

III. ECONOMICS AND FARM MANAGEMENT: For Pinal County Growers...

SOURCE OF NET RETURNS

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General crop farms in Pinal County contained 96.6 percent of all cropped acreage in that county in 1967. Only 3.4 percent of cropped acreage was devoted to vegetables and citrus, mostly on specialized farms. A breakdown of this acreage by crop is shown in the accompanying table.

What are the sources of net income to these general crop farms? It is well-known that cotton is important to the Arizona farm economy, but just how important is it? A recent study of typical Pinal County farming units, based on personal interviews with 120 Pinal County farmers enables us to answer these questions. The answers are illustrated in the accompanying figures.

Figure 1 shows acres of each crop for the county on the horizontal axis and net returns over variable costs per acre on the vertical axis. Therefore, the area of each rectangle shows total net returns over variable costs for each crop for the entire county. Variable costs are those costs which are incurred directly in the production of a given crop and thus may accurately and logically be debited against that specific crop. All fixed costs must still be paid out of net returns above variable costs. Fixed costs include such items as depreciation, interest on investment, taxes, insurance, and certain repairs, as well as any return to management.

Figure 1 shows that the contribution of short staple cotton toward net income is of overwhelming importance. And, of cotton's contribution, over half is income from government price support and acreage diversion payments. (There is a certain arbitrariness in subtracting variable costs from market returns instead of from government payments. However, since government payments are subject to change by Congress, we have chosen the former course.) The data are shown for the past year, 1967, when the average weighted market price for Pinal County cotton was about 29.7 cents per pound of lint. In 1966, when the market price was about 22.5 cents per pound, total government payments were approximately the same size and constituted about 70 percent of net income over variable costs.

The obvious implication of these data is that total net returns to Pinal County farmers are to a very large degree dependent on government programs. In fact, it is possible that future changes in government programs for upland cotton will have more effect on total farm net income than any other technical or cost factor including the declining water table. This is not to suggest that technology or cost factors should be ignored, but simply that

Table 1

Cropped Acres, Pinal County, 1967

	Acres	Percent
Upland Cotton	81,100	36.5
American-Egyptian Cotton	6,300	2.8
Grain Sorghum	40,000	18.0
Barley	45,000	20.2
Wheat	11,700	5.3
Alfalfa	21,000	9.4
Other Field Crops	9,700	4.4
Subtotal	214,800	96.6
Vegetables	7,090	3.2
Citrus	380	0.2
Total	222,270	100.0

the magnitudes of their possible effects on total net farm income are relatively small when compared to income factors. The large change in net income between 1966 and 1967 because of the change in market price (resulting from reduced acreage allotments), is an illustration of the principle.

So far the discussion has been only in terms of net income after payment of variable costs. How much of this net income is left after fixed costs are paid as well? Figure 2 gives this picture for the county as a whole. Estimates from our study showed fixed costs to vary from about \$97 per acre on small sized farms down to about \$46 per acre on the largest sized farms. A weighted average for the county as a whole was \$53 per cropped acre. We here define fixed costs as depreciation, taxes, insurance, certain repairs not included as variable costs, and interest on investment excluding investment in the land. Thus, any net income left may be considered as net return to land and management.

Note that if fixed costs are spread evenly over all cropped acres at \$53 per acre (the low rectangle under the dotted line in Figure 2), only cotton covers its share of the fixed costs. On this basis, the grains and alfalfa cover less than 50 percent of their share of fixed costs per acre. However, a better way of observing the total net return to land and management is to redistribute the leftover fixed costs on the grain and alfalfa acreage to the cotton acreage and observe the remaining areas in the two cotton rectangles. The hatched areas in Figure 2 show that income which is needed to cover these fixed costs. The remaining white areas represent net return to land and management.

In 1967, net return to land and management is represented by the two small cotton rectangles above the hatched area plus the government payments rectangle (see Figure 2). If the cotton price situation of 1966 (22 cents per pound) had been illustrated, only a part of the government payments

rectangle would have been left. That is, there is no net return to land and management on typical Pinal County farms without government payments when cotton sells at 22 cents per pound.

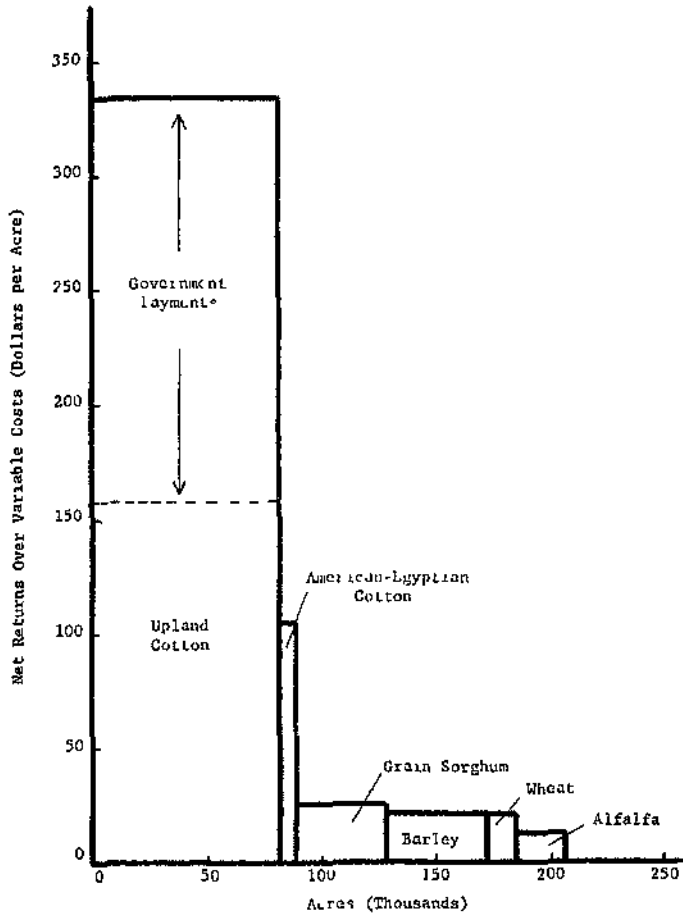


Figure 1. Estimated Net Returns Over Variable Costs, Pinal County, 1967

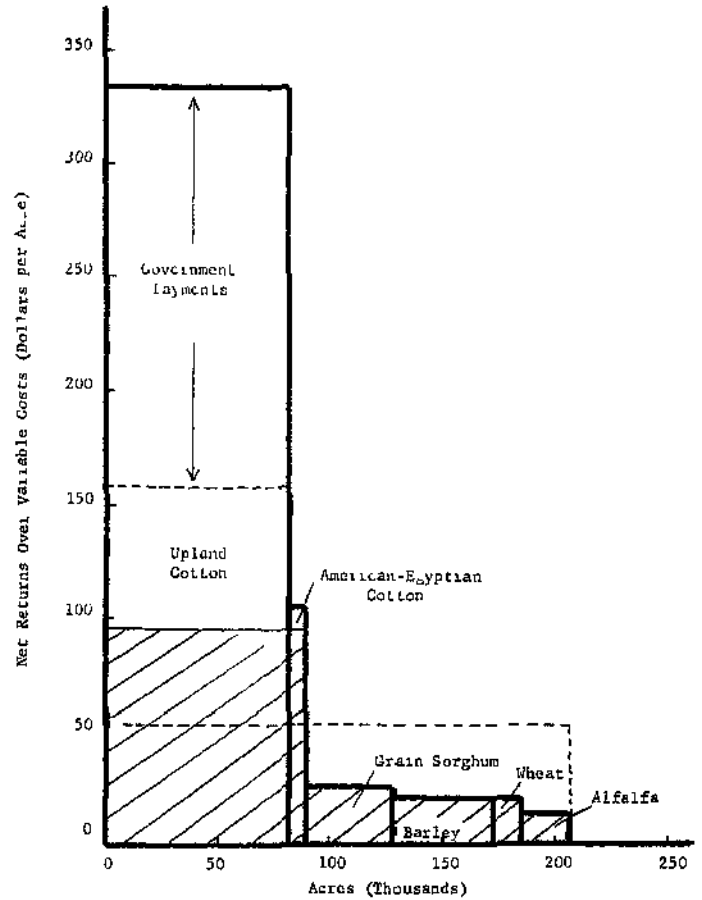


Figure 2. Estimated Net Returns Over Variable and Fixed Costs, Pinal County, 1967

COMPUTERIZED FARM RECORDS NOW EASIER TO USE

David Brueck, Extension Economist
 Ramon W. Sammons, Farm Management Specialist

At the farmers' request great strides have been made during 1968 in simplifying the farmers' job in using computerized farm records. By writing three numbers on each check, he can receive his monthly costs and income by enterprise, for the month, to date this year and per acre, or head for live-stock. The first number, 1-9 designates the enterprise or overhead account. The second two numbers are 00-99 for income tax and cost summaries.

This new Management Accounting Program is called MAP-72.

A sample of the MAP-72 Check form is shown in Figure I. The number designating the enterprise 1-9, personally selected by each farmer, is placed under the TO on the check. The Income Tax Class is placed in that area with a two digit number. Deposit slips have similar coding spaces. A carbon below the check and deposit slip allows the copy to be sent to the computer center monthly with no additional work by the farmer.

If he is using a personal pocket-size checkbook, an insert, illustrated in Figure II, is inserted into the checkbook, the insert allows coding to take place wherever the check or deposit is written. He may also use this system with business checks written at his office or voucher type checks.

With this easy input the farmer receives reports as illustrated in Figures III and IV, one page like this for each enterprise. He can receive these as often as he wishes, weekly, monthly, quarterly, etc. Under EXPENSE TO THIS ACCOUNT at the top of each Enterprise report, the amounts of each check are listed separately for easy auditing. Receipts are shown at the bottom of the page. The name of each tax class is written at the left of the page. The dollar total for these, e.g., labor, fertilizer, etc., for the month is printed near the center and the total to date is printed at the far right of the report. The total of all classes on the report, both expenses and receipts, are printed at the bottom of each section.

When acreage designations, or other units, are given the computer center at the beginning of the year for each enterprise and total acreage for overhead such as the 480 acres showing on Figure IV, the Computer divides each total by that amount so the farm has costs per unit and income per year for the month on the left and to date this year on the right.

All of this information results from the three additional numbers written on each check. Also, with no additional information from the farmer, the following report pages are received (no samples are shown).

HARRISON P. SMITH
1234 MOUNTAIN AVENUE
ANYWHERE, U.S.A.

FARM 0000

156
00-00
0000

19 _____

DAY TO THE ORDER OF _____ \$ _____

DOLLARS

TO	TAX CLASS	DETAIL	ITEM

ANY BANK AND TRUST CO.

⑆ 1 2 1 0 0 0 0 ⑆ 1 2 3 4 5 6 7 8 ⑆

FIGURE I

TO	FOR INCOME TAX CLASS
1 <u>Cotton</u>	32 ACCOUNTING
2 <u>Overhead</u>	07 AD CAPITAL
3 _____	59 AD PUR RES
4 _____	33 ADVERTISING
5 _____	35 BANK CHARG
6 _____	15 BREEDING
7 _____	23 CONSERVATI
8 _____	27 CONTRIBUTI
9 _____	36 CUSTO WORK
	38 DEFOLIANTS
	44 DENTIST
	39 DIREC FEE
	40 DIVIDENDS
	49 DOCTOR
	50 DRUGS
	68 DUES
	51 EDUCATION
	41 FARM RECRD
	10 FEED
	12 FERTILIZER
	42 FOOD
	52 FARM ORGNZ
	17 FUEL & OIL
	43 FUNGICIDES
	45 GOVER PAYM
	22 HAULING
	46 HERBICIDE
	47 HOSPITAL
	48 INSECTICID
	69 INSPECTION
	19 INSURANCE
	09 INTEREST
	00 LABOR
	53 LABOR EXP
	54 LEGAL FEES
	55 LICENSE
	13 MACHI HIRE
	56 MACHI LEAS
	57 MAROK CHG
	25 MEDICAL
	62 MISCELLAN
	58 NEMATOCIDE
	24 PENSION
	60 POSTAGE
	61 PRESCRIPTI
	04 PURCHASE
	05 PURCH RESA
	29 PURCHTRADE
	63 REFUND
	21 RENT
	08 REPAIRS
	02 SALES
	06 SALES RESA
	11 SEED
	70 STORAGE
	14 SUPPLIES
	18 TAXES
	64 TRAVEL
	20 UTILITIES
	16 VET DRUGS
	65 WAGES INCO
	66 WATER
	67 WATER ASSE

MAP-72
Check Book Insert
Cooperative Extension Service
University of Arizona

FIGURE II

JOHN Q COTTON FARMER
SOUTH, ARIZONA

JUN, 1969
RUN 01/10/69

PAGE NO. 4

FARM 201 COTTON REPORT
ACCOUNT 1

-117-

EXPENSES TO THIS ACCOUNT											YEAR-TO-DATE		
FROM ACCOUNT	DATE	FOR TAX CLASS	DETAIL DESCRIPTION	ITEM /EMP	AMOUNT	CURRENT PERIOD CKNO	QUANTITY	UNIT	CST/UN	CST/UN	QUANTITY	AMOUNT	
701 STATE BANK	6/01	100	LABOR		\$190.00	101							
701 STATE BANK	6/15				\$190.00	110							
					\$380.00	DT							
					\$380.00	CT	200.00	ACR	1.90	11.70	200.00	\$2,340.00 SD	
												\$2,340.00 SC	
701 STATE BANK	6/02	112	FERTILIZER		\$1,000.00	102							
					\$1,000.00	DT							
					\$1,000.00	CT	200.00	ACR	5.00	17.50	200.00	\$3,500.00 SD	
												\$3,500.00 SC	
701 STATE BANK	6/18	119	INSURANCE		\$1,360.00	111							
					\$1,360.00	DT							
					\$1,360.00	CT	200.00	ACR	6.80	6.80	200.00	\$1,360.00 SD	
												\$1,360.00 SC	
701 STATE BANK	6/18	146	HERBICIDE		\$375.00	104							
					\$375.00	DT							
					\$375.00	CT	200.00	ACR	1.87	1.87	200.00	\$375.00 SD	
												\$375.00 SC	
701 STATE BANK	6/18	148	INSECTICID		\$650.00	103							
					\$650.00	DT							
					\$650.00	CT	200.00	ACR	3.25	3.25	200.00	\$650.00 SD	
					\$3,765.00	RT	200.00	ACR	16.82	41.12	200.00	\$8,225.00 SR*	
SALES (RECEIPTS) FROM THIS ACCOUNT											YEAR-TO-DATE		
TO ACCOUNT	DATE	FOR TAX CLASS	DETAIL DESCRIPTION	ITEM /EMP	AMOUNT	CURRENT PERIOD CKNO	QUANTITY	UNIT	INC/UN	INC/UN	QUANTITY	AMOUNT	
701 STATE BANK	6/17	123	CONSERVATE		\$256.00								
					\$256.00	DT							
					\$256.00	CT	200.00	ACR	1.28	1.28	200.00	\$256.00 SD	
												\$256.00 SC	
701 STATE BANK	6/16	145	GOVER PAYM		\$2,480.00								
					\$2,480.00	DT							
					\$2,480.00	CT	200.00	ACR	12.40	12.40	200.00	\$2,480.00 SD	
					\$2,736.00	RT	200.00	ACR	13.68	96.18	200.00	\$19,236.00 SR*	

FIGURE III

JOHN Q COTTON FARMER
SOUTH, ARIZONA

FARM 201

OVERHEAD REPORT
ACCOUNT 2

JUN, 1969
RUN 01/10/69

PAGE NO. 6

EXPENSES TO THIS ACCOUNT												
FROM	FOR	DETAIL	ITEM	*****	CURRENT PERIOD	*****	*****			*****		
ACCOUNT	DATE	TAX CLASS	DESCRIPTION	/EMP	AMOUNT	CKNO	QUANTITY	UNIT	CST/UN	CST/UN	QUANTITY	AMOUNT
701 STATE BANK	6/30	100	LABOR		\$190.00	116						
					\$190.00	DT						\$530.00 SD
					\$190.00	CT	480.00	ACR	.39	1.10	480.00	\$530.00 SC
701 STATE BANK	6/14	108	REPAIRS		\$230.00	108						
					\$230.00	DT						\$230.00 SD
					\$230.00	CT	480.00	ACR	.47	.47	480.00	\$230.00 SC
701 STATE BANK	6/01	117	FUEL & OIL		\$195.00	105						
701 STATE BANK	6/15				\$163.00	106						
					\$358.00	DT						\$918.00 SD
					\$358.00	CT	480.00	ACR	.74	1.91	480.00	\$918.00 SC
701 STATE BANK	6/10	118	TAXES		\$568.00	107						
					\$568.00	DT						\$568.00 SD
					\$568.00	CT	480.00	ACR	1.18	1.18	480.00	\$568.00 SC
701 STATE BANK	6/17	166	WATER		\$456.00	109						
					\$456.00	DT						\$456.00 SD
					\$456.00	CT	480.00	ACR	.95	.95	480.00	\$456.00 SC
					\$1,802.00	RT	480.00	ACR	3.75	5.62	480.00	\$2,702.00 SR*

-118-

FIGURE IV

1. Balance sheet updated, with five ratios.
2. Profit and Loss Summary by enterprise.
3. Checkbook Report with each check and deposit listed in order, with the name of the recipient and source of receipt. Totals are listed for easy reconciliation with the bank statement.
4. Income tax totals for auditing and transferring to the 1040 F.

Twelve other reports are available, but they require small amounts of additional information. The farmer decides the type of reports he wants and provides the information required to receive them. He may have reports for each of 100 enterprises and 999 pens or fields within each if he desires with analysis and budgets for each. Some of the additional reports are:

1. Labor Summary by laborer for Social Security Reports.
2. Cash Flow Summary and Budget Comparison.
3. Enterprise and Full Farm analyses with Budget Comparisons.

Problems of splitting checks for different items can be worked out easily and efficiently for the farmer, as can assignment of overhead costs to enterprises.

Farmers in Arizona can use this system independently or through their accountant at a cost of \$10 per month for a minimum number of checks. Your County Extension Office can give you the information required to use MAP-72. An arrangement can be made for Commercial interests or farmer groups to cooperatively use the program.

This program, developed by the University of Arizona Cooperative Extension Service in the College of Agriculture, is being used nationwide by banks, cooperatives, Production Credit Associations, etc.

Some farmers wait until they have problems before taking advantage of these tools which often is too late to do any good. The more cotton farmers in Arizona that avail themselves of these tools, the more that will make the adjustments necessary in their rapidly changing environment.