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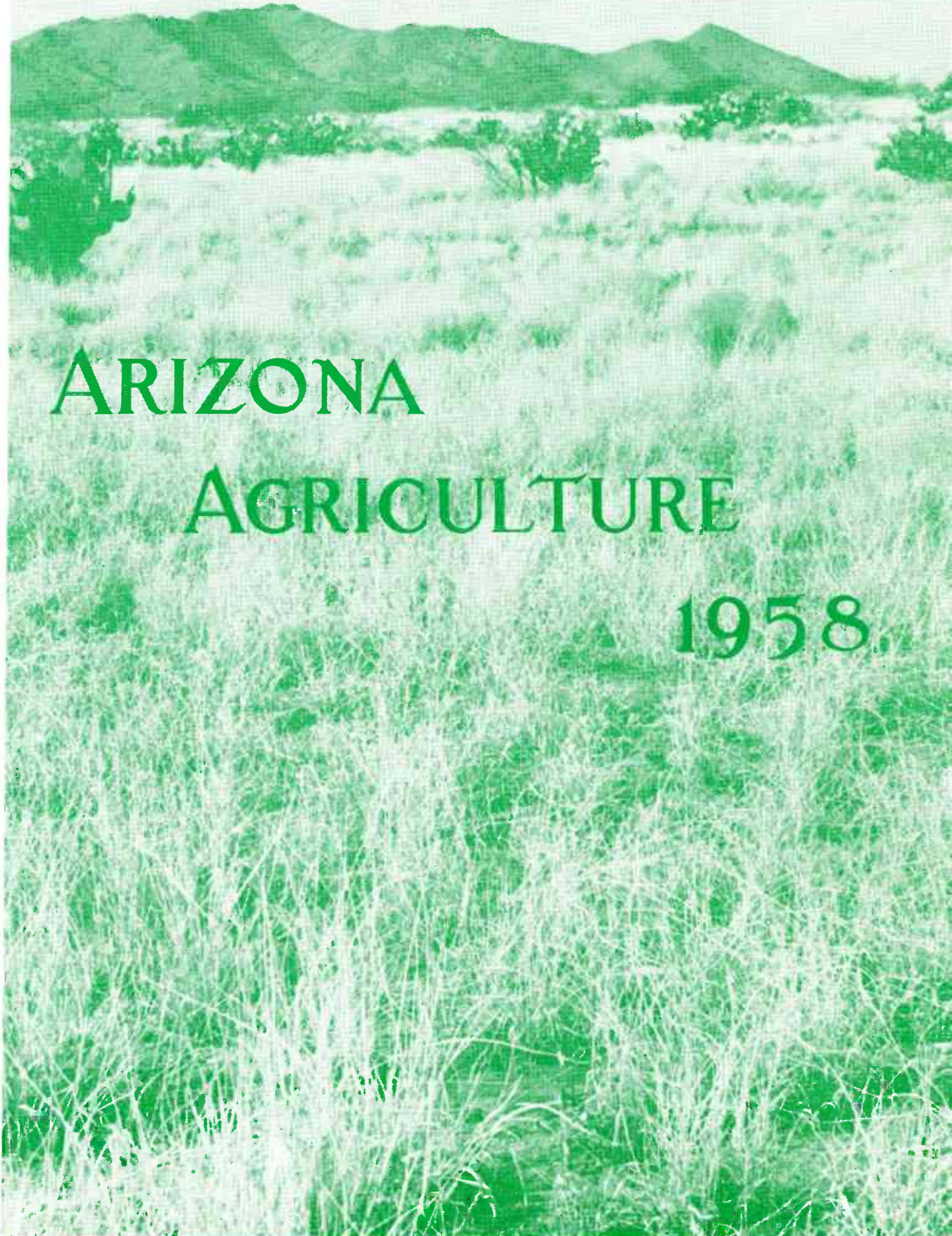

ARIZONA AGRICULTURE 1958

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OUR COVER PICTURE, *by Dr. R. R. Humphrey of the University of Arizona's Department of Agronomy & Range Management, shows a view of grassland near Congress Junction in Yavapai County.*

ARIZONA AGRICULTURE 1958

PRODUCTION, INCOME, COSTS

by

Raymond E. Seltzer[1]

Arizona's cash agricultural income of $398 million in 1957 was the second highest on record, exceeded only by the $410 million in 1952. Higher prices for cotton, cattle and citrus, together with a substantial increase in government payments under the Soil Bank, combined to provide the increase of $18 million over the 1956 income.

Arizona's position as a cotton and cattle state was emphasized in 1957, these two commodities accounting for just over 50 per cent of the total cash agricultural income. Cotton and cottonseed sold were valued at $166 million, up a million dollars from 1956. The gain was entirely due to higher prices, since production was slightly lower in 1957 than in 1956. Income from the sale of cattle and calves, after deducting the value of inshipments, amounted to $85 million, up $11 million from the previous year. Again, higher prices, coupled with heavier weights, brought about the increase.

Income from vegetables was lower, reflecting the reduction in value of lettuce due to market conditions during the late fall. Decreased cantaloup production was the result of the serious disease situation.

The value of commercial feed grains ($16 million) was slightly lower than in 1956, as the result of lower prices. Values of other major products were: dairy products $20.5 million, and alfalfa and other hay $12.5 million (Table 1). Income from federal government payments increased substantially in 1957 as the result of payments made under the Soil Bank program. Payments under the Soil Bank amounted to $6.3 million, and conservation payments were $1.6 million for a total of $7.9 million.

AGRICULTURAL PRICES

Prices received by Arizona producers for cotton, beef cattle and wool were higher in 1957 than in 1956 (Table 2). Prices of hay and feed grains were generally lower than in 1956, and there was little change in prices of milk and eggs.

Figure 1 shows the relative levels of prices for these commodities for 1957, 1956, and the period 1947-1956. Only cotton and alfalfa hay were above the 10-year average in 1957. On the other hand feed grains, cattle, and wool were substantially below the 10-year average price.

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1) Head, Department of Agricultural Economics, and assisted by members of the department. This is the 28th consecutive annual agricultural summary issued by the University of Arizona.

DEVELOPMENTS IN COCHISE COUNTY

One of the most significant developments now taking place in Arizona's agriculture is the development in the production and packing of lettuce and other vegetables in the Bowie-Willcox area of Cochise County.

TABLE 1. VALUE OF CROPS AND LIVESTOCK PRODUCED IN ARIZONA FOR SALE (MILLIONS OF DOLLARS).

COMMODITY	1957	1956	Average 1947-56
Cotton lint and cottonseed	$166.0	$165.0	$140.0
Cattle and calves	85.0	74.0	59.9
Vegetable crops[a]	58.0	61.0	49.8
Commercial feed grains[b]	16.0	18.0	12.6
Dairy products	20.5	18.0	14.0
Alfalfa and other hay[b]	12.5	14.0	11.8
Sheep, lambs, and wool	5.5	5.0	5.1
Citrus fruits	7.5	5.0	3.6
Eggs, chickens, and turkeys	5.0	4.0	5.0
Seed crops	3.5	4.0	3.8
Miscellaneous crops	8.5	8.0	8.4
Miscellaneous livestock and livestock products	2.1	2.0	2.0
Federal government payments	7.9[c]	2.0	1.6
Total Value	$398.0	$380.0	$317.6

a. Year ended August 31, 1957.

b. In addition to the quantities of the 1957 crop sold or to be sold, hay produced and fed by Arizona farmers and ranchers had an estimated value of 6.5 million dollars and grain crops and silage produced and fed by Arizona farmers and ranchers had a value of 7.0 million dollars.

c. Includes Agricultural Conservation Payments $1,579,000, Soil Bank payments—Acreage Reserve $6,200,000, and Conservation Reserve $120,000.

TABLE 2. PRICES OF MAJOR ARIZONA AGRICULTURAL PRODUCTS, 1947-56, 1956, AND 1957.[a]

COMMODITY	UNIT	PRICE 1947-56	PRICE 1956	PRICE 1957
Upland Cotton[b]	lb.	$ .3423	$ .3360	$ .3530
Alfalfa Hay[c]	ton	26.13	27.50	27.00
Barley[d]	cwt.	2.54	2.37	2.29
Grain Sorghum[e]	cwt.	2.62	2.40	2.10
Choice Slaughter Steers[fg]	cwt.	26.64	20.90	22.72
Milk (Grade A)[g]	cwt.	5.24	5.45	5.37
Eggs[g]	doz.	.523	.52	.51
Wool[g]	lb.	.499	.415	.46

a. Federal Crop and Livestock Reporting Service, except as otherwise noted.
b. Sept.-Dec. average.
c. Apr.-Dec. average.
d. June-July average.
e. Oct.-Dec. average.
f. Department of Agricultural Economics, University of Arizona.
g. 12-month average.

Although the major interest in this area of Cochise County is in lettuce production, other vegetable and melon crops such as carrots, potatoes, onions, celery, and cantaloup are also being planted on a trial basis.

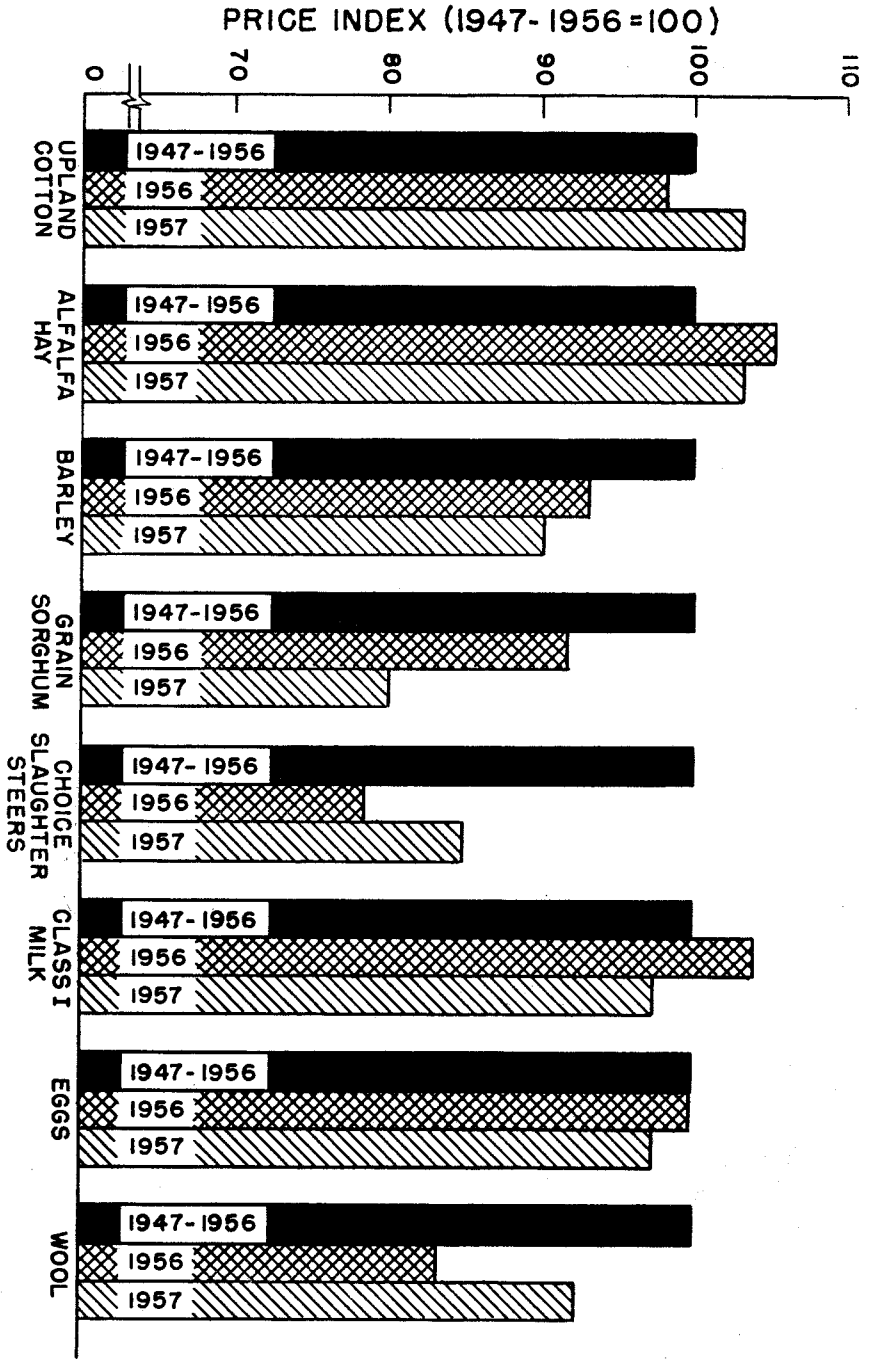

Figure 1. *Indexes of prices of major Arizona agricultural commodities,* 1957, 1956, *and average* 1947-1956.

Producers' experience with lettuce in Cochise County during 1957 was excellent. Quality was exceptionally good, yields were high, and the lettuce brought a very attractive price. Timing of production of lettuce in this area enables producers to have lettuce available for harvest, in both the late spring and early fall, at a time when lettuce is in relatively short supply. The spring crop comes in just at the end of the spring season in the Salt River Valley and just before the Salinas harvest has reached much volume. In the fall, Cochise lettuce comes in at the close of the Salinas season and just before the Salt River Valley fall harvest reaches volume. In 1957 the Cochise lettuce harvest ran from May 11 to June 4 in the spring and from September 12 to November 9 in the fall.

Most of the lettuce plantings will be in the Kansas Settlement area. Large grower-packer-shipper companies already well-established in other Arizona and California lettuce-producing areas are moving in and buying and leasing land for vegetable production. So far, about 12 such companies are represented. These large growers expect to plant from eight to ten thousand acres of lettuce in this area for the fall of 1958.

One vacuum cooling plant is now located at Willcox. One additional plant, and possibly two, will be in operation this year. The Southern Pacific railroad is building a spur track into an area now being cleared for office and warehouse space. One company is just completing a labor camp to house 1,400 braceros and other camps are planned. Fertilizer and insecticide companies are locating in the Willcox area and a new subdivision to include 100 to 200 homes is now being developed.

A smaller producing area is located in the vicinity of Bowie. Here the situation is quite different in that the acreage is being planted by relatively small local producers who will then contract with a packer to pack and sell their crop.

The irrigated areas in Cochise County are not classified as critical water areas. Lifts vary from 120 to 250 feet and most of the water is of good quality. However, increased pumping hastens the rate of decline in the water table, now going down about seven to eight feet per year. Vegetables are high-value crops and the lift is still relatively shallow, so it does not appear that water will be a limiting factor in the growth of the vegetable industry in this area in the near future.

The future of Cochise County as a vegtable producing area may well depend on the results of the 1958 fall lettuce crop. If results are good, there is every reason to believe that Willcox may become a major vegetable producing center.

LAND VALUES

Prices for irrigated land in Arizona continued at inflated values. Commercial farming land in the Salt River Valley sold at approximately $1,000 per acre during 1957. Land in the older developed areas

at Yuma was bringing around $750 per acre, while farms in the newer areas sold for about $400 per acre.

In Pinal County, pump land sold for $300 to $400 per acre, with the price depending on the pumping lift and the cotton acreage allotment for each particular farm. The value of the cotton acreage allotment has been capitalized into the value of the land to the point where the prospective purchaser is really bidding for an allotment rather than for the land itself.

WATER

Arizona's irrigated agriculture used about 6,100,000 acre-feet of water during 1957. Of this amount, approximately 2,100,000 acre-feet came from water stored in dams and other reservoirs, and 4,000,000 acre-feet was pumped from underground sources.

Pump lift for ground water during 1957 averaged about 275 feet for the state as a whole. This compares with a lift of 270 feet in 1956. The average lift in Maricopa County in 1957 was about 260 feet, and in Pinal County 335 feet. Pump lifts in other areas varied from 50 feet to 350 feet during 1957.

Rainfall during 1957 averaged 14.93 inches for the state of Arizona. This compares with 6.19 inches in 1956 and 11.52 inches for the period 1946-1955. The 1957 rainfall exceeded any year during the past twelve years.

Usable stored water at the end of 1957 was more plentiful than on the same date in 1956, but except for the Colorado River was slightly below the long-time average.

Reservoir	December, 1957	December, 1956	Long-time-Avg.
	acre-feet	acre-feet	acre-feet
San Carlos Reservoir (Gila)	57,980	0	111,500 (28 yrs.)
Combined storage, Salt and Verde Reservoirs	456,100	210,600	577,400 (47 yrs.)
Lakes Mead and Mohave	22,459,000	13,459,000	17,740,000 (22 yrs.)

Attempts to increase available runoff from Arizona's watersheds were stepped up during the year. The report of the Arizona Watershed Project, "Recovering Rainfall," edited by George W. Barr, created a great deal of interest in this state. A Watershed Management Division was created in the State Land Department, and the U. S. Forest Service increased its emphasis on watershed development.

SOIL BANK AND CONSERVATION PAYMENT PROGRAMS

During 1957, a total of $6,320,000 was paid to Arizona farmers under the Soil Bank. The Acreage Reserve accounted for $6,200,000 of this amount, average payment per farm being $6,200. Approximately 45,000 acres of cotton went into the Acreage Reserve at a payment rate of about $138 per acre. The Conservation Reserve of the Soil Bank was used only in northern Arizona. Fifty-eight agreements with payments totaling about $120,000 were made. The average payment was at a rate of $12 to $15 per acre and averaged just over $2,000 per farm.

Payments for conservation practices totaled $1,579,000 in Arizona in 1957. As in previous years, irrigation ditch lining, land leveling, and stock water development were the practices claiming the largest share of such payments.

Probably 1958 will be the last year of the Acreage Reserve part of the Soil Bank. Increased emphasis is being given to the Conservation Reserve. However, it is doubtful that Conservation Reserve payments will be high enough to attract any irrigated acreage in Arizona, so they likely will continue to apply mainly to northern Arizona. Beginning in 1958 a Soil Bank base will be established for each farm which takes part for the first time in the Conservation Reserve. The base will be the average acreage planted to grain and row crops during 1956 and 1957. Farmers participating will be required to reduce their acreage of Soil Bank base crops by the number of acres they put into the Conservation Reserve.

COTTON

Upland Cotton

Upland cotton yields in Arizona continued their phenomenal increase of recent years and again apparently set new world records.

Estimated upland cotton yield in Arizona for 1957 is 1,156 pounds of lint per acre. This compares with 1,130 pounds in 1956, and a 1946-55 average of 736 pounds. Unusually heavy rains during October, November, and December resulted in some loss in prospective yield due to some rotting of bolls and shedding of lint. However, the most serious effect of the wet weather was reflected in lowering of grades due to spotting and discoloration. Ginnings to December 1, 1957 show the following qualities compared to a year ago:

Grade	Per cent of 1957 crop to December 1	Per cent of 1956 crop to December 1
Strict Middling and Higher	15.4	25.4
Middling	39.1	48.3
Strict Low Middling and Lower	37.2	19.5
Spotted or Gray	8.3	6.8

Staple lengths during 1957 have averaged approximately the same as for 1956. Total 1957 production of upland cotton in Arizona is expected to be 755,000 bales, compared to 802,400 bales in 1956. The decreased production was the direct result of decreased acreage, 313,500 acres estimated as harvested in 1957 and 339,800 acres harvested in 1956. Arizona's upland cotton acreage allotment for 1958 is 367,572 acres, up about two per cent from the 1957 allotment of 360,892 acres. This compares with a slight decrease in the national upland cotton acreage allotment, 17,554,528 acres for 1958 and 17,585,463 acres in 1957.

Prices during 1957 were generally above Commodity Credit Corporation loan levels with the result that very little Arizona cotton from the 1956-57 crop went into the loan. The following data show Commodity

Credit Corporation loan activity for Arizona cotton during the past three years.

Year	Loans	Repayments	Outstanding
	(bales)	(bales)	(bales)
1955	320,193	109,614	210,579
1956	161,612	100,497	61,115
1957	12,220	7,158	5,062

As a result of the shortage of the better quality cotton throughout the United States, attractive prices were paid for the better qualities, but lower qualities were discounted. Arizona price December 13, 1957, for Strict Middling 1 1/16 inch cotton was 37.22 cents per pound compared to 35.73 for the same period in 1956. The 1957 price of Middling 1 1/16 inch was 36.32 cents compared to 35.28 for 1956. However, the 1957 price of Strict Low Middling was 32.07 cents compared to 33.78 for 1956.

American-Egyptian

The American-Egyptian cotton crop for Arizona is estimated at 45,000 bales, compared with 26,600 bales in 1956 and an average (1946-1955) production of 18,400 bales. Acreage harvested in 1957 is estimated at 36,500 compared to 18,200 in 1956 and the 10-year average of 20,000 acres. The crop got a poor start and yields dropped to 592 pounds per acre, more than 100 pounds less than the 1956 yield of 699 pounds, but 43 per cent higher than the 1946-55 average of 415 pounds.

The 1958 acreage allotment has been set at 35,050 acres, slightly lower than the 1957 allotment of 36,657 acres.

As was true with upland cotton, wet weather reduced the quality of the 1957 American-Egyptian crop. Ginnings to December 1, show the following qualities compared to a year ago.

Grade	Per cent of 1957 Crop to December 1	Per cent of 1956 Crop to December 1
No. 1 & 2	9.8	35.7
No. 3	29.7	44.4
No. 4	33.3	15.4
No. 5 & lower	27.2	4.3

Very little of Arizona's American-Egyptian cotton was placed in Commodity Credit Corporation loan during 1957. Only 22 bales went into the loan in 1957. This compares with 485 bales in 1956 and 11,492 bales in 1955. During 1957 New Mexico put 1,412 bales into the loan and Texas 593 bales.

During 1957 the secretary of agriculture was authorized to sell 50,000 bales of American-Egyptian cotton out of the Defense Department stockpile at a price of not less than 110 per cent of parity. The remaining 220,000 bales may be disposed of in a similar manner over a five-year period, but no more than 53,000 bales can be sold in any one year.

The Supima Corporation continued its success in promoting the use of American-Egyptian Pima S-1 cotton. Assessments of three dollars per bale were collected for this purpose. The corporation's efforts have been well received by the textile trade and demand for this cotton has grown.

Costs of Production

Costs of production continue to edge upward (Figure 2). It is estimated that the cost of growing and harvesting a two-bale crop of cotton during 1958 will be $172.55 compared to $165.00 in 1957 (Table 3). Adding to this total the cost of water gives a total cost per acre of $186.80 in the Salt River Project, $204.55 for 200-foot-lift pump areas, and $228.55 for 350-foot-lift pump areas. Even with these higher costs, returns for land and management for growing cotton are still very attractive.

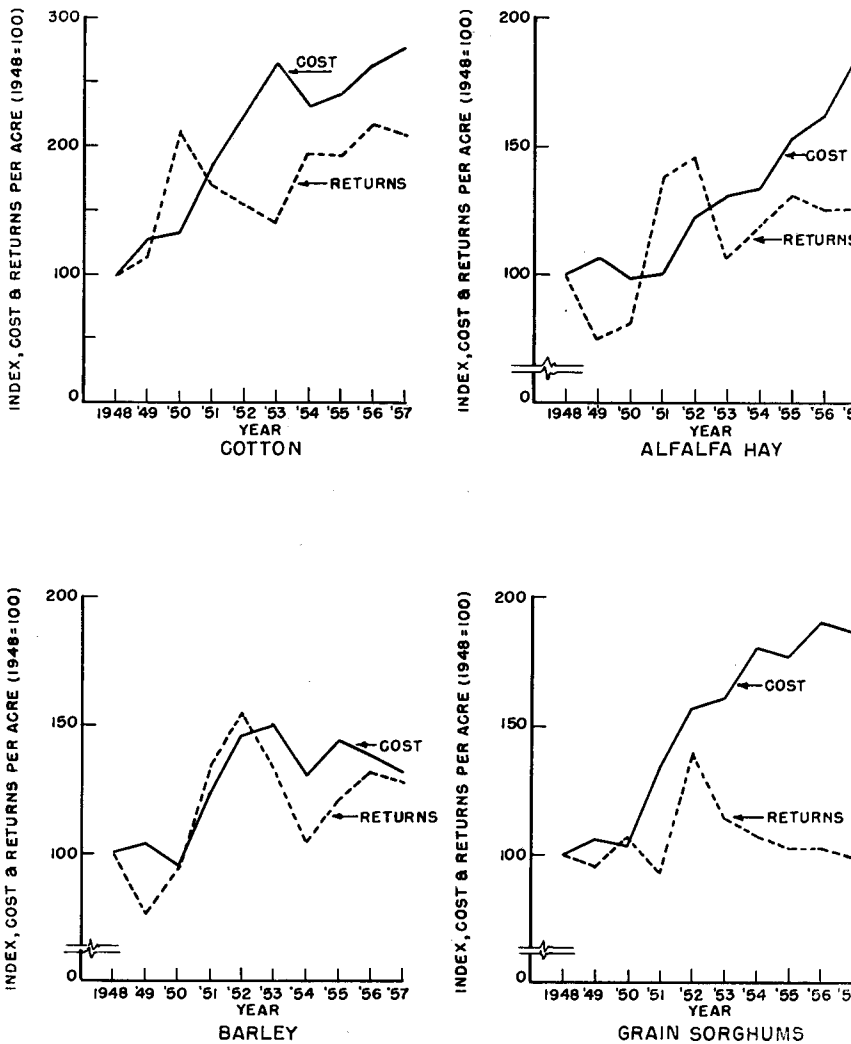

Figure 2. Comparative costs and returns per acre from Arizona's major field crops, 1948-1957.

TABLE 3. COST OF PRODUCING UPLAND COTTON PER ACRE, ARIZONA, 1958.[a]

ITEM		Salt River Project	Arizona pump areas	
			200′ lift	350′ lift
PREHARVEST COSTS				
Land preparation	$11.50			
Seed (20 lbs.)	2.20			
Planting	1.75			
Cultivating	7.00			
Hoeing and thinning[b]	13.00			
Irrigation and ditch labor	8.00			
Fertilizer and application[c, e]	21.50			
Insecticide and application[d, e]	16.00			
Production credit	4.10			
Industrial insurance and Social Security	2.00	$ 87.05	$ 87.05	$ 87.05
HARVEST COSTS, net after seed credit				
Per bale				
Hand picking at $3 per cwt.	$43.50			
Contracting, 30-35c per cwt.[f]	5.00			
Hauling	1.75			
All ginning services (including drying, lint cleaning, insurance and 20 days storage) 14.5 cwt. at $1 per cwt.[g]	14.50			
Seed credits deductible, 800 lbs. at $55 ton	—22.00			
	$42.75			
For two-bale yield		$ 85.50	$ 85.50	$ 85.50
WATER, "out-of-pocket" cost only, 4 acre-feet		14.25[h]	21.00[i]	37.00[i]
TOTAL DIRECT COSTS		186.80	193.55	209.55
INTEREST AND DEPRECIATION on pump and well		———	11.00	19.00
TOTAL COST EXCEPT FOR land and management		186.80	204.55	228.55
RETURN FOR LAND AND MANAGEMENT (difference between cost and expected return)		163.20	145.45	121.45
TOTAL RETURN for 2-bale yield at 35c per pound		$350.00	$350.00	$350.00

a. Cost of machine operation based primarily on custom rates.
b. Varies depending on weed condition.
c. For 100 lbs. N. and 50 lbs. P_2O_5.
d. For 100 lbs. dust containing DDT, Toxaphene and sulphur at 14.5c per lb. and allowance for application.
e. The amounts of fertilizer and insecticide shown are not necessarily recommendations by the University, but rather are estimates of average amounts actually used by Arizona farmers.
f. Including Social Security on picking.
g. Plus voluntary deductions of 20c per bale for National Cotton Council and 10c per bale for Arizona Cotton Growers Ass'n. In areas infested by pink bollworm, a sterilization charge of 40c per bale must be added.
h. Includes: minimum 2 A/F at $1.50 per A/F; excess SD & NF, 1 A/F at $3.75 and pump right, 1 A/F at $7.50.
i. Electricity figured at 1c per kwh or 26 per acre-foot per foot of lift. See *Arizona Agriculture* 1954 pp. 3 and 4.

NOTE: Cost of Producing Pima S-1 Cotton—Same as above except for a net harvest cost estimated for 1.2 bale yield as follows: Hand picking, including contracting, $5.50 per cwt.; hauling, $2.00 per bale; all ginning services $25.60 per bale plus $3 per bale voluntary contribution to the Supima Corp.; less seed credits, $28.00 per bale.

A study of skip-row growing of cotton (plant four rows and skip four rows) showed an increase in growing costs of skip-row over solid-planted cotton of $41 per acre, or about 40 per cent.[2] On the basis of this

study, skip-row planting of cotton is profitable where a yield increase of one-half bale or more is possible and where no profitable alternative crops exist.

An outbreak of pink bollworm in eastern Arizona during 1957 resulted in the quarantine of Graham, Greenlee, Cochise, Pima, and Santa Cruz Counties.

HAY, GRAIN, AND SILAGE

Alfalfa Hay

Acreage and production of alfalfa hay were lower in 1957 than in 1956. In 1957 some 611,000 tons were produced from 191,000 acres compared to a production of 657,000 tons from 212,000 acres in 1956. Hay prices were nearly comparable this year and last. The 1957 at-the-farm price averaged $27 per ton and the 1956 price average $27.50.

Approximately 37 per cent of the hay produced in Arizona is fed on the farm or ranch where produced. Of that part of the crop sold, 35 per cent was sold to other farmers, ranchers, and cattle feeders, 53 per cent went to hay dealers, and 12 per cent went to trucker-buyers.

Lack of organized markets, lack of adequate means of grading hay, and lack of accurate local market news all represent severe handicaps to Arizona's hay industry. In an attempt to meet some of these difficulties, a hay marketing cooperative has been organized at Yuma, sponsored by the Yuma County Farm Bureau. This cooperative seems to be having some success and is attempting to expand its operations. Alfalfa hay is subject to extreme seasonal price variation, the price varying, on the average, about 31 per cent from the low in July to the seasonal high in January.

A study of forage utilization in Arizona showed that beef cattle are the major users of hay and silage, while dairy cattle are the most important users of green chop. About 78 per cent of the hay and 69 per cent of the silage is fed to beef cattle, whereas 66 per cent of the green chop is used by dairy cattle.

Table 4 shows the cost of producing alfalfa hay in Arizona. These costs are creeping upward. The upward trend in production costs would have been greater than that shown, except that insect control costs are estimated to be lower in 1958 due to a reduction in the amounts of insecticide needed. Also, a slight change in the method of calculating land preparation costs held down this item. The change involved the proration of land-planning costs charged to alfalfa rather than the charging of the entire cost of this operation to alfalfa as was done in the past. Cost per acre of production and harvesting for a 5-ton yield is estimated for 1958 from $102.40 in the Salt River Project, to $120.95 in 200-foot lift areas and $141.81 for 300-foot lift areas. Modest returns for land and labor appear possible in the Salt River Project and in the 200-foot lift area, but growing alfalfa at the 300-foot lift does not appear profitable.

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2. Vanvig, Andrew and Jack Woolley, "Skip-Row Planting of Cotton," *Progressive Agriculture*, Spring 1957, Arizona Agricultural Experiment Station, Tucson.

TABLE 4. COST OF PRODUCING ALFALFA HAY, PER ACRE, ARIZONA, 1958.[a]

ITEM		Salt River Project	Arizona pump areas	
			200' lift	300' lift
ESTABLISHING STAND				
Land preparation	$12.25			
Seed (20 lbs.)	5.80			
Drilling	1.00			
Irrigating twice	2.50			
Insecticide and application	3.30[bc]			
Fertilizer and application (75 lbs. P_2O_5)	8.75c			
Water, 1 acre-foot		$ 4.50	$ 5.40	$ 8.00
Total cost of establishing stand		38.10	39.00	41.60
One-third charged each year		$ 12.70	$ 13.00	$ 13.86
GROWING AND HARVESTING COST				
Irrigation labor	$10.00			
Fertilizer and application (75 lbs. P_2O_5)	8.75c			
Insecticide and application	11.20			
Mowing and raking	8.00			
Baling, 5 tons	30.00			
Total growing and harvesting cost		67.95	67.95	67.95
WATER, "out-of-pocket" cost only, 5 acre-feet		21.75[d]	27.00	40.00
TOTAL DIRECT COSTS		$102.40	$107.95	$121.81
INTEREST AND DEPRECIATION on well and pump		———	13.00	20.00
TOTAL COST EXCEPT for land and management		$102.40	120.95	141.81
RETURN FOR LAND AND MANAGEMENT (difference between cost and expected return)		32.60	14.05	— 6.81
TOTAL RETURN for 5-ton yield at $27 per ton		$135.00	$135.00	$135.00

a. These calculations represnt anticipated costs during 1958 on owner-operated farms assuming a yield of 5 tons per acre. No item was included for farm automobile expense, and no return credited for pasture or soil improvement.

b. For 4 ground applications; 60 pounds of 5% Malathion at 14.4c plus cost of application.

c. The amounts of fertilizer and insecticide applied are not necessarily recommendations by the University of Arizona, but rather are estimates of average amounts actually used by Arizona farmers.

d. Includes: minimum 2 A/F at $1.50 per A/F; excess SD & NF, 1 A/F at $3.75; and pump right, 2 A/F at $7.50 per A/F.

Grain and Silage

Production of feed grains on the present scale in Arizona is the direct result of the imposition of acreage controls on cotton. Since the advent of cotton acreage allotments in 1954, barley production in Arizona has increased 106 per cent and grain sorghum production 152 per cent. As a result of this rapid increase in production, both storage stocks of grain and the volume of grain shipped to out-of-state markets have increased rapidly. It is believed that the marketing mechanisms for these crops are relatively immature and that there exists considerable uncertainty among producers regarding market outlets, prices, and the need for storage facilities.

About 36 per cent of the barley and 30 per cent of the grain sorghum produced in Arizona is fed on the farm where produced, the remainder being sold. Of the barley sold, 43 per cent was sold to other farmers and

feeders and 57 per cent went to grain dealers. Only about 8 per cent of the grain sorghum sold was sold to other farmers. The remaining 92 per cent went to grain dealers. This is explained by the fact that most of the grain sorghum is not fed as whole grain but goes into commercially mixed feeds.

The increase in production of feed grains, coupled with unfavorable cattle feeding prospects in the fall of 1957, was reflected in lower prices for both barley and grain sorghum, barley being down about 8 cents per hundredweight and grain sorghum being off 30 cents per hundredweight from 1956.

Barley was planted on 231,000 acres in Arizona in 1957. Of this acreage, 180,000 acres were harvested for grain, yielding an average of 59 bushels per acre, for a total production of 10,620,000 bushels. This is a third above the 1946-1955 average and slightly above 1956 production.

Costs of production continue upward. Table 5 shows the cost of producing barley under various water situations in Arizona. Preharvest costs for 1958 are estimated to average $40 per acre as compared to $34 for 1957. Increased fertilizer usage and cost plus increased land preparation costs, including a charge for one-fifth of the land planing cost, are the major factors increasing preharvest costs. The combining rate for 1958 is $6 per acre compared to $5 in 1957. The combination of these costs with water costs give total per-acre costs of $54.90 for the Salt River Project, $68 for 200-foot lift areas, and $77 for 300-foot lift areas. Using average yields and 1957 prices, these costs permit a modest return for land and management for barley grown in the Salt River Project and on 200-foot lift land, but show a loss for barley grown in areas where the lift is 300 feet.

Grain sorghum acreage planted in Arizona in 1957 totaled 151,000 acres, compared to 131,000 in 1956. Of this amount, 111,000 acres were harvested for grain, yielding 52 bushels per acre, a total production of 5,772,000 bushels. This is nearly twice the amount of grain sorghum produced as an average, 1946-1955. In addition, 37,000 acres were harvested for silage and forage, producing 495,000 tons of roughage. At the same time that grain sorghum production was increasing rapidly in Arizona, an even greater increase in production was taking place in the United States as a whole.

As was found for barley, costs of producing grain sorghums continued upward. Costs during 1958 in pump areas are expected to be about $4.00 per acre higher than in 1957, but due to lower water costs, will not change much in the Salt River Project. Table 6 shows these costs to be $64.00 per acre in the Salt River Project, $81.25 per acre for 200-foot lift pump areas, and $93.25 for 300-foot lifts. Assuming prices received during 1957 and a 1.8-ton yield, it would not appear to be profitable to grow grain sorghum at either the 200 or the 300-foot pump lifts.

SEED CROPS

Alfalfa seed production in Arizona during 1957 was only about half that of the past 10 years. Only 21,000 acres were harvested in 1957 compared to 36,000 in 1956, and 41,200 annual average for 1946-1955.

TABLE 5. COSTS OF PRODUCING BARLEY, PER ACRE, ARIZONA, 1958.

ITEM	Salt River Project	Arizona pump areas	
		200′ lift	300′ lift
PREHARVEST COSTS			
Land preparation	$10.50		
Seed (100 lbs.)	4.00		
Drilling	1.00		
Irrigation and ditch labor	5.50		
Fertilizer and application [a, c]	19.00		
Insecticide and application [b, c]	——		
Total preharvest costs	$40.00	$40.00	$40.00
HARVEST COSTS			
Combining	$ 6.00		
Hauling	4.00		
Total harvesting costs	10.00	10.00	10.00
WATER, "out-of-pocket" costs only, 2½ acre-feet	4.90[d]	12.00	18.00
TOTAL DIRECT COSTS	$54.90	$62.00	$68.00
INTEREST AND DEPRECIATION on well and pump	——	6.00	9.00
TOTAL COST except for land and management	$54.90	$68.00	$77.00
RETURN FOR LAND AND MANAGEMENT (difference between cost and expected returns)	18.70	5.60	—3.40
Total return for 1.6-ton yield at $46 per ton	$73.60	$73.60	$73.60

a. For 75 lbs. N. and 25 lbs. P_2O_5.
b. Insect application not included, but when needed for control of aphids and mites, 20 pounds 5% Malathion at 14.4c per pound plus cost of application.
c. The amounts of fertilizer and insecticide specified are not necessarily recommendations by the University of Arizona, but rather are estimates of average amounts actually used by Arizona farmers.
d. Includes: Minimum 2 A/F at $1.50 per A/F plus ½ A/F SD & NF at $3.75 per A/F.

Yields averaged 220 pounds per acre. A total of 4,620,000 pounds of clean seed was harvested in 1957 compared to 8,460,000 in 1956. A cold spring, winds and lygus hurt the crop. Prices in 1957 averaged 20.5 cents per pound compared to 25.4 cents in 1956. A large carry over of seed from 1956 and a wet spring in the midwest hurt the market for this seed.

The 1957 Arizona crop of sugar beet seed amounted to 5,316,250 pounds, slightly under the 5,700,000 in 1956. The contract price was 14.5 cents per pound compared to 14 cents in 1956.

Bermuda seed continues as an important specialty crop of Yuma County, with virtually the entire national supply coming from the Yuma area. Prices in 1957 were low, averaging 15 cents per pound, compared to 18 cents in 1956. Between 7,000 and 8,000 acres were harvested in 1957, yielding about 300 pounds per acre. A substantial carry-over of seed is a price-depressing factor.

Lettuce and other vegetable seeds as well as cotton, small grains, and sorghums are also important components of Arizona's seed industry.

VEGETABLES

Value of vegetables produced in Arizona in 1957 amounted to $58 million, a decrease of $3 million from 1956.

TABLE 6. COST OF PRODUCING GRAIN SORGHUMS, PER ACRE, ARIZONA, 1958.

ITEM		Salt River Project	Arizona pump areas	
			200′ lift	300′ lift
PREHARVEST COSTS				
Land preparation	$10.50			
Seed	.85			
Planting	1.25			
Cultivating	2.50			
Irrigation and ditch labor	6.50			
Fertilizer and application [a, c]	19.00			
Insecticide and application [b, c]	5.65			
Total preharvest costs		$46.25	$46.25	$46.25
HARVEST COSTS				
Combining	7.00			
Hauling	4.00			
Total harvest costs		11.00	11.00	11.00
WATER, "out-of-pocket" cost only, 3 acre-feet		6.75[d]	16.00	24.00
TOTAL DIRECT COSTS		$64.00	$73.25	$81.25
INTEREST AND DEPRECIATION on well and pump		———	8.00	12.00
TOTAL COST except for land an management..		$64.00	$81.25	$93.25
RETURN FOR LAND AND MANAGEMENT (difference between cost and expected return)		11.60	—5.65	—17.65
Total return for 1.8-ton yield at $42 per ton		$75.60	$75.60	$75.60

a. For 100 lbs. N. and 25 lbs. P_2O_5
b. When needed, 20 lbs. of DDT and sulphur at 10c lb. plus application. For lesser corn stalk borer 10 lbs. 2% Dieldrin costing $1.15 plus application.
c. The amounts of fertilizer and insecticide specified are not necessarily recommendations by the University of Arizona, but rather are estimates of average amounts actually used by Arizona farmers.
d. Includes: minimum 2 A/F at $1.50 per A/F and excess SD and NF one A/F at $3.75.

Value of the 1957 lettuce crop was down about $4 million relative to 1956. Most of this decrease occurred in the late fall crop in the Salt River Valley. Prices in 1956 were very attractive ($8.10 cwt.). Acreage increased by 5,400 acres in 1957, but prices were poor ($3.80 per cwt.). As a result, the value of this late fall crop dropped $5 million. Slightly stronger prices for the winter and early spring crops helped cut this loss. Virtually all Arizona lettuce is now marketed in paperboard cartons.

Arizona cantaloup acreage was down to 12,500 acres in 1957 compared to 20,000 in 1956. Crown blight has become a serious problem to growers of this crop. As a result of the reduced acreage and floods in the Texas cantaloup areas, prices for the 1957 crop were very attractive. The spring crop (11,000 acres) brought $8 per hundredweight compared to $4.85 in 1956. Early summer melons brought $7.70 compared to $4.35 in 1956. Plantings of honey dew melons in Arizona dropped from 2,700 acres in 1956 to 750 acres in 1957. At the same time, prices rose greatly, from $3.80 in 1956 to $9.20 per hundredweight in 1957. Arizona's watermelon acreage dropped slightly in 1957 (5,000 acres compared to 5,800 in 1956), but prices averaged about $1.15 per hundredweight higher than in 1956.

Arizona onion production expanded greatly during 1957. Two thousand acres were planted compared to 850 in 1956. Yields were down and prices were about the same as for 1956. Floods in the Laredo, Texas, area severely damaged the Texas dry onion crop.

Arizona potato acreage increased from 4,300 acres in 1956 to 6,500 in 1957. Yields were comparable to 1956 but prices were much lower, averaging $1.75 per hundredweight July 15, 1957 compared to $5 a year earlier.

The trend toward the development of new vegetable producing areas in Arizona is continuing. Approximately 1,100 acres of spring lettuce were grown in the Harquahala Valley, and 1,650 acres at Aguila. The Willcox area had 280 acres. Quality of lettuce from these new areas has been excellent and because of higher altitudes and lower temperatures than found in the Salt River Valley, these areas are prolonging the spring season into May and June, at a time when prices are generally attractive.

The Eloy-Casa Grande area in Pinal County also shows renewed interest in vegetable production. Reduced cotton acreage allotments and high wter lifts resulting in high-cost water are forcing producers to study the possibilities of other high-value crops. Until about 1947, this area produced substantial quantities of vegetables. In 1947 some 3,000 acres in Pinal County were in vegetables, but in 1956 there were but 1,000 acres in vegetables. The current interest in Pinal County is in a different direction from the interest in Cochise County. Pinal County growers are more interested in the production of vegetables for freezing. There has been some real interest in establishing freezing plants. It is anticipated that much of the acreage of vegetables for freezing would be grown under contract. A major difficulty seems to be finding a satisfactory market.

LIVESTOCK AND LIVESTOCK PRODUCTS

Beef Cattle

The drought of 1956 was broken during 1957 and range feed was plentiful throughout most of the state. In January, 1958, range conditions in Arizona were reported as good, with an index of range condition of 84 compared to 59 a year earlier. Cattle were in generally good condition as 1957 ended.

Total outshipments for the year were 521,091 head compared to 556,669 in 1956, and 458,261 in 1955. Inshipments during 1957 were 312,528 head, compared to 304,001 in 1956. Inshipments during December, 1957, were 40,802 head, far more than the 16,850 head in December of 1956. Over 10,000 cattle from Mexico were shipped into Arizona during December of 1957.

Total 1957 slaughter in Arizona was 178,947 head compared with 168,021 in 1956 and 156,287 in 1955. Arizona is a surplus cattle producing state, but is a deficit area from the standpoint of meat slaughtered. During 1957, Arizona imported approximately 40 million pounds of meat and meat products. Twenty years ago Arizona slaughtered 105 pounds of beef per capita, while in the past five years this has dropped to only 54 pounds per capita.

Although the number of cattle shipped during 1957 was slightly lower than during 1956, weights off ranges were up, and the total weight shipped was larger in 1957 than in 1956. The number of cattle on feed in Arizona January 1, 1958 was 190,000 compared to 222,000 a year earlier. The 1952-56 average is 138,000 head. Cow numbers in Arizona have failed to keep pace with the increase in cattle feeding (Figure 3). As a result, Arizona cattle feeders have become increasingly dependent upon other areas for stocker and feeder cattle. Most of the cattle fed during 1957 were fed on a custom basis in large feedlots.

Cattle prices in Arizona improved markedly after midyear. In January 1957, choice slaughter steers at Phoenix were bringing $20.25 per hundred pounds. By July the price was $24.26 and in January 1958 it averaged about $25.50. Feeder cattle during the fall sale season averaged about $21 for yearling steers, $19 for yearling heifers, and $23 for calves. These feeder prices were two to three dollars above prices paid for similar animals in 1956.

About 10,000 beef animals were sold from Arizona to Mexico under an Export-Import Bank loan during 1957. These cattle brought a total of $2,130,000, approximately two-thirds of the total amount spent by Mexico in the United States for beef cattle under this loan. The animals were breeding stock to up-grade the cattle population of Mexico.

Income from sheep and lambs in Arizona in 1957 was $3.7 million. This was up from 1956, due primarily to higher prices. There was a slight increase in the number of sheep and lambs in the state. Spring lambs in Arizona, in 1957, sold for $23 to $24 per hundred pounds. Old crop fat lambs brought $18 to $19.

The fall market for sheep and lambs in 1957 was strong, especially for ewe lambs and yearling ewes. Sheep numbers increased in Arizona during 1956. As of January 1, 1957, there were 422,000 stock sheep in the state compared to 416,000 a year earlier. The 1957 lamb crop is estimated at 263,000 head compared to 260,000 in 1956 and the 1946-55 average of 268,000. The number of lambs saved for every 100 ewes was 84, same as in 1957 and 1956, and two above the 10-year average (1946-55). The number of breeding ewes in 1957 was estimated at 312,000 compared to 309,000 in 1956 and 329,000 for the 1946-55 average. Most of Arizona's stock sheep and lambs are located on Indian reservations.

Sheep, Lambs, and Wool

Slightly over three million pounds of wool were sheared in Arizona in 1957, bringing $1.8 million. The national incentive payment program continued during 1957, resulting in a return of about 56 cents per pound to Arizona wool growers.

DAIRY

In 1957 Arizona dairymen marketed 3,840,000 cwt. of milk, valued at $20.5 million. Of this, 89 per cent was produced under the Central Arizona Milk Marketing Order.

The size of individual dairy operations continues to increase. In November, 1957, the average producer under the market milk order delivered 65,065 pounds of milk compared to 59,384 pounds a year

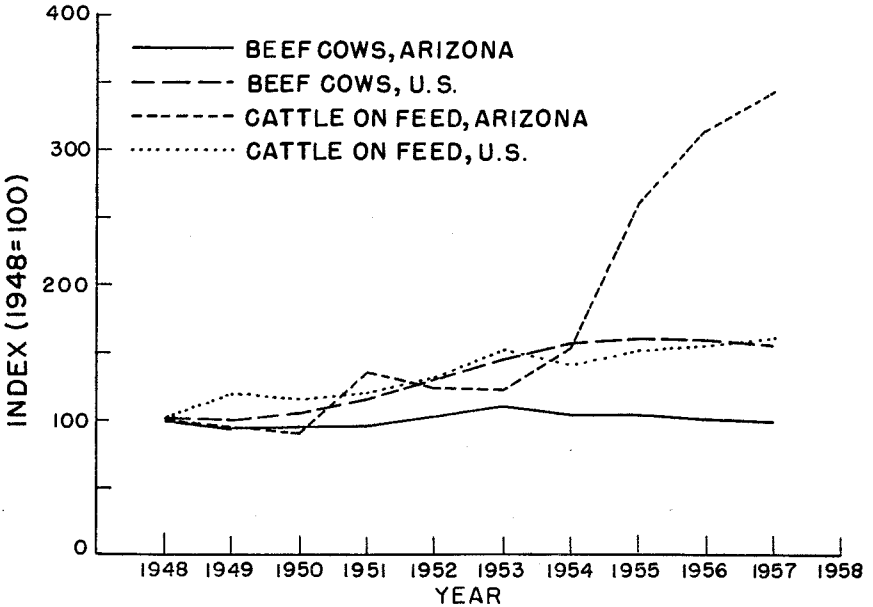

Figure 3. Trends in number of beef cows and cattle on feed, January 1, 1948-1958, Arizona and the United States.

earlier. Dairy Herd Improvement Association herds in Arizona also increased, averaging 91 head per herd in 1957 compared to 82 in 1956.

During the period January-November, 1957, Class I usage accounted for 86.4 per cent of the total milk delivered under the Central Arizona Milk Order. This is a 3.1 per cent decrease from 1956. Accordingly, Class II usage (manufacturing milk) increased from 10.5 per cent in 1956 to 13.6 per cent in 1957. The increased diversion to manufacturing purposes is reflected in a decision by the Arizona Dairymen's League to build a surplus milk plant. It is expected to be ready by the fall of 1958. It will have an annual capacity of approximately 210,000 pounds of whole milk, with evaporated milk its principal product.

The Central Arizona Market Milk Order was amended during the year to include two more counties, Greenlee and Cochise, and to provide for a new Class I price formula based on local supply and demand.

Milk prices during 1957 were generally at about the same level as in 1956. The average uniform minimum price paid to producers at the farm in the Salt River Valley under the milk order for the period January-November, 1957, was $5.47 per hundred pounds compared to $5.46 in 1956.

Within the Central Arizona Market Milk Order 92 per cent of the producers have farm bulk tanks, highest percentage for any market area in the nation.

Retail prices of fluid milk in Arizona were constant throughout the year. Prices for the 2-quart container at the store were 48 cents in

Tucson and 45 cents in Phoenix. Home delivery prices were 50 cents and 47 cents in Tucson and Phoenix, respectively. Store purchases account for approximately 64 per cent of retail milk sales in Arizona.

TABLE 7. CUSTOM OPERATION RATES, CENTRAL ARIZONA, EFFECTIVE TO JANUARY, 1958.[a]

OPERATION	Unit	Most common rate
		(dollars)
LAND PREPARATION, tillage and crop care		
Stalk cutting	Acre	1.00
Disk plowing, 12-inch	"	4.50-5.50
Moldboard plowing, 16-inch	"	8.00
Renovating, 8-10 inch	"	3.00
Subsoiling, 20-inch depth with shanks 3 feet apart	"	4.50-5.50
Land planning twice (first time $2.75)	"	5.00
Disking, offset	"	1.75
Dragging	"	1.75
Bordering, border disk	"	1.00
Planting, row crops	"	1.75
Drilling grains	"	1.75
Broadcast seeding	"	1.00
Cultivating	"	1.50
Ground dusting cotton	"	1.45
Ground spraying for weeds in:		
Grains	"	1.50
Vegetables (oil spray)	"	2.00
Ground spraying of insecticides		
Cotton	"	1.25
Alfalfa	"	1.25
Vegetables	"	1.40
Fumigation to control nematodes	"	3.00-3.50
OPERATIONS BY AIRPLANES[b]		
Seeding alfalfa or small grain	"	1.25
Dusting cotton (20 lbs. application)[c]	"	.90-1.00
Dusting vegetables[d]	"	1.00
Insecticide spraying (5-gal. application)[e]	"	1.50-1.70
Defoliating cotton (10-gal. application)	"	2.65
Citrus dusting	"	2.00
HARVESTING		
Combining barley, wheat (standing)	"	6.00
Combining sorghum	"	7.00
Combining soybeans	"	7.00
Mowing hay	"	2.00
Raking hay	"	2.00
Baling hay	Ton	6.00
Hauling and stacking baled hay	"	1.75-2.00
Baling straw	"	7.00-7.50
Cutting and hauling sorghum for silage[f]	"	2.00
Machine picking and hauling Upland cotton[g]	Cwt.	1.50
Machine picking and hauling Pima S-1 cotton[g]	"	1.50-2.00
Hauling	Ton	2.00-3.00

a. Based on interviews with custom operators.
b. Where custom operator furnishes flagmen. If farmer furnishes flagmen, rates may be about 10c per acre lower; $25 minimum charge for airplane operations.
c. 4½c per pound, but 90c per acre minimum 300 acres or over, $1 per acre minimum under 30 acres.
d. 5c per pound with $1 per acre minimum, 7½c per pound for organic phosphates.
e. Rates vary from 4 gallons at $1.50 per acre to 15 gallons at $3.15 per acre.
f. Includes hauling up to 5 miles.
g. Includes trailers and hauling to gin.

TABLE 8. PRINCIPAL ARIZONA CROPS IN 1957—ACREAGE BY COUNTIES AND PRODUCTION FOR THE STATE.

	State Totals	Apache	Cochise	Coconino	Gila	Graham	Greenlee	Maricopa	Mohave	Navajo	Pima	Pinal	Santa Cruz	Yavapai	Yuma
Acres Irrigated(ab	1,150,000	12,000	82,000	5,000	1,500	32,000	5,500	479,000	6,100	13,200	53,000	264,000	6,000	14,000	175,000
Alfalfa: Acres(c	192,000	4,000	9,000	1,000	500	6,000	1,600	88,000	2,800	2,200	5,100	32,000	1,600	5,500	33,000
Tons cut for hay(c	649,000														
Cotton: Upland, Acres	313,500		13,900			7,100	1,500	118,400	300		19,700	121,900	900		29,800
Bales	755,000														
American-Egyptian, Acres	36,500		800			10,100		15,300			2,800	7,100			400
Bales	45,000														
Barley, Acres	180,000	200	2,000	200	200	3,200	300	90,000	900	200	3,800	60,000	1,000	1,500	16,000
Tons of grain	255,000														
Corn, Acres	47,000	6,000	11,000	2,000	300	1,500	500	9,000	1,000	8,000	500	1,700	500	3,000	2,000
Tons of grain	42,000														
Grain Sorghums, all purposes, Acres	151,000	200	30,000	200		2,000	800	69,000		100	8,000	25,000	300	400	15,000
Tons of grain(d	162,000														
Wheat, Acres	63,000	400	700	900	300	400	500	29,000	900	1,900	5,000	11,000		1,000	11,000
Tons of grain	64,000														
Dry Edible Beans, Acres	2,000		900	600						500					
Tons	500														
Vegetables, Acres(ae	91,300	200	4,000	100		100	250	50,000	200	300	800	4,500	50	800	30,000
Cars shipped(ae	37,000														
Grapefruit, Acres(a	6,000							4,400			40	15			1,500
Packed boxes harvested(ae	2,400,000														
Oranges, Acres(a	7,100							5,500			50	50			1,500
Packed boxes harvested(ae	1,400,000														
Lemons, Acres(a	5,000							1,000			10	15			4,000
Packed boxes, harvested(ae	300,000														

Source: Federal Crop & Livestock Reporting Service, Phoenix, except as otherwise noted.

a. Estimates of the Department of Agricultural Economics, University of Arizona.

b. 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 50,000 acres. Hence, the figures on this line do not represent crop acreage totals

c. Alfalfa acreage does not include land that was pastured only, and tons of alfalfa do not include hay crops pastured.

d. Does not include grain on 37,000 acres harvested for silage and forage.

e. Year ended August 31, 1957.