

On farms that produce very high yields of cotton--such as in Yuma or Mohave Counties--the production of skip-row cotton is likely to be more profitable relative to alternative uses for the land than it will be on most central Arizona farms.

Because Acala cotton responds better to skip-row planting than Delta-pine and sells for a higher price, those who grow Acala varieties may find the production of skip-row cotton more profitable than alternative uses for the land.

Price supports on long staple cotton will not be reduced in 1966. It will, therefore, be just as profitable to grow long staple cotton in skip-row patterns such as "plant 4, skip 4" as it has been in recent years.

Detailed information concerning relative yields, costs, and returns for skip-row cotton in various planting patterns compared to solid planted cotton and to alternative crops will be found in Arizona Agricultural Experiment Station Report No. 231, Economics of Skip-Row Cotton Production, by Walter W. Pawson and Aaron G. Nelson, February 1966. That report contains data pertaining to both upland and long staple cotton in various counties in Arizona. A farmer who is considering growing skip-row cotton may find the report helpful in reaching a decision on whether or not it will pay him to do so.

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Estimated Yields, Costs and Returns for Solid Planted  
Upland Cotton in 1966, By Counties

Walter W. Pawson and Aaron G. Nelson

Table 1 portrays differences that exist in different sections of the State with regard to yields of solid planted upland cotton, relative prices, and prospective gross income per acre under the 1966 Cotton Program, together with variable costs of production, and income over variable costs. The estimated costs and returns per acre as shown in this table are based on the assumption that 35 percent of the effective upland cotton acreage allotment is diverted to conserving uses.

(See Table 1 on the following page)

Yields

The higher the elevation, in general, the shorter is the growing season and the lower is the yield per acre, ranging from an average of 2.8 bales on solid planted cotton in Yuma and Mohave Counties to 1.6 bales in Cochise County (Table 1).

Table 1. Upland cotton, solid planting: Estimated average yields, gross income, variable costs, and income over variable costs per acre, 1966, by counties, assuming diversion of 35 percent of cotton acreage allotment to conserving uses.

Item	Unit	Yuma and Mohave Counties	Maricopa and Pinal Counties	Pima and Santa Cruz Counties	Graham and Greenlee Counties	Cochise County	State Ave.
<u>Yield per acre</u>							
Lint . . . . .	Bale	2.8	2.25	1.85	1.8	1.6	2.23
Cottonseed . . . . .	Lb.	2170	1740	1510	1510	1340	1740
<u>Estimated prices</u>							
Cotton - per pound . . . . .	Cent	21	21	23-1/2	26	26	21-1/2
Cottonseed - per ton . . . . .	Dol.	48	50	49	50	49	49.60
<u>Gross income per acre</u>							
Cotton . . . . .	Dol.	294.00	236.25	217.38	234.00	208.00	239.72
Cottonseed . . . . .	Dol.	52.08	32.50	37.00	37.75	32.83	43.15
Price support payment . . . . .	Dol.	127.36	103.15	86.76	82.90	79.79	102.49
Diversion payment . . . . .	Dol.	76.44	61.91	52.07	49.75	47.89	61.51
Total gross income . . . . .	Dol.	549.88	444.81	393.21	404.40	368.51	446.87
<u>Variable costs per acre<sup>1/</sup></u>							
Seed . . . . .	Dol.	3.30	3.30	3.30	3.30	3.30	3.30
Seedbed preparation . . . . .	Dol.	8.52	8.52	8.52	10.20	9.12	8.60
Planting & cultivating . . . . .	Dol.	9.91	9.91	9.91	9.91	9.91	9.91
Fertilizer . . . . .	Dol.	32.00	21.23	20.27	9.22	16.89	21.59
Irrigation water . . . . .	Dol.	11.50	31.50	33.66	13.00	20.94	28.77
Irrigation labor . . . . .	Dol.	12.60	10.50	9.62	9.76	7.52	10.48
Insect & disease control . . . . .	Dol.	13.25	26.50	18.00	13.25	14.75	23.75
Chemical weed control . . . . .	Dol.	1.35	4.90	5.05	.50	1.60	4.30
Hand thinning & weeding . . . . .	Dol.	13.50	9.45	9.45	17.50	17.50	10.42
Hail insurance . . . . .	Dol.	---	1.50	2.50	6.50	8.25	1.88
Defoliation . . . . .	Dol.	4.50	4.50	4.50	4.50	4.50	4.50
Harvesting & hauling . . . . .	Dol.	29.66	28.97	28.47	36.85	36.60	29.57
Ginning . . . . .	Dol.	57.40	46.12	39.22	38.70	34.40	45.93
Supervision of labor . . . . .	Dol.	5.41	4.99	4.77	4.78	4.24	4.97
Production credit . . . . .	Dol.	4.00	4.51	4.29	3.81	4.21	4.41
Miscellaneous expenses <sup>2/</sup> . . . . .	Dol.	8.39	7.68	7.16	7.34	6.83	7.66
Total variable costs <sup>3/</sup> . . . . .	Dol.	215.29	224.08	208.69	189.12	200.56	220.04
<u>Income per acre over variable costs</u>							
	Dol.	334.59	220.73	184.52	215.23	167.95	226.83

<sup>1/</sup>The cost figures for Maricopa and Pinal Counties were adapted from the report, Costs and Returns for Major Field Crops in Central Arizona by Size of Farm, by Aaron G. Nelson, Ariz. Agr. Expt. Sta. Technical Bulletin in process of publication.

<sup>2/</sup>Miscellaneous expenses include variable costs for use of auto and pickup, exclusive of hauling cotton; maintenance of head ditches and farm roads; irrigation siphons; small tools; and contributions to support the Cotton Producers' Institute, the Arizona Cotton Growers' Assn., and the National Cotton Council.

<sup>3/</sup>Represents variable costs only; does not include fixed costs such as depreciation on farm machinery and equipment, buildings, and irrigation facilities; land rentals or other land charges, including real estate taxes; and management.

Estimated prices

The price of cotton in different areas of the State varies because of differences in the varieties that are grown. In Yuma, Mohave, Maricopa and Pinal Counties, nearly all of the upland cotton acreage is planted to Deltapine. Nearly all of the acreage in Graham, Greenlee, and Cochise Counties is planted to Acala 1517. In Pima and Santa Cruz Counties, Deltapine and various varieties of Acala cotton are grown. Acala cotton sells for a higher price than Deltapine.

Considerations involved in the 1966 price outlook for the various varieties will be found in the article, "Cotton Price Prospects for 1966" by Robert S. Firch elsewhere in this report. Based on the mid-point of the range of expected prices as given in that article, the following prices are assumed for various varieties in 1966:

<u>Variety</u>	<u>Cents per pound</u>
Deltapine, Stoneville. . . . .	21
Acala 4-42, A-44, Hopicala . . . . .	23-1/2
Acala 1517 . . . . .	<u>26</u>
State average, all varieties	21-1/2

There are small differences in the price of cottonseed in various counties, depending on the location of oil mills (Table 1).

Price support and diversion payments

The returns from upland cotton production in 1966 will be bolstered by Government price support and diversion payments to growers who voluntarily reduce their cotton acreage below their acreage allotment. Growers who participate in this program in 1966 will receive a price-support payment of 9.42 cents per pound on the projected yield of the farm's domestic acreage allotment, which is 65 percent of the total allotment. To participate in the program, a farmer must divert at least 12.5 percent of his cotton acreage allotment to conserving uses; he may divert as much as 25 percent or 35 percent of his allotment to conserving uses. He will receive a diversion payment of 10.5 cents per pound on the projected yield of the acreage diverted to conserving uses.

The average price support and diversion payments per acre in various areas of the State are shown in Table 2.

Table 2. Average price support payments and diversion payments per acre on upland cotton, 1966, by counties, assuming diversion of 35 percent of cotton acreage allotment to conserving uses.

Counties	Average projected yield per acre	Average price support payment per domestic allotment acre (@ 9.42¢ per lb.)	Average diversion payment per acre diverted (@ 10.5¢ per lb.)	Average diversion payment per acre in cotton, assuming 35 percent of allotment diverted <sup>1/</sup>
	Lbs.	Dols.	Dols.	Dols.
Yuma and Mohave. . . .	1352	127.36	141.96	76.44
Maricopa and Pinal . .	1095	103.15	114.98	61.91
Pima and Santa Cruz. .	921	86.76	96.70	52.07
Graham and Greenlee. .	880	82.90	92.40	49.75
Cochise. . . . .	8477	79.79	88.94	47.89
State average. . .	1088	102.49	114.24	61.51

<sup>1/</sup>The total diversion payment applicable to 35 acres diverted to conserving uses was divided by 65 acres of cotton to determine the diversion payment per acre of cotton that is planted.

Source: Agricultural Stabilization and Conservation Service, USDA.

Gross income per acre

The gross income from upland cotton is estimated to range from \$369 per acre in Cochise County to \$550 per acre in Yuma and Mohave Counties (Table 1). This includes price support and diversion payments.

Differences in costs of production by counties

Production costs are customarily divided into two categories, "variable" costs and "fixed" costs.

"Variable" costs include such items as seed; fertilizer; insecticides; chemical weed control materials; labor; fuel, oil, and repairs on farm machinery and equipment; custom work; irrigation district charges or power, lubricants, and repairs on wells and pumps; and interest on production credit. The total amount spent on a given farm for these items varies with the acreage of the different kinds of crops that are grown and the production practices that are followed.

"Fixed" costs include such items as depreciation, interest, and insurance on farm machinery and equipment, buildings, and irrigation facilities; fixed land rentals or other land charges, including real estate taxes; and

management. On a given farm, these costs do not change significantly, regardless of the particular combination of crops that are grown or the production practices that are used. Inasmuch as these costs remain fixed, they do not need to be, and, in fact, should not be, considered in determining what proportion of the cotton acreage allotment to divert from cotton to conserving uses, whether to grow solid planted or skip-row cotton, or whether to increase or decrease the acreage of other crops.

Table 1 shows the estimated variable costs of producing upland cotton on a typical farm in different counties in Arizona. The costs of production are not the same in all parts of the State. More fertilizer is used per acre on cotton in Yuma and Mohave Counties than elsewhere in the State. In general, the higher the elevation and the shorter the growing season, the less fertilizer is applied per acre. However, less fertilizer is used in Graham and Greenlee Counties than in Cochise County, whose irrigated lands are situated at a higher elevation.

Irrigation water costs per acre vary between counties because of differences in the quantity of water used and because of differences in the cost of water per acre-foot. The lower the elevation and the longer the growing season, the greater is the quantity of water and irrigation labor used per acre. Water use is estimated to range from about 3.5 acre-feet per acre in Cochise County to 5.5 acre-feet or more in Yuma and Mohave Counties. Irrigation water costs per acre-foot vary from county to county, depending largely on whether surface or ground water is used and on the pumping lift.

Cotton insect problems are more severe in central Arizona than in other parts of the State, necessitating higher costs for control (Table 1).

More chemical weed control materials are used on cotton in Maricopa, Pinal, and Pima Counties than in other areas. Conversely, however, hand thinning and weeding costs are lowest in these counties (Table 1).

Hail becomes a more severe problem the higher the elevation.

Harvesting costs, as well as seedbed preparation costs, are higher in Graham, Greenlee, and Cochise Counties than in other counties. In these counties, farms are smaller than in most other southern Arizona counties; the farms tend to have somewhat smaller machinery and to hire more work done by custom operators than do the large farms which are typical of Maricopa, Pinal, Pima, and Yuma Counties.

Ginning costs per acre are determined primarily by the yield; however, Acala cotton has a less favorable gin turnout than Deltapine, and it, therefore, costs slightly more per bale to gin Acala cotton.

Total variable costs per acre are highest in Maricopa and Pinal Counties because of high costs for irrigation water and insect control (Table 1). The lowest average costs per acre prevail in Graham and Greenlee Counties, which have cheap water, minor insect problems, and use relatively little fertilizer.

Income per acre over variable costs

Cotton in Yuma and Mohave Counties produces the highest estimated income per acre over variable costs, \$335 per acre (Table 1). In other counties, where the gross income per acre is lower, the income over variable costs is also lower.

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Comparison of Upland Cotton and Long Staple Cotton Yields, Costs, and Returns, By Counties

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In some counties, upland cotton is more profitable than long staple cotton; in other counties, long staple cotton is the most profitable. This is due to differences in relative yields and production costs by counties.

Relative yields of short and long staple cotton, by counties

The highest yields of upland cotton are produced at elevations below 2,000 feet, while the highest yields of long staple cotton are produced in areas at the 2,000 to 3,000-foot elevation.

Yields of solid planted upland cotton and long staple cotton on farms in Maricopa, Pinal, Pima, and Graham Counties are as follows:

Counties	Bales per acre		Yield of long staple cotton as percent of yield of upland cotton
	Upland cotton	Long staple cotton	
Maricopa and Pinal .....	2.25	1.17	52
Pima .....	1.85	1.40	76
Graham .....	1.80	1.47	82

Relative costs of producing upland and long staple cotton

Estimated variable costs per acre for producing upland and short staple cotton in each of these areas are shown in Table 1.

The only significant difference in pre-harvest costs as between the two types of cotton is in the use of fertilizer and in insect and disease control costs (Table 1). Less fertilizer is used on long staple cotton than on short staple cotton. Long staple cotton, because of its higher gossypol content, is less subject to insect attacks than upland cotton.