



University of Arizona
College of Agriculture
Agricultural Experiment Station

**COST OF PRODUCING FIELD CROPS
IN THE SALT RIVER VALLEY,
ARIZONA, 1928**

By
S P CLARK

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†In cooperation with Sporting Arms and Ammunition Manufacturers' Institute.

‡In cooperation with United States Department of Agriculture, Bureau of Plant Industry.

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COST OF PRODUCING FIELD CROPS IN THE SALT RIVER VALLEY, ARIZONA, 1928

By S. P. CLARK

INTRODUCTION

A study of the cost of producing the principal field crops grown in the Salt River Valley was begun in 1928. The data were secured by the route method, *i.e.*, several times during the year a representative of the University interviewed the coöperating farmers in regard to the field operations that had been applied to the crops since the last visit. These visits were timed to come at the completion of each major operation, such as preparing the soil and planting, cultivating, irrigating, and harvesting. By visiting at these periods when the details of the operations were fresh in the minds of the farmers fairly accurate data were secured. The farms were located in the principal farming districts of the Salt River Valley so that conditions of production were average.

All man labor was charged at a fiat rate of 30 cents an hour. This was somewhat higher than the local rate for Mexican help, and more competent hired men who could operate tractors, etc., received higher wages. This rate also allowed the farmer current wages for his own time. Horse labor was charged at the rate of 10 cents an hour which was in line with current rental charge. Machinery was charged at the rate of 10 cents for each horse hour of operation. This charge covered depreciation, upkeep, and interest for the season. The charge for operating the tractor was 90 cents an hour, which allowed for interest, upkeep, and depreciation.

The rent or interest on investment was charged at the current rate of 8 percent. The farmers reported an average land valuation of \$210 per acre. The question of charging interest on investment as an expense against the crop is debatable. If the operator owns the land free of debt, then the interest comes back to him as income from the crop. If the land is mortgaged then the interest is an expense item to be paid out of the proceeds from the crop. In order to make all calculations uniform the interest charge was included in the expense column. The tax rate used for the different districts was that reported by the County Assessor. The

water charge was figured on the basis of water used, at the rate of \$1.50 for each acre-foot. The cost of seed was charged at the rate and amount reported by the coöperator.

SHORT STAPLE COTTON

The data for short staple cotton were secured from 36 fields, with a total of 1,220 acres. The price allowed for picking was 1.5 cents a pound of seed cotton. The ginning charge was 45 cents per hundred pounds of seed cotton.

Table I presents data on the cost of producing short staple cotton in the Salt River Valley for the year 1928. The figures are arranged on the basis of cost of producing a pound of lint, the lowest cost first. The table gives the principal items of expense with their average for the 36 fields. Columns 2-13 include all pre-harvest expenses. The highest acre cost was \$60.55 on field 24. The lowest pre-harvest acre cost was \$34.77 on field 26. The average pre-harvest acre cost was \$46.41.

Columns 14-17 show the harvesting expense for picking, ginning, and a charge of one-half cent per pound of lint for supervision of picking and for time expended in hauling seed cotton to the gin. Column 18 gives the total acre cost of production for the 36 fields. The highest was \$104.82 on field 27, the lowest \$62.66 on field 26. The average total acre cost for the 36 fields was \$79.10. Column 20 gives the net acre expense or the gross expense less the value of cotton seed. The average sale price of cotton seed in 1928 was \$30 a ton. At the time of ginning, the company usually deducted the cost of ginning from the value of the cotton seed and paid the farmer the balance due. Column 21 gives the acre yield of lint cotton. The highest was 831 pounds on field 27; the lowest 300 pounds on field 16. The average yield for the 36 fields was 495 pounds.

Column 23 gives the gross acre return. The highest was \$158.72 on field 27 with an acre yield of 831 pounds of lint, the lowest was \$57.56 from field 6. The average acre return for the 36 fields was \$92.73.

The lowest cost per pound was 8.72 cents on field 36 with a yield of 686 pounds of lint and a net expense of \$59.84 per acre. The highest cost per pound was 20.46 cents on field 16 with a yield of 300 pounds and a net expense of \$61.38. The average cost of producing a pound of lint on the 36 fields was 13.38 cents with an average yield of 495 pounds and an average net expense of \$64.72.

Column 25 gives the net acre return or the gross return from lint less the net expense. The highest net return was \$78.83 on field 27 with an acre yield of 831 pounds and a net expense of \$79.89. The lowest net

TABLE I.—THE COST OF PRODUCING SHORT STAPLE COTTON (ACRE BASIS) IN THE SALT RIVER VALLEY, MARICOPA COUNTY, ARIZONA. ARRANGED ON THE COST OF PRODUCING A POUND

| Field No. | Man labor | | | Horse labor | | | Tractor cost Dollars | Machinery cost Dollars | Seed cost Dollars | Water cost Dollars | Hoing and thin-Dollars | Ditch expense Dollars | Taxes Dollars | Interest Dollars | Cost up to harvest Dollars | Picking cost Dollars | Weigh and haul cost Dollars | Ginning cost Dollars | Total harvest cost Dollars | Total expense Dollars | Acre return from seed Dollars | Net acre expense Dollars |
|-----------|-----------|---------|--------------|-------------|---------|--------------|----------------------|------------------------|-------------------|--------------------|------------------------|-----------------------|---------------|------------------|----------------------------|----------------------|-----------------------------|----------------------|----------------------------|-----------------------|-------------------------------|--------------------------|
| | Hours | Minutes | Cost Dollars | Hours | Minutes | Cost Dollars | | | | | | | | | | | | | | | | |
| 36 | 13 | 44 | 4.12 | 2 | 38 | .26 | 7.11 | .26 | 1.00 | 4.62 | 3.37 | .25 | 3.87 | 12.00 | 36.86 | 30.87 | 3.43 | 9.26 | 43.56 | 80.42 | 20.58 | 59.84 |
| 34 | 18 | 54 | 5.67 | 53 | 22 | 5.34 | | 5.34 | 1.00 | 7.25 | 2.33 | .06 | 3.87 | 12.00 | 42.86 | 30.92 | 3.44 | 9.27 | 43.63 | 86.49 | 20.61 | 65.88 |
| 27 | 22 | 41 | 6.81 | 48 | 39 | 4.86 | 3.00 | 4.86 | 1.00 | 4.97 | 1.50 | .20 | 4.59 | 20.00 | 51.79 | 37.40 | 4.16 | 11.47 | 53.03 | 104.82 | 24.93 | 79.89 |
| 10 | 17 | 31 | 5.26 | 21 | 47 | 2.18 | 2.70 | 2.18 | 1.40 | 3.89 | 1.12 | .13 | 3.75 | 16.00 | 38.61 | 25.34 | 2.82 | 7.60 | 35.76 | 74.37 | 16.89 | 57.48 |
| 20 | 16 | 24 | 4.92 | | | | 8.64 | | 1.20 | 3.09 | 2.00 | .27 | 4.12 | 13.60 | 37.94 | 24.62 | 2.74 | 7.38 | 34.54 | 72.58 | 16.41 | 56.17 |
| 35 | 23 | 20 | 7.00 | 43 | 40 | 4.37 | | 4.37 | 1.00 | 6.33 | 1.41 | .25 | 3.87 | 12.00 | 40.60 | 26.24 | 2.92 | 7.87 | 37.03 | 77.63 | 17.49 | 60.41 |
| 29 | 20 | 35 | 6.18 | 38 | 40 | 3.87 | 1.28 | 3.87 | 1.00 | 6.24 | 3.00 | .50 | 4.59 | 16.00 | 46.53 | 29.97 | 3.33 | 8.99 | 42.29 | 88.82 | 19.98 | 68.84 |
| 21 | 24 | 41 | 7.41 | 21 | 40 | 2.17 | 6.69 | 2.17 | .80 | 3.86 | 2.00 | .50 | 4.12 | 17.56 | 47.28 | 30.38 | 3.38 | 9.11 | 42.87 | 90.15 | 20.25 | 69.90 |
| 26 | 21 | 4 | 6.32 | 2 | 00 | .20 | 6.00 | .20 | .80 | 2.06 | 1.25 | .12 | 5.02 | 12.80 | 34.77 | 19.76 | 2.20 | 5.93 | 27.89 | 62.66 | 13.17 | 49.49 |
| 8 | 16 | 46 | 5.03 | 27 | 6 | 2.71 | 2.55 | 2.71 | 1.40 | 2.39 | 3.00 | .30 | 4.40 | 17.56 | 42.05 | 23.45 | 2.61 | 7.03 | 33.09 | 75.14 | 15.63 | 59.51 |
| 32 | 15 | 8 | 4.55 | 12 | 50 | 1.28 | 4.73 | 1.28 | 1.25 | 5.06 | 3.00 | .70 | 3.56 | 16.00 | 41.33 | 23.04 | 2.56 | 6.91 | 32.59 | 73.92 | 15.36 | 58.56 |
| 17 | 32 | 27 | 9.74 | 57 | 30 | 5.75 | | 5.75 | .30 | 2.90 | 2.00 | .14 | 3.54 | 16.00 | 46.12 | 24.75 | 2.75 | 7.43 | 34.93 | 81.05 | 16.50 | 64.55 |
| 23 | 21 | 16 | 6.38 | 48 | 36 | 4.86 | 3.56 | 4.86 | 1.20 | 2.43 | 2.44 | .30 | 4.12 | 17.56 | 47.71 | 25.20 | 2.80 | 7.56 | 35.56 | 83.27 | 16.80 | 66.47 |
| 14 | 32 | 47 | 9.84 | 68 | 36 | 5.86 | | 6.86 | 1.00 | 4.37 | 2.00 | | 4.13 | 20.00 | 55.06 | 28.31 | 3.15 | 8.49 | 39.95 | 95.01 | 18.87 | 76.14 |
| 9 | 19 | 36 | 5.88 | 43 | 6 | 4.31 | 3.18 | 4.31 | 1.40 | 2.43 | 4.75 | .30 | 4.40 | 17.56 | 48.52 | 24.48 | 2.72 | 7.34 | 34.54 | 83.06 | 16.32 | 66.74 |
| 33 | 25 | 23 | 7.62 | 50 | 30 | 5.05 | | 5.05 | 1.25 | 5.39 | 1.80 | .20 | 3.87 | 20.00 | 50.23 | 25.34 | 2.82 | 7.60 | 35.76 | 85.99 | 16.89 | 69.10 |
| 15 | 24 | 53 | 7.47 | 58 | 52 | 5.89 | | 5.89 | 1.00 | 3.21 | 3.90 | .24 | 3.84 | 17.56 | 49.00 | 24.48 | 2.72 | 7.34 | 34.54 | 83.54 | 16.32 | 67.22 |
| 18 | 29 | 24 | 8.82 | 66 | 40 | 6.67 | | 6.67 | 1.12 | 2.75 | 2.00 | .12 | 6.43 | 19.20 | 53.78 | 24.53 | 2.73 | 7.36 | 34.62 | 88.40 | 16.35 | 72.05 |
| 7 | 17 | 49 | 5.35 | 31 | 40 | 3.17 | 2.81 | 3.17 | 1.20 | 2.22 | 3.00 | .23 | 4.40 | 17.56 | 43.36 | 21.87 | 2.43 | 6.56 | 30.86 | 74.22 | 14.58 | 59.53 |
| 4 | 18 | 18 | 5.49 | 50 | 40 | 5.07 | .90 | 5.07 | 1.08 | 3.09 | 3.65 | .03 | 4.58 | 17.56 | 46.52 | 19.49 | 2.17 | 5.85 | 27.51 | 74.03 | 12.99 | 61.04 |
| 37 | 17 | 28 | 5.24 | 46 | 22 | 4.64 | | 4.64 | 1.00 | 4.62 | 2.00 | | 4.68 | 17.56 | 44.38 | 18.00 | 2.00 | 5.40 | 25.40 | 69.78 | 12.00 | 57.78 |
| 11 | 21 | 25 | 6.43 | 53 | 2 | 5.30 | | 5.30 | 1.40 | 4.02 | 3.75 | .17 | 3.75 | 17.56 | 47.68 | 22.50 | 2.50 | 6.75 | 31.75 | 89.43 | 15.00 | 74.43 |
| 31 | 38 | 29 | 11.55 | 79 | 52 | 7.99 | | 7.99 | 1.00 | 5.21 | 4.25 | | 3.88 | 16.00 | 57.87 | 22.50 | 2.50 | 6.75 | 31.75 | 89.62 | 15.00 | 74.62 |
| 19 | 18 | 55 | 5.68 | 26 | 55 | 2.69 | 4.05 | 2.69 | .98 | 4.37 | .75 | .60 | 5.14 | 17.56 | 44.51 | 16.88 | 1.88 | 5.06 | 23.82 | 68.33 | 11.25 | 57.08 |
| 1 | 27 | 33 | 8.27 | 40 | 26 | 4.04 | 4.00 | 4.04 | 1.60 | 5.94 | 1.85 | .60 | 4.39 | 17.56 | 52.29 | 19.98 | 2.22 | 7.33 | 29.53 | 81.82 | 13.32 | 68.50 |
| 2 | 19 | 6 | 5.73 | 46 | 48 | 4.68 | | 4.68 | 1.20 | 6.66 | 3.00 | .18 | 4.55 | 16.00 | 46.68 | 17.33 | 1.93 | 5.20 | 24.46 | 71.14 | 11.55 | 59.59 |
| 28 | 22 | 30 | 6.75 | 41 | 40 | 4.17 | 2.55 | 4.17 | 1.00 | 6.24 | 3.00 | .50 | 4.59 | 16.00 | 48.97 | 18.00 | 2.00 | 5.40 | 25.40 | 74.37 | 12.00 | 62.37 |
| 12 | 24 | 57 | 7.49 | 69 | 30 | 6.95 | | 6.95 | 1.40 | 3.17 | 4.25 | .18 | 5.05 | 17.56 | 53.00 | 18.14 | 2.02 | 5.44 | 25.60 | 78.60 | 12.09 | 66.59 |
| 3 | 21 | 26 | 6.43 | 53 | 2 | 5.30 | | 5.30 | 1.20 | 3.62 | 4.06 | | 4.41 | 16.00 | 46.32 | 15.75 | 1.75 | 4.73 | 22.23 | 68.55 | 10.50 | 58.05 |
| 25 | 26 | 16 | 7.88 | 39 | 52 | 3.99 | 2.40 | 3.99 | 1.00 | 3.05 | 1.85 | .50 | 5.02 | 17.56 | 47.24 | 16.02 | 1.78 | 4.80 | 22.60 | 69.84 | 10.68 | 59.16 |
| 22 | 25 | 58 | 7.79 | 60 | 2 | 6.01 | 3.56 | 6.01 | 1.20 | 3.27 | 2.44 | .30 | 4.12 | 17.56 | 52.26 | 17.01 | 1.89 | 5.10 | 24.00 | 76.26 | 11.34 | 64.92 |
| 13 | 25 | 21 | 7.61 | 45 | 2 | 4.50 | 2.75 | 4.50 | 1.20 | 8.58 | 7.00 | | 3.00 | 20.00 | 59.14 | 18.05 | 2.01 | 5.41 | 25.47 | 84.61 | 12.03 | 72.58 |
| 6 | 18 | 47 | 5.64 | 36 | 4 | 3.61 | | 3.61 | 1.20 | 4.32 | 5.28 | .52 | 5.05 | 17.56 | 46.89 | 13.82 | 1.54 | 4.14 | 19.50 | 66.39 | 9.21 | 57.18 |
| 24 | 29 | 13 | 8.76 | 97 | 20 | 9.73 | .60 | 9.73 | .80 | 3.75 | 1.85 | .31 | 5.02 | 20.00 | 60.55 | 17.69 | 1.97 | 5.31 | 24.97 | 85.52 | 11.79 | 73.72 |
| 5 | 23 | 40 | 7.10 | 120 | 20 | 12.03 | | 12.03 | 1.20 | 2.15 | 1.85 | .50 | 4.58 | 16.00 | 57.44 | 16.20 | 1.80 | 4.86 | 22.86 | 80.30 | 10.80 | 69.50 |
| 15 | 27 | 16 | 8.18 | 42 | 34 | 4.26 | | 4.26 | .60 | 4.05 | 2.00 | .14 | 3.84 | 24.00 | 51.33 | 13.50 | 1.60 | 4.05 | 19.05 | 70.38 | 9.00 | 61.38 |
| Average | 22 | 56.6 | 6.844 | 46 | 86.9 | 4.70 | 3.66 | 4.70 | 1.09 | 4.21 | 2.74 | .30 | 4.33 | 17.02 | 46.41 | 22.27 | 2.47 | 6.72 | 31.47 | 79.10 | 14.84 | 64.72 |

PRODUCING SHORT STAPLE COTTON (ACRE BASIS) IN THE SALT RIVER VALLEY, MARICOPA COUNTY, ARIZONA. ARRANGED ON THE COST OF PRODUCING A POUND OF LINT, LOWEST FIRST.

| Cost Dollars | Tractor cost Dollars | Machinery cost Dollars | Seed cost Dollars | Water cost Dollars | Hoeing and thinning Dollars | Ditch expense Dollars | Taxes Dollars | Interest Dollars | Cost up to harvest Dollars | Picking cost Dollars | Weigh and haul cost Dollars | Ginning cost Dollars | Total harvest cost Dollars | Total expense Dollars | Acre return from seed Dollars | Net acre expense Dollars | Acre yield lint Pounds | Sale price lint Cents | Acre return lint Dollars | Cost of pound lint Cents | Net profit per acre Dollars | Acres in field |
|--------------|----------------------|------------------------|-------------------|--------------------|-----------------------------|-----------------------|---------------|------------------|----------------------------|----------------------|-----------------------------|----------------------|----------------------------|-----------------------|-------------------------------|--------------------------|------------------------|-----------------------|--------------------------|--------------------------|-----------------------------|----------------|
| .26 | | .26 | 1.00 | 4.62 | 3.37 | .25 | 3.87 | 12.00 | 36.86 | 30.87 | 3.43 | 9.26 | 43.56 | 80.42 | 20.58 | 59.84 | 686 | 19.20 | 131.71 | 8.72 | 71.87 | 130 |
| 5.34 | 7.11 | 5.34 | 1.00 | 7.25 | 2.33 | .06 | 3.87 | 12.00 | 42.86 | 30.92 | 3.44 | 9.27 | 43.63 | 86.49 | 20.61 | 65.88 | 687 | 19.20 | 131.90 | 9.58 | 66.02 | 14 |
| 4.86 | | 4.86 | 1.00 | 4.97 | 1.50 | .20 | 4.59 | 20.00 | 51.79 | 37.40 | 4.16 | 11.47 | 53.03 | 104.82 | 24.93 | 79.89 | 831 | 19.10 | 158.72 | 9.61 | 78.83 | 70 |
| 2.18 | | 2.18 | 1.40 | 3.89 | 1.12 | .13 | 3.75 | 16.00 | 38.61 | 25.34 | 2.82 | 7.60 | 35.76 | 74.37 | 16.89 | 57.48 | 563 | 18.66 | 105.06 | 10.20 | 47.58 | 60 |
| | 8.64 | | 1.20 | 3.09 | 2.00 | .27 | 4.12 | 13.60 | 37.94 | 24.62 | 2.74 | 7.38 | 34.54 | 72.58 | 16.41 | 56.17 | 547 | 19.20 | 105.02 | 10.26 | 48.85 | 15 |
| 4.37 | | 4.37 | 1.00 | 6.33 | 1.41 | .25 | 3.87 | 12.00 | 40.60 | 26.24 | 2.92 | 7.87 | 37.03 | 77.63 | 17.49 | 60.41 | 583 | 19.00 | 110.77 | 10.31 | 50.36 | 80 |
| 3.87 | 1.28 | 3.87 | 1.00 | 6.24 | 3.00 | .50 | 4.59 | 16.00 | 46.53 | 29.97 | 3.33 | 8.99 | 42.29 | 88.82 | 19.98 | 68.84 | 666 | 19.00 | 126.54 | 10.33 | 57.70 | 100 |
| 2.17 | 6.69 | 2.17 | .80 | 3.86 | 2.00 | .50 | 4.12 | 17.56 | 47.28 | 30.38 | 3.38 | 9.11 | 42.87 | 90.15 | 20.25 | 69.90 | 675 | 20.00 | 135.00 | 10.35 | 65.10 | 85 |
| .20 | 6.00 | .20 | .80 | 2.06 | 1.25 | .12 | 5.02 | 12.80 | 34.77 | 19.76 | 2.20 | 5.93 | 27.89 | 62.66 | 13.17 | 49.49 | 439 | 19.25 | 84.51 | 11.27 | 35.02 | 13 |
| 2.71 | 2.55 | 2.71 | 1.40 | 2.39 | 3.00 | .30 | 4.40 | 17.56 | 42.05 | 23.45 | 2.61 | 7.03 | 33.09 | 75.14 | 15.63 | 59.51 | 521 | 19.77 | 103.00 | 11.42 | 43.49 | 36 |
| 1.28 | 4.73 | 1.28 | 1.25 | 5.06 | 3.00 | .70 | 3.56 | 16.00 | 41.33 | 23.04 | 2.56 | 6.91 | 32.59 | 73.92 | 15.36 | 58.56 | 512 | 19.50 | 99.84 | 11.43 | 41.28 | 70 |
| 5.75 | | 5.75 | .30 | 2.90 | 2.00 | .14 | 3.54 | 16.00 | 46.12 | 24.75 | 2.75 | 7.43 | 34.93 | 81.05 | 16.50 | 64.55 | 550 | 19.89 | 109.40 | 11.73 | 44.85 | 25 |
| 4.86 | 3.56 | 4.86 | 1.20 | 2.43 | 2.44 | .30 | 4.12 | 17.56 | 47.71 | 25.20 | 2.80 | 7.56 | 35.56 | 83.27 | 16.80 | 66.47 | 560 | 19.50 | 109.20 | 11.86 | 42.73 | 200 |
| 5.86 | | 5.86 | 1.00 | 4.37 | 2.00 | | 4.13 | 20.00 | 55.06 | 28.31 | 3.15 | 8.49 | 39.95 | 95.01 | 18.87 | 76.14 | 628 | 19.00 | 119.32 | 12.10 | 43.32 | 12 |
| 4.31 | 3.18 | 4.31 | 1.40 | 2.43 | 4.75 | .30 | 4.40 | 17.56 | 48.52 | 24.48 | 2.72 | 7.34 | 34.54 | 83.06 | 16.32 | 66.74 | 544 | 19.77 | 107.55 | 12.26 | 40.81 | 40 |
| 5.05 | | 5.05 | 1.25 | 5.39 | 1.80 | .20 | 3.87 | 20.00 | 50.23 | 25.34 | 2.82 | 7.60 | 35.76 | 85.99 | 16.89 | 69.10 | 563 | 19.20 | 108.10 | 12.27 | 39.00 | 56 |
| 5.89 | | 5.89 | 1.00 | 3.21 | 3.90 | .24 | 3.84 | 17.56 | 49.00 | 24.48 | 2.72 | 7.34 | 34.54 | 83.54 | 16.32 | 67.22 | 544 | 19.21 | 104.50 | 12.35 | 37.28 | 70 |
| 6.67 | | 6.67 | 1.12 | 2.75 | 2.00 | .12 | 6.43 | 19.20 | 53.78 | 24.53 | 2.73 | 7.36 | 34.62 | 88.40 | 16.35 | 72.05 | 545 | 19.20 | 104.64 | 13.22 | 32.59 | 40 |
| 3.17 | 2.81 | 3.17 | 1.20 | 2.22 | 3.00 | .23 | 4.40 | 17.56 | 43.36 | 21.87 | 2.43 | 6.56 | 30.86 | 74.22 | 14.58 | 59.53 | 486 | 19.77 | 96.08 | 13.56 | 36.55 | 9 |
| 5.07 | .90 | 5.07 | 1.08 | 3.09 | 3.65 | .03 | 4.58 | 17.56 | 46.52 | 19.49 | 2.17 | 5.85 | 27.51 | 74.03 | 12.99 | 61.04 | 433 | 18.31 | 79.28 | 14.09 | 18.24 | 30 |
| 4.64 | | 4.64 | 1.00 | 4.62 | 2.00 | | 4.68 | 17.56 | 44.38 | 18.00 | 2.00 | 5.40 | 25.40 | 69.78 | 12.00 | 57.78 | 400 | 19.83 | 79.32 | 14.44 | 21.54 | 25 |
| 5.30 | | 5.30 | 1.40 | 4.02 | 3.75 | .17 | 3.75 | 17.56 | 47.68 | 22.50 | 2.50 | 6.75 | 31.75 | 89.43 | 15.00 | 74.43 | 500 | 18.66 | 93.30 | 14.88 | 18.87 | 20 |
| 7.99 | | 7.99 | 1.00 | 5.21 | 4.25 | | 3.88 | 16.00 | 57.87 | 22.50 | 2.50 | 6.75 | 31.75 | 89.62 | 15.00 | 74.62 | 500 | 19.00 | 93.30 | 14.88 | 18.87 | 20 |
| 2.69 | 4.05 | 2.69 | .98 | 4.37 | .75 | .60 | 5.14 | 17.56 | 44.51 | 16.88 | 1.88 | 5.06 | 23.82 | 68.33 | 11.25 | 57.08 | 375 | 19.20 | 72.00 | 15.22 | 14.94 | 45 |
| 4.04 | 4.00 | 4.04 | 1.60 | 5.94 | 1.85 | .60 | 4.39 | 17.56 | 52.29 | 19.98 | 2.22 | 7.33 | 29.53 | 81.82 | 13.32 | 68.50 | 444 | 19.60 | 87.02 | 15.43 | 18.52 | 210 |
| 4.68 | | 4.68 | 1.20 | 6.66 | 3.00 | .18 | 4.55 | 16.00 | 46.68 | 17.33 | 1.93 | 5.20 | 24.46 | 71.14 | 11.55 | 59.59 | 385 | 19.10 | 73.54 | 15.47 | 13.95 | 60 |
| 4.17 | 2.55 | 4.17 | 1.00 | 6.24 | 3.00 | .50 | 4.59 | 16.00 | 48.97 | 18.00 | 2.00 | 5.40 | 25.40 | 74.37 | 12.00 | 62.37 | 400 | 19.00 | 76.00 | 15.99 | 13.63 | 40 |
| 6.95 | | 6.95 | 1.40 | 3.17 | 4.25 | .18 | 5.05 | 17.56 | 53.00 | 18.14 | 2.02 | 5.44 | 25.60 | 78.60 | 12.09 | 66.59 | 403 | 19.00 | 76.57 | 16.52 | 9.98 | 26 |
| 5.30 | | 5.30 | 1.20 | 3.62 | 4.06 | | 4.41 | 16.00 | 46.32 | 15.75 | 1.75 | 4.73 | 22.23 | 68.55 | 10.50 | 58.05 | 350 | 19.10 | 66.85 | 16.58 | 8.80 | 150 |
| 3.99 | 2.40 | 3.99 | 1.00 | 3.05 | 1.85 | .50 | 5.02 | 17.56 | 47.24 | 16.02 | 1.78 | 4.80 | 22.60 | 69.84 | 10.68 | 59.16 | 356 | 19.50 | 69.42 | 16.61 | 10.26 | 15 |
| 6.01 | 3.56 | 6.01 | 1.20 | 3.27 | 2.44 | .30 | 4.12 | 17.56 | 52.26 | 17.01 | 1.89 | 5.10 | 24.00 | 76.26 | 11.34 | 64.92 | 378 | 19.50 | 73.71 | 17.17 | 8.79 | 11 |
| 4.50 | 2.75 | 4.50 | 1.20 | 8.58 | 7.00 | | 3.00 | 20.00 | 59.14 | 18.05 | 2.01 | 5.41 | 25.47 | 84.61 | 12.03 | 72.58 | 401 | 20.00 | 80.20 | 18.09 | 7.62 | 32 |
| 3.61 | | 3.61 | 1.20 | 4.32 | 5.28 | .62 | 5.05 | 17.56 | 46.89 | 13.82 | 1.54 | 4.14 | 19.50 | 66.39 | 9.21 | 57.18 | 307 | 18.75 | 57.56 | 18.62 | .38 | 42 |
| 9.73 | .60 | 9.73 | .80 | 3.75 | 1.85 | .31 | 5.02 | 20.00 | 60.55 | 17.69 | 1.97 | 5.31 | 24.97 | 85.52 | 11.79 | 73.72 | 393 | 1.950 | 76.64 | 18.75 | 2.92 | 60 |
| 12.03 | | 12.03 | 1.20 | 2.15 | 1.85 | .50 | 4.58 | 16.00 | 57.44 | 16.20 | 1.80 | 4.86 | 22.86 | 80.30 | 10.80 | 69.50 | 360 | 18.00 | 64.80 | 19.30 | Loss 4.70 | 13 |
| 4.26 | | 4.26 | .60 | 4.05 | 2.00 | .14 | 3.84 | 24.00 | 51.33 | 13.50 | 1.60 | 4.05 | 19.05 | 70.38 | 9.00 | 61.38 | 300 | 19.75 | 59.25 | 20.45 | Loss 2.13 | 15 |
| 4.70 | 3.66 | 4.70 | 1.09 | 4.21 | 2.74 | .30 | 4.33 | 17.02 | 46.41 | 22.27 | 2.47 | 6.72 | 31.47 | 79.10 | 14.84 | 64.72 | 495 | 19.25 | 92.73 | 13.38 | 29.87 | 53.77 |

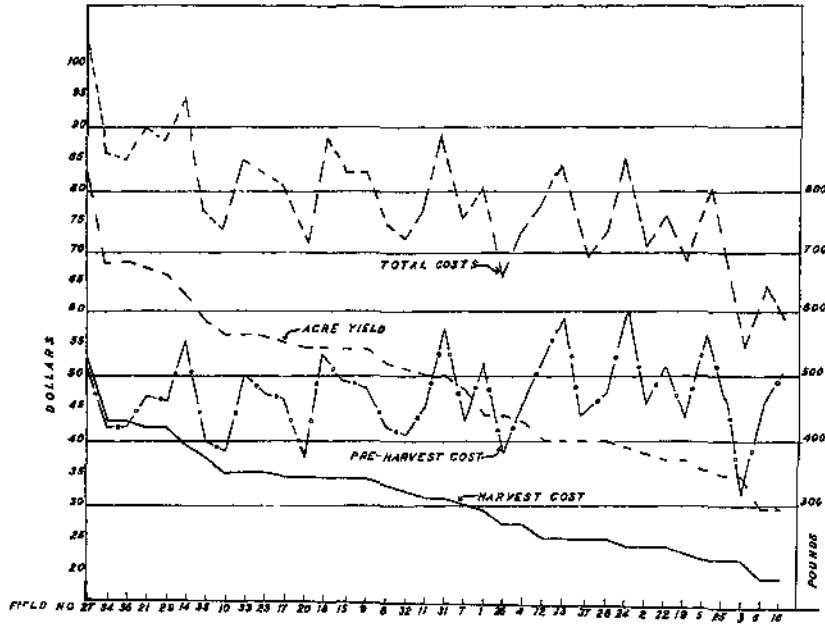


Fig. 1—Acre pre-harvest cost, harvest cost, and total cost of producing an acre of short-staple cotton

return was a loss of \$4.70 an acre on field 5 with an acre yield of 360 pounds and a net expense of \$69.50.

In 1928 only one of the cooperating farmers produced the cotton crop without the use of horse labor. This was on field 20 which made a yield of 547 pounds per acre. The total pre-harvest cost was \$24.62; the net expense was \$56.17. The cost per pound of lint was 10.26 cents and the net return per acre was \$48.85.

Figure 1 presents graphically, the acre pre-harvest cost, harvest cost, and total cost in producing an acre of short-staple cotton. This chart emphasizes the wide variation in the cost of producing an acre of cotton. It also shows that there is very little difference in the average acre cost up to harvest between the high yielding and the low yielding fields. The harvest cost parallels the acre yield because it is based on a flat rate per pound of seed cotton harvested. The only place to reduce the cost of production is in the time and labor expended on the field before harvest.

Figure 2 presents graphically the gross acre return, net acre expense, acre yield, and the cost of producing a pound of lint. The fields are arranged on the cost of producing a pound of lint, the lowest cost first.

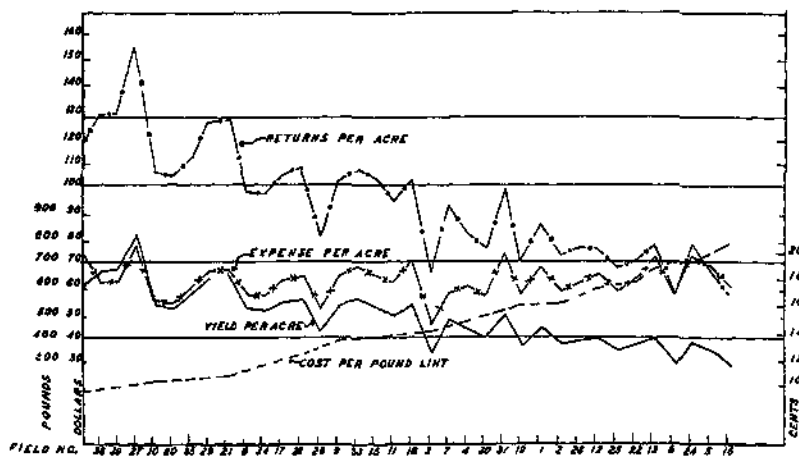


Fig. 2.—Gross acre return, net acre expense, acre yield, and the cost of producing a pound of lint.

The lowest cost per pound was 8.72 cents, the highest cost per pound was 20.46 cents. The fact is brought out in this chart that as the yield decreases the cost per pound of lint increases.

Figure 3-A shows graphically the returns per acre from short-staple cotton when the yield ranges from 150 to 550 pounds, with the price ranging from 15 to 19 cents. Figure 3-B shows the average pre-harvest cost of production to be \$46.41. The harvesting cost per acre increases with the yield increase; the cost per pound of harvesting amounts to 6.35 cents. This graph shows that a farmer must produce 250 pounds of lint selling at 19 cents, and 300 pounds of lint selling at 15 cents in order to pay pre-harvest expenses.

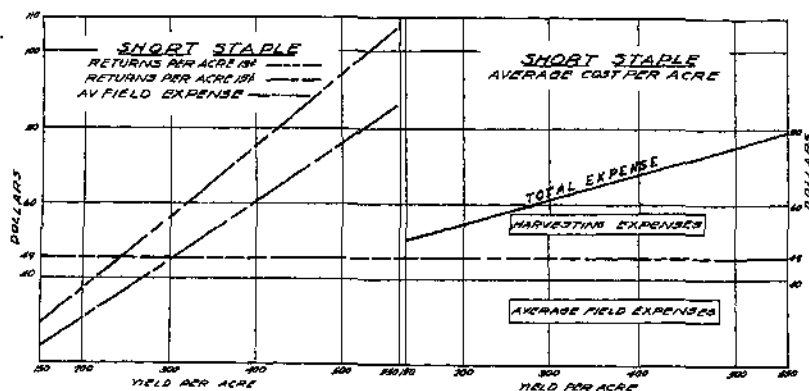


Fig 3.—A Returns per acre from short-staple cotton. B. Average pre-harvest cost shown to be \$46.41.

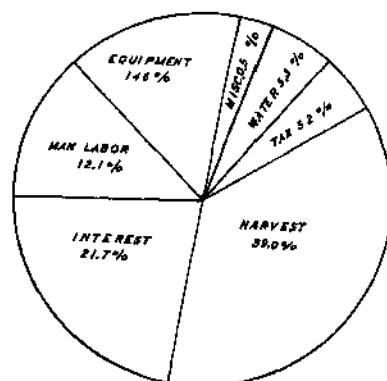


Fig. 4.—Distribution of expense, in percent of total, in the production of short-staple cotton.

Figure 4 shows graphically the distribution of expense, in percent of total, to the various items of expense incurred in the production of short-staple cotton. Harvesting is the largest item, amounting to 39.56 percent, interest is next with 21.72 percent, equipment expense consisting of horse, tractor, and machinery expense accounts for 14.60 percent, man labor 12.12 percent, water, taxes, and miscellaneous expense accounting for the balance.

PIMA COTTON

The data for Pima cotton were secured from 32 fields totaling 1,165 acres. The picking charge was 2.5 cents per pound of seed cotton; the ginning charge was 90 cents per hundred pounds. The lint production was calculated on the basis of 26 percent. The average acre yield of lint cotton was 379.5 pounds and the acre yield of cotton seed 1,080 pounds.

Table II presents data on the cost of producing Pima cotton. The figures are arranged on the basis of the cost of producing a pound of lint, the lowest cost first, and the principal items of expense for each field are shown with the average for the 32 fields. The average acre cost up to harvest was \$52.22; this included taxes and 8 percent interest on the land value. The harvesting expense for picking, ginning, and a charge of one-half cent per pound of lint for supervision of picking and for the time spent in hauling seed cotton to the gin averaged \$51.57. The highest total acre cost was \$146.54 on field 31; the lowest was \$70.29 on field 30. The average acre cost was \$103.79. The average acre value of seed was \$16.20, leaving a net acre production expense of \$87.57. The highest

acre yield of lint was 669 pounds, produced on field 26; the lowest yield was 179 pounds produced on field 32. The average acre yield for the 32 fields was 379.5 pounds.

The lowest cost per pound was 17.2 cents, based on a yield of 669 pounds of lint and a net expense of \$115.30 per acre. The highest cost per pound was 38.8 cents, based on a yield of 179 pounds and a net expense of \$69.63. The average cost of producing a pound of lint was 23.8 cents, based on an average yield of 379.5 pounds and an average net acre expense of \$87.57.

The highest net acre return was \$142.27, from field 26, with a yield of 669 pounds of lint. The lowest net acre return was 64 cents, based on a yield of 179 pounds and a sale price of 38.1 cents. The 32 fields averaged a net acre return of \$56.18.

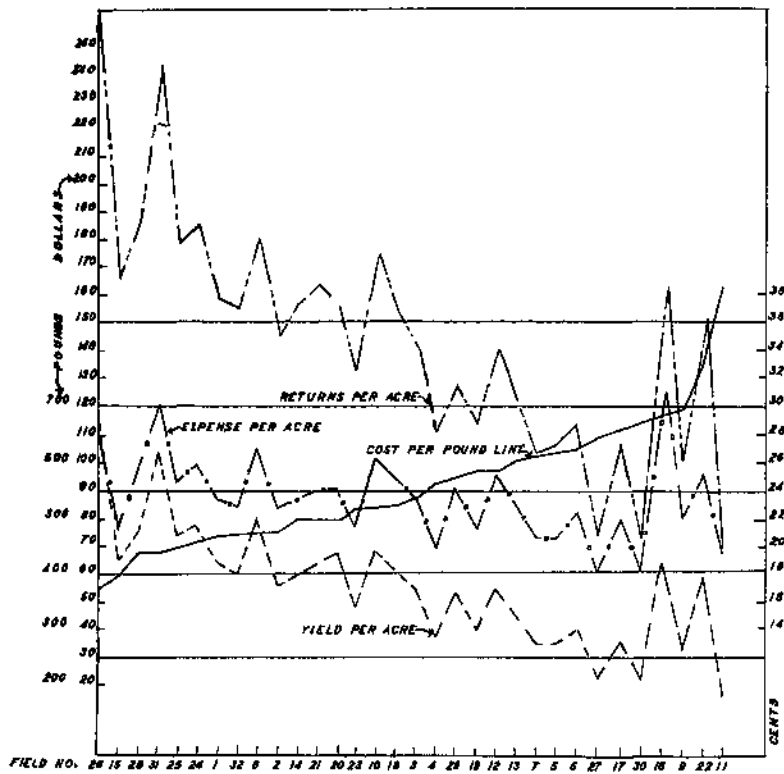


Fig. 5.—Acre yield of lint, acre return from lint, cost of lint per pound, and the net acre cost of producing Pima cotton.

TABLE II-- COST OF PRODUCING LONG STAPLE (PIMA) COTTON (ACRE BASIS) IN THE SALT RIVER VALLEY, MARICOPA COUNTY, ARIZONA. ARRANGED ON COST OF PRODUCING A POUND OF LINT

| Field No. | Man labor | | | Horse labor | | | Tractor cost Dollars | Machinery cost Dollars | Seed cost Dollars | Water cost Dollars | Hoing and thinning Dollars | Ditch expense Dollars | Taxes Dollars | Interest Dollars | Pre-harvest expense Dollars | Picking cost Dollars | Weigh and haul cost Dollars | Ginning cost Dollars | Harvest expense Dollars | Total expense Dollars | Acre return from seed Dollars | Net acre expense Dollars | P |
|-----------|-----------|---------|--------------|-------------|---------|--------------|----------------------|------------------------|-------------------|--------------------|----------------------------|-----------------------|---------------|------------------|-----------------------------|----------------------|-----------------------------|----------------------|-------------------------|-----------------------|-------------------------------|--------------------------|---|
| | Hours | Minutes | Cost Dollars | Hours | Minutes | Cost Dollars | | | | | | | | | | | | | | | | | |
| 26 | 22 | 8 | 6.64 | 49 | 39 | 4.87 | 3.00 | 4.87 | 1.00 | 4.44 | 1.50 | .20 | 4.10 | 22.40 | 53.02 | 64.33 | 3.35 | 23.16 | 90.84 | 143.86 | 28.56 | 115.30 | |
| 15 | 16 | 54 | 5.07 | 22 | 30 | 2.25 | | 2.25 | 1.00 | 3.47 | 1.25 | .62 | 3.84 | 17.56 | 37.31 | 40.95 | 2.13 | 14.74 | 57.82 | 95.13 | 18.18 | 76.95 | |
| 23 | 28 | 10 | 8.45 | 62 | 50 | 6.28 | | 6.28 | 1.04 | 6.45 | 1.53 | .47 | 4.59 | 16.00 | 28.68 | 47.88 | 2.49 | 17.24 | 67.61 | 95.25 | 21.26 | 75.03 | |
| 21 | 31 | 22 | 9.41 | 34 | 10 | 3.42 | 5.58 | 3.42 | 1.00 | 8.75 | 10.00 | | 3.87 | 17.56 | 63.01 | 59.23 | 3.08 | 21.32 | 83.63 | 146.64 | 26.30 | 120.34 | |
| 25 | 21 | 22 | 6.41 | 41 | 12 | 4.12 | 1.68 | 4.12 | 1.00 | 3.38 | 2.60 | .16 | 5.03 | 20.00 | 48.50 | 44.80 | 2.33 | 17.92 | 65.05 | 113.55 | 19.89 | 93.66 | |
| 24 | 30 | 20 | 9.10 | 72 | 40 | 7.27 | | 7.27 | 1.50 | 5.15 | 1.50 | .12 | 5.03 | 17.56 | 54.30 | 46.43 | 2.42 | 16.72 | 65.77 | 120.07 | 20.61 | 99.46 | |
| 1 | 21 | 28 | 6.44 | 52 | 54 | 5.29 | | 5.29 | 1.00 | 5.34 | 2.00 | .40 | 4.68 | 17.56 | 48.00 | 40.38 | 2.10 | 14.54 | 57.02 | 105.02 | 17.93 | 87.09 | |
| 32 | 20 | 35 | 6.18 | 38 | 40 | 3.87 | 1.28 | 3.87 | 1.00 | 6.24 | 3.00 | .50 | 5.00 | 16.00 | 46.94 | 38.65 | 2.01 | 13.91 | 54.57 | 101.51 | 17.16 | 84.35 | |
| 8 | 24 | 30 | 7.35 | 124 | 50 | 12.48 | | 12.48 | 1.60 | 2.15 | 1.85 | .50 | 4.58 | 16.00 | 58.99 | 48.08 | 2.50 | 17.31 | 67.89 | 126.88 | 21.35 | 105.53 | |
| 2 | 27 | 6 | 8.13 | 59 | 10 | 5.92 | | 5.92 | 2.40 | 4.13 | 1.60 | .10 | 4.18 | 16.00 | 48.38 | 37.30 | 1.94 | 13.43 | 52.67 | 101.05 | 15.56 | 84.49 | |
| 14 | 26 | 6 | 7.83 | 54 | 40 | 5.47 | | 5.47 | .65 | 7.37 | 2.25 | | 4.13 | 17.56 | 50.73 | 38.45 | 2.00 | 13.84 | 54.29 | 105.02 | 17.07 | 87.95 | |
| 21 | 25 | 58 | 7.79 | 60 | 2 | 6.01 | 3.56 | 6.01 | 1.20 | 3.27 | 2.44 | .30 | 4.12 | 17.56 | 52.26 | 39.33 | 2.05 | 14.12 | 55.50 | 107.76 | 17.46 | 90.30 | |
| 20 | 34 | 22 | 10.31 | 48 | 52 | 4.89 | | 4.89 | 1.20 | 6.75 | 1.53 | 1.00 | 5.14 | 17.56 | 51.74 | 40.00 | 2.08 | 14.40 | 58.01 | 109.75 | 17.76 | 91.99 | |
| 23 | 24 | 40 | 7.40 | 36 | 40 | 3.76 | 2.40 | 3.76 | 1.00 | 3.05 | 1.85 | .50 | 5.02 | 17.56 | 46.12 | 33.08 | 1.72 | 11.90 | 46.70 | 92.82 | 14.69 | 78.13 | |
| 10 | 36 | 55 | 11.08 | 87 | 28 | 8.75 | | 8.75 | 1.20 | 6.02 | 2.00 | *.85 | 3.75 | 20.00 | 60.70 | 43.15 | 2.25 | 15.54 | 60.94 | 121.64 | 19.16 | 102.48 | |
| 18 | 33 | 38 | 10.09 | 35 | 38 | 3.56 | 5.55 | 3.56 | .98 | 5.48 | 3.00 | .29 | 6.43 | 17.56 | 56.50 | 39.23 | 2.04 | 14.02 | 55.39 | 111.89 | 17.42 | 94.47 | |
| 3 | 27 | 35 | 8.25 | 43 | 48 | 4.38 | 4.00 | 4.38 | 1.60 | 4.89 | 3.85 | 1.00 | 4.19 | 17.56 | 54.10 | 36.05 | 1.88 | 12.97 | 50.90 | 105.00 | 16.01 | 88.99 | |
| 4 | 17 | 45 | 5.33 | 46 | 4 | 4.61 | .90 | 4.61 | 1.20 | 3.87 | 3.00 | | 4.39 | 16.00 | 43.91 | 27.30 | 1.43 | 9.90 | 38.83 | 82.74 | 12.21 | 70.53 | |
| 29 | 38 | 29 | 11.55 | 79 | 52 | 7.99 | | 7.99 | 1.00 | 5.21 | 4.25 | | 3.88 | 16.00 | 57.87 | 35.00 | 1.82 | 12.60 | 49.42 | 107.29 | 15.54 | 91.75 | |
| 19 | 19 | 8 | 5.74 | 50 | 21 | 5.04 | | 5.04 | .98 | 6.15 | 2.00 | .50 | 6.43 | 17.56 | 49.44 | 28.83 | 1.50 | 10.38 | 40.71 | 90.15 | 12.80 | 77.35 | |
| 12 | 34 | 31 | 10.36 | 45 | 2 | 4.50 | 2.75 | 4.50 | 1.20 | 8.58 | 7.00 | | 3.00 | 20.00 | 61.89 | 36.05 | 1.88 | 12.97 | 50.90 | 112.79 | 16.01 | 96.78 | |
| 13 | 32 | 47 | 9.84 | 68 | 36 | 6.86 | | 6.86 | 1.00 | 4.37 | 2.00 | | 4.13 | 20.00 | 55.06 | 30.85 | 1.61 | 11.12 | 43.58 | 98.64 | 13.70 | 84.94 | |
| 7 | 21 | 26 | 6.43 | 53 | 2 | 5.30 | | 5.30 | 1.08 | 3.62 | 4.06 | | 4.41 | 17.56 | 47.76 | 26.45 | 1.38 | 9.52 | 37.35 | 85.11 | 11.75 | 73.35 | |
| 5 | 26 | 32 | 7.96 | 55 | 50 | 6.58 | | 6.58 | 1.20 | 2.63 | 2.03 | .10 | 4.55 | 16.00 | 47.63 | 26.43 | 1.38 | 9.52 | 37.33 | 84.96 | 11.73 | 73.23 | |
| 6 | 31 | 46 | 9.53 | 44 | 12 | 4.42 | 4.50 | 4.42 | .80 | 4.68 | 3.25 | .10 | 4.60 | 17.56 | 53.86 | 28.82 | 1.50 | 10.39 | 40.71 | 94.57 | 12.80 | 81.77 | |
| 27 | 17 | | 5.10 | 31 | | 3.10 | | 3.10 | 1.00 | 6.24 | 3.00 | .50 | 4.39 | 16.00 | 42.63 | 21.63 | 1.13 | 7.78 | 30.54 | 73.17 | 9.60 | 61.27 | |
| 17 | 29 | 24 | 8.82 | 66 | 40 | 6.67 | | 6.67 | 1.12 | 2.75 | 2.15 | .15 | 6.43 | 19.20 | 53.96 | 26.90 | 1.40 | 9.69 | 37.99 | 91.95 | 11.94 | 80.01 | |
| 30 | 16 | 39 | 5.00 | 15 | 50 | 1.58 | 5.18 | 1.58 | 1.25 | 5.06 | 2.00 | .20 | 3.56 | 16.00 | 41.41 | 20.38 | 1.06 | 7.44 | 28.88 | 70.29 | 9.05 | 61.24 | |
| 16 | 68 | 50 | 20.65 | 85 | 8 | 8.61 | 5.55 | 8.61 | 1.20 | 10.28 | 4.38 | .10 | 3.54 | 24.00 | 86.92 | 40.85 | 2.13 | 14.72 | 57.70 | 144.62 | 18.14 | 126.48 | |
| 9 | 23 | 9 | 6.95 | 47 | 59 | 4.80 | 3.00 | 4.80 | 1.20 | 4.32 | 5.28 | .62 | 5.05 | 20.00 | 56.02 | 25.95 | 1.35 | 9.34 | 36.64 | 92.66 | 11.52 | 81.14 | |
| 22 | 29 | 57 | 8.99 | 98 | 48 | 9.88 | .60 | 9.88 | .80 | 3.75 | 1.85 | .31 | 5.02 | 20.00 | 61.08 | 37.40 | 1.95 | 13.46 | 52.81 | 113.89 | 16.61 | 97.28 | |
| 11 | 29 | 37 | 8.89 | 67 | 28 | 6.75 | | 6.75 | 1.28 | 4.40 | 2.00 | *.85 | 3.75 | 20.00 | 52.97 | 17.20 | .90 | 6.19 | 24.29 | 72.26 | 7.64 | 69.62 | |
| Average | 27 | 16 | 8.18 | 56 | 1 | 5.60 | 3.30 | 5.60 | 1.15 | 5.07 | 2.87 | .28 | 4.53 | 18.05 | 52.22 | 36.48 | 1.90 | 13.19 | 51.57 | 103.79 | 16.20 | 87.59 | |

* Profit from sheep.

OTTON (ACRE BASIS) IN THE SALT RIVER VALLEY, MARICOPA COUNTY, ARIZONA. ARRANGED ON COST OF PRODUCING A POUND OF LINT BEGINNING WITH THE LOWEST

| Machin- ery cost Dollars | Seed cost Dollars | Water cost Dollars | Hoing and thin- Dollars | Ditch expense Dollars | Taxes Dollars | Interest Dollars | Pre- harvest expense Dollars | Picking cost Dollars | Weigh and haul cost Dollars | Ginning cost Dollars | Harvest expense Dollars | Total expense Dollars | Acre return from seed Dollars | Net acre expense Dollars | Acre yield lint Pounds | Sale price lint Dollar | Acre return lint Dollars | Cost of pound lint Dollars | Net profit per acre Dollars | Acres in field |
|--------------------------------|-------------------------|--------------------------|-------------------------------|-----------------------------|------------------|---------------------|---------------------------------------|----------------------------|--------------------------------------|----------------------------|-------------------------------|-----------------------------|--|-----------------------------------|---------------------------------|---------------------------------|-----------------------------------|-------------------------------------|--------------------------------------|-------------------|
| 4.87 | 1.00 | 4.44 | 1.50 | .20 | 4.10 | 22.41 | 53.02 | 64.33 | 3.35 | 23.16 | 60.84 | 143.86 | 23.56 | 115.30 | 669 | .385 | 257.57 | .172 | 142.27 | 38 |
| 2.25 | 1.00 | 3.47 | 1.25 | .62 | 3.84 | 17.56 | 37.31 | 40.95 | 2.13 | 14.74 | 57.82 | 95.13 | 18.18 | 76.95 | 426 | .371 | 167.57 | .181 | 89.62 | 20 |
| 6.28 | 1.04 | 6.45 | 1.53 | .47 | 4.59 | 16.00 | 28.68 | 47.88 | 2.49 | 17.24 | 67.61 | 95.25 | 21.26 | 75.03 | 398 | .375 | 136.75 | .165 | 111.72 | 33 |
| 3.42 | 1.00 | 8.75 | 10.00 | ... | 3.87 | 17.56 | 63.01 | 59.23 | 3.03 | 21.32 | 83.63 | 146.64 | 26.30 | 120.34 | 616 | .360 | 200.21 | .165 | 119.90 | 60 |
| 4.12 | 1.00 | 3.38 | 2.60 | .15 | 5.03 | 20.00 | 48.50 | 44.80 | 2.33 | 17.92 | 65.05 | 113.55 | 19.89 | 93.66 | 466 | .385 | 179.41 | .201 | 85.75 | 25 |
| 7.27 | 1.50 | 5.15 | 1.50 | .12 | 5.03 | 17.56 | 54.30 | 46.43 | 2.42 | 16.72 | 65.77 | 120.07 | 20.61 | 99.46 | 483 | .385 | 151.66 | .205 | 86.50 | 35 |
| 5.29 | 1.00 | 5.34 | 2.00 | .40 | 4.68 | 17.56 | 48.00 | 40.38 | 2.10 | 14.54 | 57.02 | 105.02 | 17.93 | 87.09 | 420 | .370 | 159.60 | .207 | 72.51 | 25 |
| 3.87 | 1.00 | 6.24 | 3.00 | .50 | 5.00 | 15.00 | 46.94 | 38.65 | 2.01 | 13.91 | 54.57 | 101.51 | 17.16 | 84.35 | 402 | .387 | 155.57 | .210 | 71.22 | 25 |
| 12.48 | 1.60 | 2.15 | 1.85 | .50 | 4.58 | 16.00 | 58.99 | 48.08 | 2.50 | 17.31 | 67.89 | 126.88 | 21.35 | 105.53 | 500 | .360 | 180.00 | .211 | 74.47 | 28 |
| 5.92 | 2.40 | 4.13 | 1.60 | .10 | 4.18 | 16.00 | 48.38 | 37.30 | 1.94 | 13.43 | 52.67 | 101.05 | 15.56 | 84.49 | 398 | .376 | 145.80 | .217 | 61.39 | 40 |
| 5.47 | .65 | 7.37 | 2.25 | ... | 4.13 | 17.56 | 50.73 | 38.45 | 2.00 | 13.84 | 54.29 | 105.02 | 17.07 | 87.95 | 400 | .370 | 156.00 | .220 | 68.05 | 25 |
| 6.01 | 1.20 | 3.27 | 2.44 | .30 | 4.12 | 17.56 | 52.26 | 39.33 | 2.05 | 14.12 | 55.50 | 107.76 | 17.46 | 90.30 | 409 | .400 | 163.60 | .221 | 73.30 | 11 |
| 4.89 | 1.20 | 6.75 | 1.53 | 1.00 | 5.14 | 17.56 | 51.74 | 40.00 | 2.08 | 14.40 | 58.01 | 109.75 | 17.76 | 91.99 | 416 | .375 | 156.00 | .221 | 64.01 | 18 |
| 3.76 | 1.00 | 3.05 | 1.85 | .50 | 5.02 | 17.56 | 46.12 | 33.08 | 1.72 | 11.90 | 46.70 | 92.82 | 14.69 | 78.13 | 344 | .370 | 134.16 | .227 | 56.03 | 45 |
| 8.75 | 1.20 | 6.02 | 2.00 | *.85 | 3.75 | 20.00 | 60.70 | 43.15 | 2.25 | 15.54 | 60.94 | 121.64 | 19.16 | 102.48 | 449 | .3027 | 176.32 | .228 | 73.84 | 27 |
| 3.56 | .98 | 5.48 | 3.00 | .29 | 6.43 | 17.56 | 56.50 | 39.23 | 2.04 | 14.02 | 55.39 | 111.89 | 17.42 | 94.47 | 403 | .380 | 155.04 | .231 | 60.57 | 35 |
| 4.38 | 1.60 | 4.89 | 3.85 | 1.00 | 4.19 | 17.56 | 54.10 | 36.05 | 1.88 | 12.97 | 50.90 | 105.00 | 16.01 | 88.99 | 375 | .3785 | 141.94 | .237 | 52.95 | 40 |
| 4.61 | 1.20 | 3.87 | 3.00 | ... | 4.39 | 16.00 | 43.91 | 27.30 | 1.43 | 9.90 | 38.83 | 82.74 | 12.21 | 70.53 | 236 | .373 | 112.40 | .247 | 41.87 | 90 |
| 7.99 | 1.00 | 5.21 | 4.25 | ... | 3.88 | 16.00 | 57.87 | 35.00 | 1.82 | 12.60 | 49.42 | 107.29 | 15.54 | 91.75 | 364 | .350 | 127.40 | .252 | 35.65 | 17 |
| 5.04 | .98 | 6.15 | 2.00 | .50 | 6.43 | 17.56 | 49.44 | 28.83 | 1.50 | 10.38 | 40.71 | 90.15 | 12.80 | 77.35 | 300 | .380 | 114.00 | .258 | 36.55 | 25 |
| 4.50 | 1.20 | 8.58 | 7.00 | ... | 3.00 | 20.00 | 61.89 | 36.05 | 1.88 | 12.97 | 50.90 | 112.79 | 16.01 | 96.78 | 375 | .380 | 142.50 | .258 | 45.72 | 100 |
| 6.86 | 1.00 | 4.37 | 2.00 | ... | 4.13 | 20.00 | 55.06 | 30.85 | 1.61 | 11.12 | 43.58 | 98.64 | 13.70 | 84.94 | 321 | .392 | 125.83 | .264 | 57.59 | 28 |
| 5.30 | 1.08 | 3.62 | 4.06 | ... | 4.41 | 17.56 | 47.76 | 26.45 | 1.38 | 9.52 | 37.35 | 85.11 | 11.75 | 73.35 | 275 | .380 | 104.50 | .266 | 42.87 | 10 |
| 6.58 | 1.20 | 2.63 | 2.03 | .10 | 4.55 | 16.00 | 47.63 | 26.43 | 1.38 | 9.52 | 37.33 | 84.96 | 11.73 | 73.23 | 275 | .390 | 107.25 | .266 | 34.02 | 20 |
| 4.42 | .80 | 4.68 | 3.25 | .10 | 4.60 | 17.56 | 53.86 | 28.82 | 1.50 | 10.39 | 40.71 | 94.57 | 12.80 | 81.77 | 300 | .380 | 114.00 | .273 | 32.23 | 40 |
| 3.10 | 1.00 | 6.24 | 3.00 | .50 | 4.39 | 16.00 | 42.63 | 21.63 | 1.13 | 7.78 | 30.54 | 73.17 | 9.60 | 61.27 | 212 | .350 | 74.20 | .283 | 21.98 | 80 |
| 6.67 | 1.12 | 2.75 | 2.15 | .15 | 6.43 | 19.20 | 53.96 | 26.90 | 1.40 | 9.69 | 37.99 | 91.95 | 11.94 | 80.01 | 290 | .380 | 106.40 | .286 | 26.39 | 25 |
| 1.58 | 1.25 | 5.06 | 2.00 | .20 | 3.56 | 16.00 | 41.41 | 20.38 | 1.06 | 7.44 | 28.88 | 70.29 | 9.05 | 61.24 | 212 | .350 | 74.20 | .289 | 21.98 | 40 |
| 8.61 | 1.20 | 10.28 | 4.38 | .10 | 3.54 | 24.00 | 86.92 | 40.85 | 2.13 | 14.72 | 57.70 | 144.62 | 18.14 | 126.48 | 425 | .380 | 161.50 | .298 | 35.02 | 45 |
| 4.80 | 1.20 | 4.32 | 5.28 | .62 | 5.05 | 20.00 | 56.02 | 25.95 | 1.35 | 9.34 | 35.64 | 92.66 | 11.52 | 81.14 | 270 | .3748 | 101.20 | .301 | 20.06 | 37 |
| 9.88 | .80 | 3.75 | 1.85 | .31 | 5.02 | 20.00 | 61.08 | 37.40 | 1.95 | 13.46 | 52.81 | 113.89 | 16.61 | 97.28 | 389 | .390 | 151.71 | .336 | 54.43 | 18 |
| 6.75 | 1.28 | 4.40 | 2.00 | *.85 | 3.75 | 20.00 | 52.97 | 17.20 | .90 | 6.19 | 24.29 | 72.26 | 7.64 | 69.62 | 179 | .3921 | 70.29 | .388 | .67 | 50 |
| 5.60 | 1.15 | 5.07 | 2.87 | .28 | 4.53 | 18.05 | 52.22 | 36.48 | 1.90 | 13.19 | 51.57 | 103.79 | 16.20 | 87.59 | 379.5 | .3818 | 144.89 | .2328 | 56.18 | 1165 |

Figure 5 presents graphically the acre yield of lint, acre return from lint, cost of lint per pound, and the net acre cost of producing Pima cotton. This graph brings out the fact that as the acre yield decreases from 669 pounds to 179 pounds of lint, the cost of producing a pound of lint increases from 17 cents to 38 cents; but this increase is not uniform because of the great variation in the pre-harvest cost of production. As an example of this variation, field 15 had a yield of 426 pounds of lint with a net acre expense of \$76.95 and a cost per pound of lint of 18 cents, while field 16 had a yield of 425 pounds of lint with a net acre expense of \$126.48 and a cost per pound of lint of 30 cents. This comparison between fields 15 and 16 shows plainly that the net profits are not always in direct proportion to yield, because of cost variation, and that growers must always strive to maintain high yields and at the same time keep production cost at a minimum consistent with good farming.

Figure 6 makes a comparison graphically between net return, net cost, gross return, and acre yield, showing also the pre-harvest and harvest

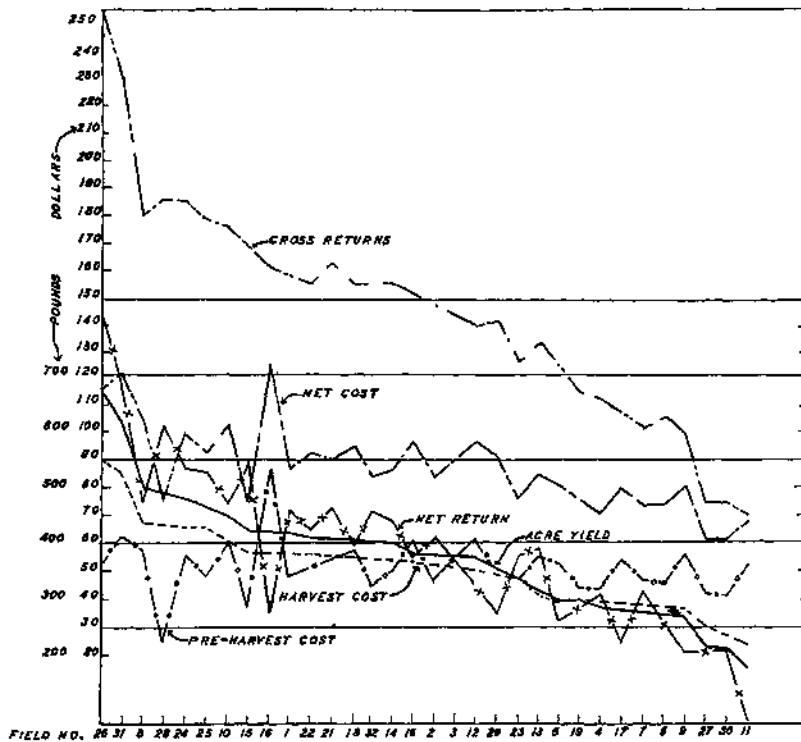


Fig 6—Comparison of net return, net cost, gross return and acre yield of Pima cotton.

TABLE III.—AVERAGE TIME AND EXPENSE SPENT ON EACH OPERATION IN PRODUCING SHORT STAPLE AND PIMA COTTONS IN THE SALT RIVER VALLEY, ARIZONA, 1928, WITH THE PERCENT OF TOTAL EXPENSE FOR EACH OPERATION.

| Operation | | Short Staple | | | | Pima | | | |
|------------------|----------------|--------------|------|--------|-----------------|------|------|--------|-----------------|
| | | Hr. | Min. | Cost | % of total cost | Hr. | Min. | Cost | % of total cost |
| Cut stalks . . . | Man hours.... | | 54 | \$0.28 | .65 | 1 | 03 | \$0.32 | .48 |
| | Horse hours. | 2 | 23 | .24 | | 2 | 29 | .25 | |
| Plowing | Man hours.. | 3 | 10 | .96 | 4.84 | 4 | 06 | 1.23 | 4.14 |
| | Horse hours.. | 17 | 53 | 1.79 | | 19 | 37 | 1.96 | |
| | Tractor hours | 2 | 00 | 1.80 | | 1 | 53 | 1.70 | |
| Harrow | Man hours.... | 1 | 06 | .33 | 1.40 | 1 | 22 | .42 | 1.11 |
| | Horse hours.. | 4 | 10 | .42 | | 5 | 16 | .53 | |
| | Tractor hours | | 24 | .36 | | | 24 | .36 | |
| Disc | Man hours..... | 1 | 23 | .47 | 2.78 | 1 | 57 | .59 | 2.64 |
| | Horse hours.. | 7 | 45 | .78 | | 8 | 27 | .85 | |
| | Tractor hours | 1 | 09 | 1.05 | | 1 | 57 | 1.77 | |
| Drag | Man hours.... | | 48 | .24 | 1.55 | 1 | 01 | .30 | 1.29 |
| | Horse hours.. | 4 | 12 | .42 | | 4 | 01 | .40 | |
| | Tractor hours | | 38 | .57 | | | 54 | .82 | |
| Border | Man hours.... | | 51 | .26 | 1.01 | | 43 | .22 | .62 |
| | Horse hours.. | 2 | 26 | .24 | | 2 | 24 | .24 | |
| | Tractor hours | | 20 | .30 | | | 17 | .27 | |
| Furrow out.... | Man hours.... | 1 | 08 | .34 | 1.59 | 1 | 04 | .33 | .84 |
| | Horse hours.. | 4 | 30 | .45 | | 3 | 16 | .33 | |
| | Tractor hours | | 31 | .47 | | | 22 | .33 | |
| Plant | Man hours..... | | 55 | .28 | 1.36 | 1 | 01 | .30 | .43 |
| | Horse hours.. | 2 | 00 | .20 | | 2 | 06 | .21 | |
| | Tractor hours | | 39 | .60 | | | | | |
| Cultipack | Man hours..... | | 47 | .24 | .65 | | 45 | .23 | .43 |
| | Horse hours.. | 2 | 45 | .28 | | 2 | 49 | .28 | |
| Dry plant cover | Man hours.... | 1 | 14 | .37 | 1.45 | 1 | 21 | .41 | .59 |
| | Horse hours.. | 2 | 49 | .28 | | 2 | 56 | .29 | |
| | Tractor hours | | 40 | .60 | | | | | |
| Cultivate | Man hours.... | 7 | 31 | 2.26 | 8.87 | 9 | 05 | 2.73 | 5.94 |
| | Horse hours.. | 21 | 42 | 2.17 | | 24 | 48 | 2.48 | |
| | Tractor hours | 2 | 54 | 2.59 | | 2 | | 1.80 | |
| Irrigate | Man hours .. | 6 | 11 | 1.86 | 2.37 | 8 | 13 | 2.47 | 2.09 |

TABLE III.—(Continued)

| Operation | | Short Staple | | | | Pima | | | |
|----------------|---------------|--------------|------|-------|-----------------|------|------|-------|-----------------|
| | | Hr. | Min. | Cost | % of total cost | Hr. | Min. | Cost | % of total cost |
| Total labor | Man hours | 22 | 55 | 6.84 | 8.64 | 27 | 16 | 8.18 | 7.70 |
| | Horse hours | 46 | 86 | 4.56 | 5.76 | 56 | 01 | 5.60 | 5.27 |
| | Tractor hours | 3 | 37 | 2.44 | 3.08 | 3 | 08 | 3.30 | 3.10 |
| Machinery | | | | 4.56 | 5.76 | | | 5.60 | 5.27 |
| Hoe and thin | | | | 2.75 | 3.47 | | | 2.87 | 2.70 |
| Ditch . . . | | | | .30 | .37 | | | .28 | .26 |
| Seed | | | | 1.09 | 1.37 | | | 1.15 | 1.08 |
| Water | | | | 4.21 | 5.32 | | | 5.07 | 4.77 |
| Picking | | | | 21.79 | 27.54 | | | 36.48 | 34.35 |
| Weigh and haul | | | | 2.42 | 3.05 | | | 1.90 | 1.78 |
| Ginning . . . | | | | 6.71 | 8.48 | | | 13.19 | 12.41 |
| Taxes . . . | | | | 4.14 | 5.23 | | | 4.53 | 4.26 |
| Interest . . . | | | | 17.18 | 21.70 | | | 18.05 | 17.41 |

costs. This chart is arranged on the basis of yield per acre, with the highest yield first. As would be expected, the harvest cost paralleled the acre yield because this expense was based on the acre yield of seed cotton. The pre-harvest cost varied with the amount of time and effort expended. As an example of this variation field 28 had a yield of 498 pounds of lint, a pre-harvest cost of \$28.68, a net cost of \$75.03, and a net acre return of \$111.72. Field 15 had a yield of 425 pounds of lint, a pre-harvest cost of \$37.31, a net cost of \$76.95, and a net return of \$89.62; field 16 had a yield of 425 pounds of lint, a pre-harvest cost of \$86.92, a net cost of \$126.48, and a net return of \$35.02; field 11 had a yield of 179 pounds, a pre-harvest cost of \$52.97, a net cost of \$69, and a net return of 67 cents.

There are certain expenses in the production of cotton, such as preparation of the ground, irrigation, cultivation, water, interest, and taxes which must be met regardless of the yield before there is any profit. In the case of Pima cotton the average pre-harvest cost was \$53 and the average net cost \$88.37 per acre. On this basis, in order to have any profit, there should be produced at least 240 pounds of lint selling at 38 cents. As the yields increase above the minimum the profits will be greater.

Figure 7-A shows graphically the returns per acre from Pima cotton when the yield ranges from 150 to 500 pounds of lint, and the sale price ranges from 30 to 40 cents a pound. Figure 7-B shows that with a pre-harvest cost of \$54 an acre and a harvesting cost of 14 cents a pound for

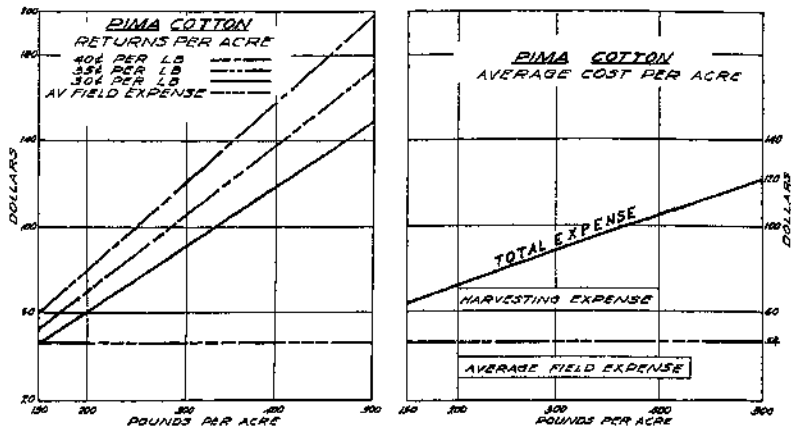


Fig. 7.—A. Returns per acre from Pima cotton. B. Production and selling price required in order to pay cost of production.

lint, there must be produced at least 175 pounds of lint selling at 40 cents, or 235 pounds of lint selling at 30 cents, in order to pay production costs.

Figure 8 shows graphically the distribution of expense, in percent of total, to the various items of expense incurred in the production of Pima cotton. Harvesting is the largest item with 48.56 percent, interest 17 percent, equipment consisting of horse, tractor, and machinery expense 15 percent, and the balance is distributed between man labor, water, taxes, and miscellaneous expense.

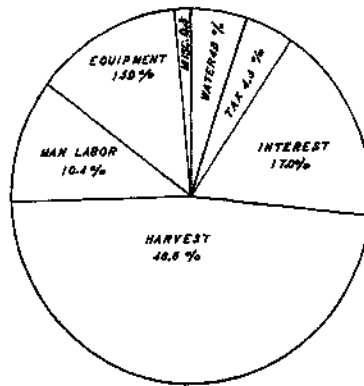


Fig. 8.—Distribution of expense, in percent of total, in the production of Pima cotton.

TABLE IV.— COST OF PRODUCING ALFALFA (ACRE BASIS) IN THE SALT RIVER VALLEY, MARICOPA COUNTY, ARIZONA, 1928. ARRANGED ON THE BASIS OF YIELD PER ACRE, HIGHEST FIRST.

| Acres | 50 | 22 | 100 | 43 | 90 | 52 | 51 | 38.5 | 50 | 40 | 18.5 | 40 | 70 | 27 | 30 | 80 | 40 | 80 | 20 | 20 | 40 | 60 | Av. |
|----------------------------------|--------|--------|--------|--------|--------|--------------|--------|--------------|--------|--------------|--------------|--------|--------------|--------|--------|--------|--------|--------|--------------|--------------|--------------|--------------------------------|--------|
| Field No. | 3 | 1 | 6 | 2 | 4 | 5 | 11 | 8 | 12 | 16 | 7 | 20 | 19 | 14 | 9 | 13 | 10 | 21 | 15 | 18 | 22 | 17 | |
| MOWING | | | | | | | | | | | | | | | | | | | | | | | |
| Man hours..... | 6.26 | 6.45 | 6.45 | 4.20 | 5.00 | 5.12 | 4.00 | 4.00 | 3.36 | 4.52 | 4.00 | 5.30 | 3.44 | 3.15 | 3.15 | 6.15 | 3.00 | 6.15 | 4.50 | 3.00 | 3.00 | 2.20 | 4.31 |
| Horse hours..... | 12.52 | 13.50 | 13.30 | 8.40 | 10.00 | 10.24 | 8.00 | 8.00 | 7.12 | 9.44 | 8.00 | 11.00 | 7.28 | 6.00 | 6.30 | 12.30 | 6.00 | 12.30 | 9.00 | 6.00 | 6.00 | 4.40 | 9.01 |
| RAKING | | | | | | | | | | | | | | | | | | | | | | | |
| Man hours..... | 3.00 | 2.00 | 3.36 | 2.43 | 2.45 | 2.24 | 2.24 | 1.20 | 1.12 | 1.40 | 1.20 | 2.30 | 2.52 | 1.30 | 1.30 | 2.30 | 1.30 | 3.20 | 1.30 | 1.12 | 1.30 | 1.00 | 2.01 |
| Horse hours..... | 6.00 | 4.00 | 7.12 | 5.26 | 5.30 | 4.48 | 4.48 | 2.40 | 2.24 | 3.20 | 2.40 | 5.00 | 5.40 | 3.00 | 3.00 | 5.00 | 3.00 | 6.40 | 3.00 | 2.24 | 3.00 | 2.00 | 4.06 |
| BUCKING IN | | | | | | | | | | | | | | | | | | | | | | | |
| Man hours..... | 3.00 | 3.00 | 3.36 | 2.49 | 1.40 | 3.00 | 3.00 | 2.00 | .54 | 2.00 | 2.00 | 3.45 | 3.00 | 1.30 | 1.30 | 2.30 | 1.30 | 1.39 | 2.24 | 3.00 | .40 | Contract price \$3.00 per acre | 2.18 |
| Horse hours..... | 6.00 | 6.00 | 7.12 | 5.38 | 3.20 | 6.00 | 6.00 | 4.00 | 1.48 | 4.00 | 4.00 | 7.30 | 6.00 | 3.00 | 3.00 | 5.00 | 3.00 | 3.18 | 4.48 | 6.00 | 1.20 | Contract price \$3.00 per acre | 4.37 |
| BUCKING TO BAGER | | | | | | | | | | | | | | | | | | | | | | | |
| Man hours..... | 3.00 | 3.00 | 3.36 | 1.40 | 2.30 | 3.44 | 2.00 | 2.00 | .54 | 2.00 | 2.00 | 2.30 | 2.00 | 1.30 | 1.30 | 2.30 | 1.30 | 2.12 | 2.24 | 3.00 | 1.00 | Contract price \$3.00 per acre | 2.13 |
| Horse hours..... | 6.00 | 6.00 | 7.12 | 2.20 | 5.00 | 7.28 | 4.00 | 4.00 | 1.48 | 4.00 | 4.00 | 5.00 | 4.00 | 3.00 | 3.00 | 5.00 | 3.00 | 4.24 | 4.48 | 6.00 | 2.00 | Contract price \$3.00 per acre | 4.20 |
| RE-RAKING | | | | | | | | | | | | | | | | | | | | | | | |
| Man hours..... | 1.30 | 1.30 | 1.48 | 1.05 | 1.15 | 1.42 | 2.00 | 1.00 | .54 | 1.00 | 1.00 | 2.30 | 2.00 | .45 | .45 | 1.00 | 1.30 | .49 | 1.30 | 1.30 | .30 | .45 | 1.17 |
| Horse hours..... | 3.00 | 3.00 | 3.36 | 2.10 | 2.30 | 3.24 | 4.00 | 2.00 | 1.48 | 2.00 | 2.00 | 5.00 | 4.00 | 1.30 | 1.30 | 2.00 | 3.00 | 1.38 | 3.00 | 3.00 | 1.00 | 1.50 | 2.35 |
| IRRIGATION | | | | | | | | | | | | | | | | | | | | | | | |
| Man hours..... | 11.18 | 3.55 | 6.00 | 5.05 | 5.00 | 4.13 | 5.12 | 2.38 | 4.44 | 6.00 | 5.12 | 5.40 | 4.50 | 2.36 | 3.00 | 5.22 | 2.25 | 2.52 | 5.39 | 3.00 | 2.30 | 2.24 | 4.32 |
| TOTAL | | | | | | | | | | | | | | | | | | | | | | | |
| Total man hours..... | 28.14 | 20.01 | 25.21 | 17.47 | 18.10 | 20.15 | 18.36 | 12.58 | 12.14 | 17.32 | 15.32 | 22.25 | 18.26 | 11.06 | 11.30 | 20.00 | 11.25 | 17.07 | 18.17 | 14.42 | 9.10 | 6.29 | 16.42 |
| Total horse hours..... | 33.52 | 32.50 | 38.42 | 24.14 | 26.20 | 32.04 | 26.48 | 20.40 | 15.00 | 23.04 | 20.40 | 33.30 | 27.08 | 17.00 | 17.00 | 29.30 | 18.00 | 28.30 | 24.36 | 23.24 | 13.20 | 8.30 | 24.20 |
| Total machine hours..... | 33.52 | 32.50 | 38.42 | 24.14 | 26.20 | 32.04 | 26.48 | 20.40 | 15.00 | 23.04 | 20.40 | 33.30 | 27.08 | 17.00 | 17.00 | 29.30 | 18.00 | 28.30 | 24.36 | 23.24 | 13.20 | 8.30 | 24.20 |
| COSTS | | | | | | | | | | | | | | | | | | | | | | | |
| Man cost..... | 8.47 | 6.00 | 7.60 | 5.34 | 5.45 | 6.07 | 5.58 | 3.88 | 3.67 | 5.25 | 4.65 | 6.72 | 5.53 | 3.33 | 3.45 | 6.03 | 3.42 | 5.13 | 5.40 | 4.41 | 2.75 | 1.95 | 5.00 |
| Horse cost..... | 3.35 | 3.25 | 3.84 | 2.41 | 2.62 | 3.20 | 2.65 | 2.04 | 1.50 | 2.30 | 2.04 | 3.33 | 2.71 | 1.70 | 1.70 | 2.93 | 1.80 | 2.83 | 2.44 | 2.32 | 1.32 | .83 | 2.41 |
| Machinery cost..... | 3.35 | 3.25 | 3.84 | 2.41 | 2.62 | 3.20 | 2.65 | 2.04 | 1.50 | 2.30 | 2.04 | 3.33 | 2.71 | 1.70 | 1.70 | 2.93 | 1.80 | 2.83 | 2.44 | 2.32 | 1.32 | .83 | 2.41 |
| Water cost..... | 14.64 | 4.86 | 7.50 | 4.61 | 3.78 | 6.95 | 4.92 | 3.02 | 4.81 | 7.48 | 6.52 | 4.70 | 4.26 | 3.30 | 3.75 | 5.00 | 3.39 | 3.73 | 4.37 | 2.58 | 3.12 | 2.25 | 4.98 |
| Baling cost..... | 15.34 | 13.29 | 13.80 | 11.43 | 12.35 | 10.39 | 13.32 | 9.90 | 9.65 | 8.72 | 8.57 | 8.24 | 10.44 | 7.81 | 7.57 | 7.20 | 6.39 | 6.36 | 6.60 | 4.70 | 3.67 | 7.19 | 9.22 |
| Hauling cost..... | 4.87 | 6.45 | 2.89 | 2.54 | 4.75 | In the field | 4.43 | In the field | 2.17 | In the field | In the field | 3.58 | In the field | 2.67 | 2.52 | 1.52 | 1.43 | 1.69 | In the field | In the field | In the field | 4.25 | 3.27 |
| Taxes..... | 4.17 | 4.19 | 3.51 | 3.38 | 2.73 | 4.55 | 2.80 | 4.68 | 4.55 | 4.39 | 4.68 | 1.33 | 3.50 | 1.40 | 1.40 | 3.39 | 3.38 | 4.64 | 4.69 | 4.58 | 3.71 | 3.71 | 3.61 |
| Value of land..... | 250.00 | 250.00 | 250.00 | 200.00 | 250.00 | 200.00 | 250.00 | 250.00 | 250.00 | 250.00 | 250.00 | 300.00 | 200.00 | 250.00 | 250.00 | 250.00 | 250.00 | 250.00 | 250.00 | 200.00 | 200.00 | 250.00 | 243.18 |
| Interest..... | 20.00 | 20.00 | 20.00 | 16.00 | 20.00 | 16.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 24.00 | 16.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 16.00 | 20.00 | 19.45 |
| TOTAL EXPENSE | | | | | | | | | | | | | | | | | | | | | | | |
| Total expense..... | 74.19 | 61.29 | 62.98 | 48.12 | 50.30 | 50.36 | 56.35 | 45.56 | 48.30 | 50.44 | 48.50 | 55.23 | 46.32 | 41.85 | 42.11 | 49.00 | 41.61 | 47.21 | 45.94 | 36.91 | 35.89 | 41.01 | 49.07 |
| Acres ton yield..... | 6.49 | 6.45 | 5.75 | 5.08 | 4.75 | 4.62 | 4.43 | 4.40 | 4.33 | 3.85 | 3.81 | 3.58 | 3.48 | 3.37 | 3.36 | 3.00 | 2.84 | 2.83 | 2.75 | 2.60 | 2.30 | 2.17 | 3.92 |
| Cost per ton..... | 11.43 | 9.50 | 10.95 | 9.47 | 10.59 | 10.90 | 12.72 | 10.35 | 11.15 | 13.10 | 12.73 | 15.43 | 13.31 | 12.47 | 12.53 | 16.33 | 14.65 | 16.68 | 16.71 | 14.20 | 15.60 | 18.90 | 13.17 |
| RECEIPTS | | | | | | | | | | | | | | | | | | | | | | | |
| Receipts for hay..... | 98.51 | 103.77 | 83.49 | 85.98 | 76.00 | 72.10 | 71.45 | 64.16 | 52.54 | 55.62 | 56.50 | 52.75 | 42.00 | 48.02 | 48.18 | 49.51 | 43.48 | 44.52 | 38.65 | 39.00 | 33.03 | 34.19 | 58.79 |
| Receipts for pasture..... | 21.71 | 22.00 | 5.50 | 9.30 | 6.15 | 6.00 | | | 6.72 | | 16.25 | | 4.64 | 10.80 | 10.00 | 13.75 | | | 12.70 | | | 12.00 | 11.25 |
| Total return..... | 120.22 | 125.77 | 88.99 | 98.25 | 82.15 | 78.10 | 71.45 | 64.16 | 59.26 | 55.62 | 72.75 | 52.75 | 46.64 | 48.02 | 58.98 | 59.51 | 57.23 | 44.52 | 51.35 | 39.00 | 33.03 | 46.19 | 66.09 |
| Net return..... | 46.03 | 64.48 | 26.01 | 47.16 | 31.85 | 27.74 | 15.10 | 18.60 | 10.96 | 5.18 | 24.25 | -2.48 | .32 | 6.17 | 16.87 | 10.51 | 15.62 | -2.69 | 5.41 | 2.09 | -2.86 | 5.18 | 20.98 |
| TON COST WITHOUT INTEREST | | | | | | | | | | | | | | | | | | | | | | | |
| Ton cost without interest..... | 8.35 | 6.40 | 7.47 | 6.32 | 6.38 | 7.44 | 8.21 | 8.04 | 6.54 | 7.91 | 7.48 | 8.72 | 8.71 | 6.48 | 6.58 | 9.67 | 7.61 | 9.61 | 13.06 | 8.04 | 6.50 | 9.68 | 7.98 |

In table III are listed all the operations with the average time required for each in producing an acre of short staple and an acre of long staple cotton. All the operations listed are not performed by all the farmers every year but they are all used by some farmers every year. As an example, only a few farmers cultipack their ground after planting; and only a few use the dry-planting method which requires an extra operation in covering the seed and an extra harrowing after irrigation. The time indicated for performing the various operations is the average spent by those using them.

The third and sixth columns of table III show the relation in percent of the cost of each operation, to the total acre expense of production.

ALFALFA

The cost of producing alfalfa is influenced by many factors. Table IV shows the various operations and their costs, which enter into the production of alfalfa. The last column gives the average acre cost of the operations. This cost includes interest on land value, taxes, water, man, horse, and machinery charges.

The highest acre yield was 6.49 tons on field 3; the lowest yield was 2.17 tons on field 17; and the average yield was 3.92 tons.

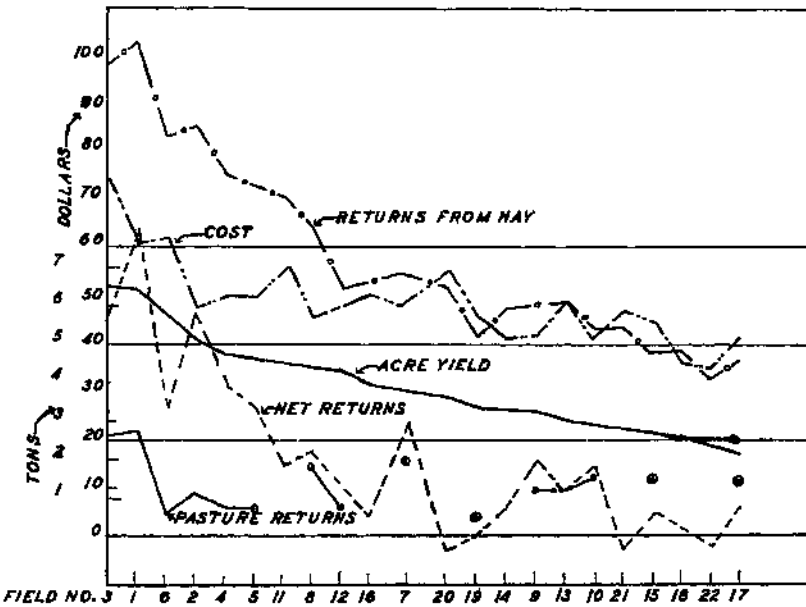


Fig. 9.—Cost of production, returns, acre yield, net returns, and pasture returns in producing alfalfa.

It is a common practice for alfalfa growers to pasture the alfalfa during the winter. The average acre return from pasture was \$11.25. The highest acre cost was \$74.19 on field 3; the lowest cost was \$35.89 on field 22, while the average acre cost was \$49.07. The lowest cost per ton was \$9.47 on field 2, and the highest \$18.90 on field 17, while the average cost per ton was \$13.17. If the interest on land value were deducted from the average acre cost, the cost per ton would be \$7.98.

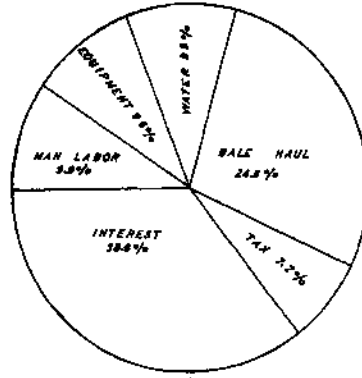


Fig. 10.—Distribution of expense, in percent of total, in producing alfalfa.

Figure 10 shows graphically the distribution of expense, in percent of total, to the various items of expense incurred in the production of alfalfa. Interest amounts to 38.62 percent, baling and hauling 24.8 percent, the balance is distributed equally between man labor, horse and machinery expense, and water.

WHEAT

The production of wheat in the Salt River Valley occupies an important place in the farm plans for crop rotation and cash income. The following data were secured from 44 fields, comprising 3,718 acres representative of the various districts of the valley as to soil, acre yield, and costs.

Table V presents a summary of the costs of the production of wheat. The highest acre yield was 3,190 pounds on field 20; the lowest yield was 465 pounds on field 21, and the average yield was 1,903 pounds. The highest acre expense was \$42.27 on field 41, the lowest expense was \$24.73 on field 4, and the average acre expense was \$35.23. The highest cost per hundred pounds of grain was \$8.20 on field 21, with a yield of 465 pounds; the lowest cost per hundred was \$1.14 on field 20, with a yield of 3,190 pounds of grain. The average cost per hundred pounds of

TABLE V.—SUMMARY OF THE COST OF PRODUCING WHEAT IN THE SALT RIVER VALLEY, ARIZONA, ARRANGED ON THE BASIS OF COST OF PRODUCING 100 LBS. OF GRAIN, LOWEST FIRST.

| Field | Acre yield | Acre cost | Cost per 100 pounds grain | Acre return grain | Net acre return grain | Return from pasture | Man | | Horse | | Tractor | |
|-------|------------|-----------|---------------------------|-------------------|-----------------------|---------------------|-----|----|-------|----|---------|----|
| | | | | | | | H. | M. | H. | M. | H. | M. |
| 20 | 3190 | 36.85 | 1.14 | 71.77 | 34.92 | | 6 | 45 | 4 | 00 | 3 | 35 |
| 11 | 2470 | 28.58 | 1.16 | 55.57 | 26.99 | | 5 | 40 | 3 | 40 | 2 | 15 |
| 13 | 2240 | 26.11 | 1.17 | 50.40 | 24.29 | | 4 | 12 | 3 | 20 | 1 | 56 |
| 12 | 2392 | 31.98 | 1.34 | 53.82 | 21.84 | | 5 | 40 | 7 | 40 | 2 | 20 |
| 5 | 2460 | 33.52 | 1.36 | 55.35 | 21.83 | 11.25 | 4 | 45 | 4 | 00 | 1 | 30 |
| 2 | 1960 | 28.01 | 1.42 | 44.10 | 16.09 | | 5 | 06 | 4 | 00 | 3 | 18 |
| 31 | 2357 | 33.73 | 1.43 | 53.03 | 19.30 | | 8 | 15 | 14 | 00 | 1 | 40 |
| 34 | 2194 | 32.07 | 1.46 | 49.36 | 17.29 | | 7 | 02 | 3 | 00 | 3 | 04 |
| 33 | 2194 | 32.93 | 1.50 | 49.36 | 16.43 | 6.37 | 8 | 05 | 8 | 20 | 2 | 10 |
| 32 | 2908 | 38.14 | 1.52 | 56.43 | 18.29 | | 5 | 54 | 5 | 20 | 3 | 10 |
| 36 | 2735 | 42.57 | 1.56 | 61.54 | 18.97 | | 6 | 34 | 6 | 00 | 3 | 04 |
| 14 | 2162 | 33.65 | 1.56 | 48.64 | 14.99 | 2.25 | 9 | 12 | 4 | 34 | 2 | 20 |
| 44 | 2100 | 33.48 | 1.59 | 47.25 | 13.77 | | 8 | 10 | 8 | 00 | 4 | 10 |
| 39 | 2468 | 40.06 | 1.62 | 55.53 | 15.47 | | 13 | 21 | 33 | 34 | | |
| 3 | 2015 | 32.71 | 1.62 | 45.34 | 12.63 | | 5 | 18 | 4 | 00 | 3 | 18 |
| 10 | 1800 | 31.24 | 1.73 | 40.50 | 9.26 | | 7 | 18 | 16 | 00 | 2 | 00 |
| 1 | 2025 | 35.44 | 1.75 | 45.55 | 10.12 | | 7 | 08 | 3 | 20 | 3 | 28 |
| 26 | 2100 | 37.19 | 1.77 | 47.25 | 10.06 | | 4 | 40 | 7 | 20 | | 20 |
| 43 | 2091 | 37.22 | 1.78 | 47.05 | 9.83 | 1.21 | 6 | 34 | | | 3 | 34 |
| 9 | 1820 | 33.73 | 1.85 | 40.95 | 7.22 | | 5 | 38 | 8 | 10 | 1 | 45 |
| 29 | 1640 | 31.97 | 1.95 | 36.90 | 4.93 | | 3 | 55 | 10 | 40 | | |
| 7 | 1820 | 33.73 | 1.96 | 40.95 | 5.21 | | 7 | 53 | 29 | 10 | | 30 |
| 4 | 1251 | 24.73 | 1.98 | 28.15 | 3.42 | | 4 | 36 | 4 | 00 | 2 | 30 |
| 25 | 1900 | 37.95 | 2.00 | 42.75 | 4.70 | | 4 | 18 | | | 4 | 18 |
| 40 | 1970 | 39.50 | 2.01 | 44.32 | 4.82 | | 7 | 29 | 3 | 40 | 3 | 55 |
| 8 | 1820 | 37.49 | 2.06 | 40.95 | 7.22 | | 7 | 53 | 29 | 10 | | 30 |
| 28 | 1750 | 36.06 | 2.06 | 39.37 | 3.31 | | 5 | 30 | 26 | 20 | | 05 |
| 23 | 1960 | 40.88 | 2.09 | 44.10 | 3.22 | | 9 | 46 | 25 | 20 | | 41 |
| 38 | 1755 | 37.59 | 2.14 | 39.49 | 1.90 | | 8 | 20 | 3 | 20 | 4 | 20 |
| 30 | 1420 | 30.63 | 2.16 | 31.95 | 1.37 | | 4 | 05 | 9 | 44 | | 05 |
| 17 | 1520 | 32.86 | 2.16 | 34.20 | 1.34 | | 5 | 11 | 4 | 27 | 2 | 09 |
| 18 | 1600 | 35.28 | 2.21 | 36.00 | .72 | | 7 | 01 | 8 | 20 | 1 | 14 |
| 24 | 1700 | 37.65 | 2.21 | 38.25 | .50 | | 4 | 18 | | | 4 | 18 |
| 19 | 1600 | 35.29 | 2.22 | 36.00 | .71 | | 5 | 15 | 6 | 00 | 3 | 35 |
| 6 | 1820 | 42.22 | 2.32 | 40.95 | -1.27* | | 10 | 23 | 49 | 10 | | 30 |
| 35 | 1615 | 37.73 | 2.34 | 35.34 | -.39* | 2.00 | 4 | 38 | 1 | 40 | 2 | 34 |
| 15 | 1676 | 36.45 | 2.35 | 37.71 | -1.74* | | 5 | 07 | 3 | 20 | 2 | 02 |
| 22 | 1400 | 33.14 | 2.37 | 31.50 | -1.59* | | 5 | 40 | 10 | 08 | 1 | 18 |
| 42 | 1755 | 41.96 | 2.39 | 39.49 | -2.47* | | 9 | 57 | 7 | 00 | 2 | 00 |
| 41 | 1755 | 42.27 | 2.41 | 39.49 | -2.78* | 7.18 | 9 | 54 | 7 | 00 | 2 | 22 |
| 27 | 1406 | 36.27 | 2.42 | 33.66 | -2.61* | | 4 | 40 | 7 | 20 | | 20 |
| 37 | 1548 | 38.86 | 2.51 | 34.83 | -4.03* | | 6 | 54 | 5 | 20 | 2 | 34 |
| 16 | 1245 | 32.19 | 2.59 | 28.01 | -4.18* | | 5 | 11 | 4 | 27 | 2 | 08 |
| 21 | 465 | 38.13 | 8.20 | 10.46 | -27.67* | | 13 | 24 | 41 | 40 | | |
| A.v | 1903 | 35.23 | 2.03 | 42.83 | 7.60 | | 6 | 51 | 10 | 57 | 2 | 04 |

* Loss.

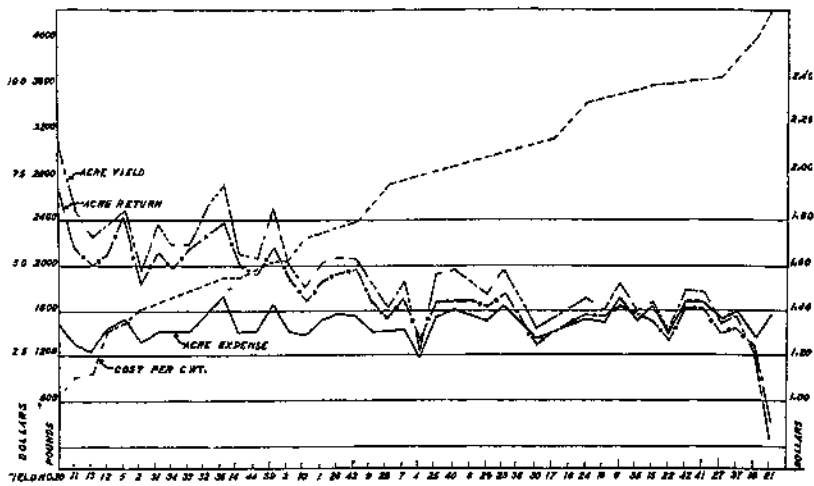


Fig. 11—Acre yield, acre return, acre expense, and cost per hundred pounds in producing wheat.

grain was \$2.03. The highest net return from grain was \$34.92 on field 20; the lowest net return was a loss of \$27.67 on field 21; and the average net return was \$7.60. By discarding field 21 because it was not representative of the valley, the average yield was 1,936 pounds; average cost per hundred pounds was \$1.89; and the average net return was \$8.42. Ten of the 44 fields failed to pay expenses. If the interest on investment were discarded from the expense of production, the average cost per hundred pounds of grain was \$1.19.

Figure 11 presents graphically the acre yield, the acre return, the acre

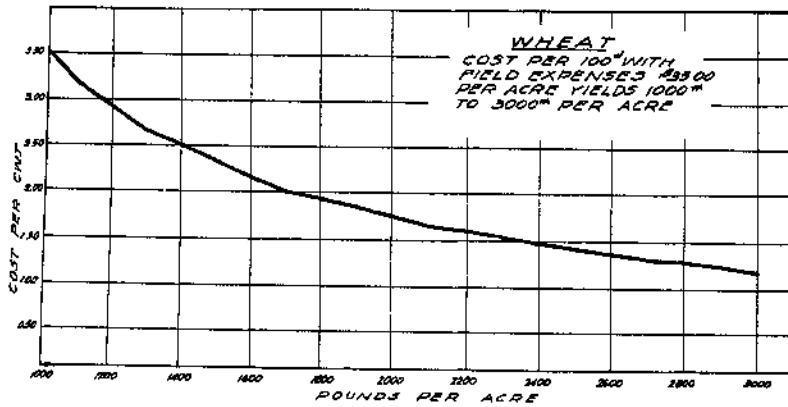


Fig 12—Cost of producing 100 pounds of wheat under certain conditions

expense, and the cost per hundred pounds, and emphasizes the fact that as the yield decreases the cost per hundred increases.

Figure 12 shows the cost of production per hundred pounds when the cost per acre is \$35.50 and the acre yields range from 1,000 to 3,000 pounds per acre. This chart emphasizes the advantage of securing good yields because, with a yield of 1,000 pounds per acre and an acre production expense of \$35.00, the cost per pound of grain amounts to 3.5 cents. As the yield increases the cost per pound of grain decreases until, with a yield of 3,000 pounds per acre the cost per pound amounts to only 1.16 cents.