool growers moved ewes into central Arizona valleys in the fall of 1949, finding plentiful pastures at a much lowered pasture rate. The daily rate prior to January 1, 1950, was 3 cents for a ewe with lamb compared to about 5 cents a year earlier. Growers reported a very successful lambing season as a result of the good pastures and favorable weather.

The 1949 wool clip from non-Indian owned sheep was sold at an average of 53 cents per pound as provided in contracts arranged before the shearing season. There were no sales of Arizona wool in the latter part of 1949 and growers were expecting to put their 1950 crop in the government loan at 90 per cent of parity which would mean 42 to 46 cents per pound in the grease at shipping point, such wool to grade fine and fine medium. The major portion of the Arizona-produced wool other than that produced by Indian owners falls in these grades.

TRUCK CROPS

Shipment of truck crops from Arizona loading points in the year ended August 31, 1949, amounted to 40,000 carlots compared with 45,000 carlots in the preceding year. Of the 1948-49 shipments nearly 90 per cent moved by rail. The largest volume of the year was in shipments of 1949 spring lettuce, 12,300 carlots from 21,500 acres. The 1948 fall lettuce production was about 9,100 carlots from 21,000 acres. Other vegetable production included cantaloupes, 9,400 carlots from 22,000 acres; carrots, 3,100 carlots from 6,200 acres; 1,600 carlots of watermelons; 1,300 carlots of honeydew melons; 950 carlots of cauliflower; 550 carlots of celery; 343 carlots of cabbage; 190 carlots of broccoli. The shipments of each of the vegetables named above were lower in 1949 than in 1948 except for spring lettuce and cantaloupes.

The 1949-50 vegetable year brought weather problems. A warm fall matured lettuce rapidly and as a result so much went to market that prices dropped to an unprofitable level. Growers responded by plowing up part of their acreage. The unusually cold weather in mid-December in the Salt River Valley reduced and delayed winter vegetables.

ALFALFA AND FEED GRAINS

The 1949 harvested acreage of alfalfa hay of 201,000 acres represents the first upward movement in acreage since 1944. Dry years and the competition for the land from cotton and other cash crops tended to greatly restrict the acreage of this crop. The cotton acreage restriction program may encourage further plantings of alfalfa, especially in the 1950-51 season.

The price of No. 1 baled alfalfa in the Salt River Valley dropped during the year from about $34 per ton in January, 1949, to $23 in January, 1950. Much good hay was sold in the summer of 1949 for $15 to $17. The cost of producing an acre of alfalfa where

TABLE 4.—COST OF PRODUCING ALFALFA PER ACRE, SALT RIVER VALLEY WATER USERS' AREA AND CENTRAL ARIZONA PUMP AREAS WITH 100- AND 200-FOOT WATER LIFTS, 1950[a]

	Salt River Valley Water Users' area	Central Arizona pump areas	
		100-ft. lift	200-ft. lift
Interest, taxes, and water:			
Interest, 5% on $300	$ 15.00	$	$ .....
Interest, 6% on $200	.....	12.00	.....
Interest, 6% on $ 50	.....	.....	3.00
Land tax	3.00	3.00	1.00
Water (4 acre-feet, electric power at 1.1 cents per kwh)	15.00	15.00	30.00
Total	$ 33.00	$ 30.00	$ 34.00
Cultural costs:			
One-fourth of seed cost	$ 1.65	$ 1.65	$ 1.65
One-fourth of land preparation and planting cost	4.25	4.25	4.25
Irrigation and ditch labor	6.80	6.80	6.80
Industrial insurance	.30	.30	.30
Total	$ 13.00	$ 13.00	$ 13.00
Harvesting costs:			
Mowing and raking—four cuttings[b]	$ 9.00	$ 9.00	$ 9.00
Baling — 4 tons	16.00	16.00	16.00
Total	$ 25.00	$ 25.00	$ 25.00
Total cost per acre, through harvest	$ 71.00	$ 68.00	$ 72.00
Total cost per ton	$ 17.75	$ 17.00	$ 18.00

[a]These calculations represent anticipated costs during 1950 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.

[b]Based on prevailing custom rates.

4 tons are produced in four cuttings is estimated to be between $68 and $72 in 1950 (Table 4).

Principal feed grains produced in Arizona included about 131,000 tons of barley from 136,000 acres, and 75,000 tons of grain sorghum from 78,000 acres harvested for grain. This was a substantial reduction in the production of these two crops from the preceding year, but even so it is estimated that $2,000,000 worth of barley and about 50,000 tons of grain sorghum were put into the government loan. The cost of growing barley and grain sorghums in the Salt River Water Users' area in 1950 will be about $53 per acre (Table 5).

CITRUS

Yuma Mesa has had a substantial advantage in the production of Arizona citrus in the seasons 1947-48, 1948-49, and 1949-50. Although its grapefruit acreage is only one-ninth of the state's total, it produced 57 per cent of the 1948-49 Arizona grapefruit for the fresh market. Its warmer climate was an asset in the three years when Maricopa County citrus crops were greatly damaged by cold and especially in the 1948-49 season when even the trees in the competing Texas area were severely damaged.

TABLE 5.—CALCULATED COST OF PRODUCING BARLEY AND GRAIN SORGHUMS PER ACRE UNDER SINGLE-CROP PLAN, SALT RIVER VALLEY WATER USERS' AREA, 1950[a]

	Barley	Grain sorghums
Interest, taxes and water:		
Interest, 5% on $300	$ 15.00	$ 15.00
Land tax	3.00	3.00
Water (2½ acre-feet for barley; 2¾ for sorghum)	9.25	10.15
Total	$ 27.25	$ 28.15
Cultural costs:		
Cost of seed	$ 2.50	$ .35
Plowing	3.50	3.50
Discing and dragging	3.00	3.00
Bordering	.50	.50
Discing, harrow attached	1.75	1.75
Drilling or planting	1.50	1.50
Irrigation labor and ditch work	3.75	3.75
Cultivating	.....	2.00
Total	$ 16.50	$ 16.35
Harvesting costs[b]:		
Combining	$ 6.00	$ 6.00
Hauling (15-20 miles)	3.00	3.00
Total	$ 9.00	$ 9.00
Total cost per acre	$ 52.75	$ 53.50
Cost per ton	$ 42.20	$ 42.80

[a]These calculations represent anticipated costs during 1950, assuming a yield of 2,500 pounds of grain per acre. No item is included for management, farm automobile, fencing, or for land depreciation. No income is credited for pasture.

[b]Figured on bulk basis. Where sacks are used, there will be an additional cost of $6.00 per acre, offset in part in additional price received by the producer.

Lands producing Arizona citrus were in the hands of 1,354 owners in 1949, of which 1,250 properties were in Maricopa County, eighty-eight in Yuma, fourteen in Pima. The tree survey completed early in the year showed that the citrus was divided as follows: grapefruit, 10,300 acres of which 98 per cent was white seedless and 1½ per cent pink meated; Valencia oranges, 4,144 acres; navel oranges, 3,140 acres; miscellaneous sweet oranges, 814 acres; tangerines, 266 acres.

Salable production of the 1948-49 crop in Arizona was severely reduced by the freeze. The equivalent of about 1,800,000 packed boxes of grapefruit was harvested, compared with the normal crop which runs in excess of 3,000,000 boxes. Of the grapefruit, about half was sold as fresh fruit and half processed. Orange sales totaled 710,000 boxes. A larger than usual part of the harvested oranges went to the cannery.

The 1948-49 return per packed box of fresh fruit, "on tree" basis, was twice that of the preceding year for both oranges and grapefruit—$.85 for grapefruit and $3.40 for oranges. That por-

TABLE 6.—RATES CHARGED FOR CUSTOM OPERATIONS CENTRAL ARIZONA, 1949

Operation	Unit	Rate	
		Range	Most common
		(dollars)	(dollars)
Land preparation, tillage, and crop care			
Plowing	Acre		3.50[a]
Land planing (twice)	Acre	4.50-5.00	
Renovating	Acre	2.25-4.00	2.50
Subsoiling	Acre	4.50-6.00	
Discing	Acre	1.50-2.50	1.50
Dragging	Acre	1.50-2.50	1.50
Bordering	Acre		.50
Side fall floating	Acre		1.50
Harrowing	Acre		.75
Furrowing out	Acre	1.10-1.25	
Planting—vegetables, cotton, sorghum	Acre		1.25
Broadcast seeding	Acre		.50
Drilling	Acre	1.50-1.75	1.50
Dusting by ground machine	Acre		.75
Fertilizing cotton	Acre	1.00-1.50	
Cultivating	Acre	1.00-1.25	1.25
Operations by airplane			
Seeding alfalfa	Cwt.	3.00-4.00	4.00[b]
Seeding small grains	Cwt.		1.00[c]
Dusting cotton	Cwt.	3.50-4.00	3.50
Dusting vegetables	Cwt.	3.50-5.00[d]	
Spraying	Acre	1.30-3.00[e]	
Fertilizing	Acre	1.00-1.80[f]	
Harvesting			
Combining barley, wheat	Acre		6.00
Combining sorghum	Acre	6.00-7.00	
Baling hay	Ton	3.75-4.00	4.00
Cutting sorghum for silage	Ton		.90
Picking cotton (mechanical)	Cwt.	2.30-2.55[g]	
Trucking			
Hay and grain	Ton	1.75 up to 5 miles .05 additional per mile up to 25 miles .03 additional per mile 25 to 50 miles	

[a]For average plowing. Deep plowing up to $15 per acre.
[b]Minimum of $ .60 to $1.00 per acre.
[c]Minimum of $1.00 per acre.
[d]Minimum of 15 acres.
[e]Rates vary with rate of application from 4 to 15 gallons per acre.
[f]One cent per lb. for 100 lb., ¾ cent for 200 lb., .6 cent for 300 lb. and over.
[g]Cotton picked twice and hauled to gin. Higher rate includes defoliation.

tion of the 1949-50 crop of Arizona citrus that escaped freeze damage is likely to bring good prices.

SUGAR BEET SEED

For fifteen years Arizona has been the leading state in the production of sugar beet seed. It is still retaining that position but

TABLE 7.—PRICES FOR AGRICULTURAL PRODUCTS IN ARIZONA JANUARY, 1950, WITH COMPARISONS

Commodity	January 1950[a]	Average January price 1925-39 adjusted to the January, 1950, value of the dollar[b]
Milk[c] (per lb. fat)	$ 1.45	$ .97
Beef cattle[d] (per cwt.)	25.20	14.60
Lambs (per cwt.)	21.20	15.70
Cotton (per lb.)	.29[e]	.24
Cottonseed (per ton)	45.00	41.00
Grain sorghum (per cwt.)	2.20	2.10
Alfalfa hay[f] (per ton)	23.00	23.00
Eggs (per doz.)	.60	.68
Barley (per cwt.)	2.19	2.60

[a]Figures were latest available on January 10, 1950.
[b]The reported farm price for the fifteen-year period was multiplied by 1.78. This factor represents the change in the buying power of the dollar from the period 1925-39 to January, 1950. Reported farm prices on the fifteenth of the month from the Bureau of Agricultural Economics except as otherwise noted.
[c]Grade A, delivered to creameries in the Salt River Valley.
[d]Top fat steers at Phoenix, from Central Arizona Cattle Feeders' Association.
[e]For average quality produced during the year.
[f]Arizona No. 1, baled at the ranch in the Salt River Valley.

the importance of the industry has been on the decline since 1948. Planted for harvest in 1950 was 1,260 acres, all in the Salt River Valley, none being grown in the Safford area and none in New Mexico. New Mexico has been an important producer for a good many years. In 1949, 2,278 acres were harvested in the Salt River Valley and 444 acres in the Safford area. The yield in the Phoenix area was 4,073 pounds per acre and in the Safford area, 2,956 pounds, making a total production for Arizona of 10,560,200 pounds.

The 1949 price was 14½ cents and the 1950 price on contract, 14 cents. The waning importance of sugar beet seed from an acreage standpoint has been due in part to the very high yields and also to increased efficiency in the use of seed because of the processes of shearing and decorticating.

FLAXSEED

Thirty-eight thousand acres of flaxseed was produced in Arizona in 1949. Of this, 23,000 was produced in Yuma County and 14,000 in Maricopa County. The total acreage was the same as that of the preceding year. The ten-year, 1939-48, average acreage was 18,000. A rapidly falling price of flax is forcing established growers to make downward adjustments in acreage. In the year 1948, growers received about $6.50 per bushel for their flax; in 1949, $3.85 per bushel; and in 1950 are expecting to depend upon the government support price which the Secretary has announced to be 60 per cent of parity, or about $2.60 per bushel.

TABLE 8.—PRINCIPAL ARIZONA CROPS IN 1949—ACREAGE BY COUNTIES AND PRODUCTION FOR THE STATE

	State totals[a]	Apache	Cochise	Coconino	Graham	Greenlee	Maricopa	Navajo	Pima	Pinal	Yavapai	Yuma
Acres irrigated[bc]	1,000,000	13,000	30,000	3,000	35,000	6,000	475,000	8,000	30.000	280,000	11,000	100,000
Alfalfa: acres	201,000	4,300	2,000	700	5,200	800	127,000	2,300	2,900	18,500	4,000	31,500
Tons cut for hay	543,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cotton: acres[d]	373,000	.....	13,000	.....	22,000	2,200	133,000	.....	21,000	174,000	.....	5,600
Bales of cotton [bd]	540,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Feed grains												
Barley: acres	136,000	900	400	300	3,400	200	99,000	400	2,900	19,000	1,200	7,300
Tons of grain	131,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Corn: acres	35,000	9,500	1,000	3,600	700	500	1,200	13,000	1,500	800	800	100
Tons of grain	12,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grain sorghum: acres	78,000	200	3,500	200	700	600	56,000	300	3,500	10,000	300	2,000
Tons of grain	75,000[e]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wheat: acres	28,000	900	600	1,700	800	200	13,100	1,400	800	4,400	700	1,500
Tons of grain	21,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dry edible beans: acres	12,000	700	700	7,400	.....	.....	100	900	200	200	1,600	.....
Tons harvested	2,700	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Truck crops: acres[bf]	100,000	.....	2,200[g]	.....	500	.....	60,000	.....	1,700	1,600	.....	30,000
Cars shipped[bf]	40,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Flax: acres	38,000	.....	.....	.....	.....	.....	13,900	.....	200	900	.....	23,000
Tons harvested	27,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grapefruit: acres[b]	10,000	.....	.....	.....	.....	.....	8,900	.....	40	.....	.....	1,034
Tons sold[bf]	63,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oranges: acres[b]	9,200	.....	.....	.....	.....	.....	8,600	.....	60	.....	.....	500
Tons sold[bf]	26,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lemons: acres	850	.....	.....	.....	.....	.....	640	.....	6	.....	.....	200

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 the Department of Agricultural Economics, University of Arizona.

[c] Figures represent both irrigated crops and irrigated pasture. Acreage double cropped is counted but once. In addition, it is estimated that dry-land crops were harvested from approximately 65,000 acres. Hence the figures on this line do not represent crop acreage totals.

[d] Includes American-Egyptian cotton, 2,000 acres in Graham County, 700 acres in Maricopa, 100 acres in Pinal, and 100 acres in Pima, with a production of approximately 1,700 bales.

[e] Does not include grain in 17,000 acres harvested for silage and forage.

[f] Year ended August 31, 1949.

[g] Includes 1,700 acres of chili.