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***Resource Use on  
Four Types of  
160-Acre Farms in  
West Central Ohio, 1956***

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J. ROBERT TOMPKIN



**OHIO AGRICULTURAL  
EXPERIMENT STATION**

**WOOSTER, OHIO**



In cooperation with

Farm Economics Division, Economic Research  
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# RESOURCE USE ON FOUR TYPES OF 160-ACRE FARMS IN WEST CENTRAL OHIO, 1956

J. ROBERT TOMPKIN\*

## INTRODUCTION

Farm income in Ohio and in the United States as a whole has decreased since 1952. Prices received for farm products have declined and prices paid by operators for production inputs have increased during the last few years. To maintain income, it has become necessary for many farmers to increase efficiency of production through adjustment in factor combination and use. This may involve partial or complete revision of farm organization or size, changes in resource use, changes in marketing procedures, or other shifts within the farm business operation or structure.

Before effective changes can be made in a farm organization, the operator needs to know the most profitable direction and magnitude of alternative adjustment possibilities. He needs information relating to both his farm and the aggregate of farms, the obtaining of which requires careful study and investigation. The individual operator has neither the time nor the facilities to conduct the necessary research. Thus, it becomes incumbent upon agriculture's research agencies to perform this function for farmers.

In the spring of 1956, the Ohio Agricultural Experiment Station and the Farm Economics Division, Economic Research Service, USDA, initiated a cooperative study of agricultural adjustment possibilities in west-central Ohio.

A sample of 150 owner-operated farms was randomly drawn from all the 160-acre<sup>1</sup> farms in a nine-county area.<sup>2</sup> These operators were visited and comprehensive information was obtained relative to the organization and operation of their farms. A second visit to each of a selected group of 35 operators was made at the end of the year. The present publication is based primarily on the information obtained during the 1956 visits to the 150 sample 160-acre farms.

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\*Agricultural Economist, Farm Economics Division, Economic Research Service, U. S. Department of Agriculture.

<sup>1</sup>The "160-acre" farms are those drawn from a 140 to 180 acre range.

<sup>2</sup>The project area included Champaign, Clarke, Darke, Greene, Madison, Miami, Montgomery, Preble, and Shelby Counties.

## DESCRIPTION OF AREA

The sample area is located in west-central Ohio between Columbus and the Indiana line. The topography varies from nearly flat to sharply rolling, with the gently rolling Miami brown silt loam and clay loam soils predominant. Rainfall averages about 38 inches a year. Some part-time farming exists but is usually restricted to smaller farms than are discussed here. Hog, dairy, and general livestock farms are most numerous, but some units are operated as cash grain farms. Beef cow-calf, sheep, and poultry operations are minor supplemental enterprises on some farms, and a few operators derive a major share of their gross returns from fattening feeder cattle. Crop rotations vary from corn-small grain-meadow-meadow to corn-corn-small grain-meadow, depending generally upon topography and the intensity and type of livestock production.

Except for land, no severe resource rationing was apparent on these groups of farms. Very little additional land was available for rent, and most tracts offered for sale were priced beyond agricultural earning power. Short-term credit was generally available at interest rates of 5 to 7 percent. On the 160-acre sample farms, only seasonal labor was hired, and this was most commonly paid at the rate of one dollar per hour.

This report is intended as a descriptive summary of "typical" or "most likely" organization of the different types of 160-acre farms in west-central Ohio, as found in 1956. Systems and organizations vary widely within each type of farming category, but if, for example, the reader were to visit a randomly selected 160-acre dairy farm in this area, he would be **most likely** to find an organization that rather closely approximates the description contained in this bulletin.

The farms were separated into major type-of-farming categories based on primary sources of farm income. The types considered here are dairy, hog, general livestock, and cash grain. If more than half the gross returns on a certain farm came from the dairy enterprise, the farm was classified as dairy. This was true also for hog and cash grain farms. General livestock farms are those with sources of income sufficiently diversified that no particular enterprise contributes as much as 50 percent of the gross income.

## PROCEDURE

In an effort to obtain clarity, brevity, and ease of comparison, the major characteristics of each type-of-farm are set forth in seven tables. Material not easily adapted to tabular presentation is included in the

discussion, with a section devoted to each of the four major farm types. Reference is made to the tables from time to time, but the reader is urged to integrate closely the narrative and the tables.

## DAIRY FARMS

The "most likely" dairy farm is slightly more rolling, has a lesser percentage of cropland, and more permanent pasture than other farm types. The crop rotation usually contains 50 percent or more meadow. Grain yields are lower, but forage yields higher, than on hog, general livestock, or grain farms (see Table 1). Almost all operators fertilize cropland, with 3-12-12 most commonly used. The operator is approximately 42 years old and milks about 17 Holstein cows, averaging around 8,700<sup>3</sup> pounds of milk per cow from a 300-day lactation period. He relies on artificial insemination and sells grade A milk. Most operators

<sup>3</sup>This is adjusted to 3.5 percent butterfat. The unadjusted production is somewhat lower.

**TABLE 1.—Land and Crop Characteristics, Typical 160-Acre Farm,  
by Type of Farm, West-Central Ohio, 1956**

Item	Type of farm			
	Dairy	Hog	General livestock	Cash grain
Average slope of cropland* -----percent	5.3	3.7	4.5	4.1
Total land in farm ----- acres	158	155	160	161
Cropland ----- do	122	125	124	130
Permanent pasture ----- do	20	15	17	11
Woodland ----- do	11	11	14	14
Rotation used -----	CGMM	CCGM	CGM	CCGM
Yield per acre of major crops:				
Corn ----- bushel	67	76	75	78
Oats ----- do	45	48	56	42
Wheat ----- do	23	21	27	26
Hay† ----- ton	3.1	2.5	2.7	1.8

\*Topography was rated according to 5 classes—classes 1, 2, 3, 4, and 5 constituting average slopes of approximately 0 to 0.9 percent, 1 to 2.9 percent, 3 to 6.9 percent, 7 to 11.9 percent, and 12 percent and over, respectively.

†Based on 2 cuttings except for cash grain farms on which only one cutting is the general practice.

do not have bulk tanks. The calf crop percentage runs about 75 percent with no distinct seasonal freshening period apparent. Most operators scatter calvings throughout the fall, winter, and spring. Most calves, excluding replacement heifers, are sold when a few days old. The most common replacement rate is 1:5, although 1:4 is used by some operators.

**TABLE 2.—Livestock Enterprises: Numbers and Production Rates, by Type of Farm, 1956\***

Item	Type of farm		
	Dairy	Hog	General livestock
Dairy Enterprise:			
Cows in beginning inventory _____number	20	--	11
Heifers in beginning inventory† _____ do	9	--	4
Cows milked _____ do	17	--	9
Milk produced per cow‡ _____pounds	8,700	--	8,300
Calf crop§ _____percent	75	--	80
Beef Enterprise:			
Cows in beginning inventory _____number	--	6	12
Calf crop§ _____percent	--	92	92
Steers and heifers sold _____number	--	9	9
Normal weight when sold _____pounds	--	900	900
Swine Enterprise:			
Sows and gilts in beginning inventory _____number	--	18	8
Sows spring farrowed _____ do	--	17	8
Sows fall farrowed _____ do	--	12	7
Spring pigs sold _____ do	--	100	52
Average weight _____pounds	--	215	215
Fall pigs sold _____number	--	75	45
Average weight _____pounds	--	200	215
Poultry Enterprise:			
Hens in beginning inventory _____number	75	150	100
Eggs per beginning-inventory hen _____ do	175	205	195

\*Cash grain farms have no "most likely" livestock enterprise. These farms average about 6 animal units of one or more kinds of livestock per farm.

†This includes yearling and 2-year-old heifers.

‡This figure is corrected to 3.5 percent butterfat. Uncorrected production is somewhat less.

§This value was derived by dividing the number of calves sold or held in inventory by the number of cows and heifers on hand that the operator intended to freshen.

||The distribution of numbers of fall litters is bimodal. About equal numbers of operators farrowed 6 and 8 litters. A compromise of 7 litters was used here. The number of fall pigs was adjusted to 7 litters.

In 1956, about 40 percent of the dairy farmers carried a supplemental hog enterprise. Twelve litters per farm per year from eight sows seemed the most common practice. Dairy farmers had smaller litters and sold at heavier weights (average = 227 pounds) than did the operators of other types of farms. The most likely dairy farm, however, does not have a hog enterprise.

Slightly over half the dairy farmers kept chickens. The mean flock size was 75 hens, with an average egg production per opening inventory hen of 175 eggs. The dairy group was below the hog and general livestock farms in size of flock and in production per hen.

The typical dairy farm has neither a sheep nor a beef enterprise. The sale of dairy calves and cull dairy animals are treated in this discussion as returns from the dairy enterprise. Numbers and production rates of livestock are shown in Table 2.

**TABLE 3.—Distribution of Farm Investment, by Type of Farm, 1956\***

Item	Type of farm			
	Dairy	Hog	General livestock	Cash grain
	Dollars	Dollars	Dollars	Dollars
Total investment -----	55,000	53,000	57,000	57,000
Land -----	22,000	25,000	24,000	26,000
Improvements -----	20,000	17,000	19,400	20,000
Machinery -----	5,300	4,700	5,500	6,800
Livestock -----	4,500	3,900	5,100	1,000
Feed and grain† -----	3,200	2,400	3,000	3,200
Percentage of total investment in—	Percent	Percent	Percent	Percent
Land -----	40.0	47.2	42.1	45.6
Improvements -----	36.4	32.1	34.0	35.1
Machinery -----	9.6	8.9	9.6	11.9
Livestock -----	8.2	7.4	8.9	1.8
Feed and grain -----	5.8	4.5	5.3	5.6

\*Land values were set at the probable selling price. Improvement values were derived by inspection and appraisal by project personnel. Machinery values were estimates of normal depreciated value. Livestock and feed were computed at market price. These values include both owned and borrowed capital.

†Inventory figures, corn or wheat stored under CCC loan were included also.

## Resources Available

The more rolling topography and lower productivity of land on the dairy farms are reflected in the lesser percentage of total investment attributable to land. Among the four type-groups, dairy farms ranked lowest in percentage of investment in land with 40 percent, ranked first in buildings and improvements with about 36 percent, was third in machinery investment, and had the largest investment in feed inventory and the second largest livestock investment. All investment figures used here were January 1, 1956, beginning inventory values. Table 3 contains a comparative breakdown of investment distribution.

Labor utilization, as declared by the operators, was 17 man-months of operator and family labor in addition to seasonal hired labor. This is higher than for any other type-of-farm group. These operators also worked more hours per day than those in the other groups of farms (see Table 4).

The typical dairy farmer carried about \$7,500 real estate mortgage and nearly \$2,000 short-term indebtedness as of January 1, 1956. The percentage of owned equity to total investment was the lowest of the four groups.

**TABLE 4.—Distribution of Available Labor on Farms, by Type of Farm, 1956\***

Item	Type of farm			
	Dairy	Hog	General livestock	Cash grain
	Months	Months	Months	Months
Labor on farm:				
Operator .....	12.0	12.0	12.0	10.0
Family .....	5.0	3.0	2.0	3.0
Hired .....	.6	1.0	.6	0
Total labor on farm .....	17.6	16.0	14.6	13.0
Months operator worked off farm .....	0	0	0	2
	Hours	Hours	Hours	Hours
Length of working day:				
April to October .....	12	11	12	10
November to March .....	8	6	6	4

\*One month of labor considered to be 26 10-hour working days. Length of working day as reported by sample operators in the summer of 1956 and the spring of 1957.



The machinery inventory on these farms contains a complete line of tillage and harvesting equipment, including two tractors, a combine, and a corn picker. Unlike the other groups of farmers, the typical dairy farmer owns a one-man baler. A few have trucks larger than the half-

**TABLE 5.—Typical Income Distribution, by Type of Farm, 1956**

Item	Type of farm			
	Dairy	Hog	General livestock	Cash grain
	Dollars	Dollars	Dollars	Dollars
Receipts from sales of crops:				
Corn .....	700	800	1,900	4,600
Wheat .....	1,000	800	900	900
Oats .....	0	0	400	0
Soybeans .....	0	0	0	1,500
Livestock:				600*
Dairy animals .....	950	0	450	----
Beef animals .....	0	1,800	1,950	----
Hogs .....	0	6,100	3,300	----
Poultry .....	50	100	75	----
Sheep .....	0	0	0	----
Livestock products:				100*
Milk .....	5,100	0	1,900	----
Eggs .....	300	800	500	----
Wool .....	0	0	0	----
Other farm receipts .....	0	0	0	0
Total farm cash receipts .....	8,100	10,400	11,375	7,700*
Value of inventory increase in:				
Improvements .....	-1,100	-1,000	-1,200	-1,500
Machinery .....	-800	-750	-800	-900
Livestock .....	350	250	450	0
Feed and grain .....	1,000	400	-700	0
Total gross farm income .....	7,550	9,300	9,125	5,300
Income from off-farm work .....	0	0	0	600

\*No one most likely livestock enterprise. Shown here is a modal value for total livestock and livestock products sold.

ton pickup. With depreciation computed on a curved line basis, this machinery shows an annual value loss of 18.9 percent. This is higher than for the general livestock farms but lower than for hog or cash grain types. This figure suggests slightly older machinery than is found on the hog and cash grain farms.

### Income Distribution

Income distribution is shown in Table 5. Milk and dairy animal sales constitute 75 percent of the total cash receipts on the dairy-type

**TABLE 6.—Distribution of Operating Costs and Capital Purchases, by Type of Farm, 1956**

Item	Type of farm			
	Dairy	Hog	General livestock	Cash grain
	Dollars	Dollars	Dollars	Dollars
Cash operating expenses:				
Auto and truck expenses -----	200	180	220	170
Repair and maintenance* -----	480	300	300	420
Machine hire -----	170	230	250	330
Commercial feed -----	630	1,500	930	50
Seed -----	220	170	190	220
Fertilizer and lime -----	420	380	440	600
Fuel, oil and grease -----	510	450	530	370
Farm insurance -----	140	130	110	160
Wages to labor -----	140	230	120	340
Taxes -----	470	450	370	460
Interest paid -----	400	220	0	140
Supplies and miscellaneous -----	570	560	440	340
Total cash operating costs -----	4,350	4,800	3,900	3,600
Capital purchases:				
Buildings and improvements -----	200	200	500	150
Machinery purchases -----	250	400	200	650
Livestock purchases -----	200	500	200	0
Total capital purchases -----	650	1,100	900	800
Total cash costs -----	5,000	5,900	4,800	4,400

\*Includes repair and upkeep on machinery, buildings, and improvements.

farm. The next most important income source is cash grain with sales making up 21 percent of the total. Wheat accounted for almost three-fifths of the cash grain receipts and corn for the other two-fifths. The typical farmer in this group does no outside custom work, and his receipts from government payments are negligible.

### Costs

Cash operating costs were exceeded only by those of the hog-farm group, but capital purchases were less than for any other farm-type

**TABLE 7.—Income Summary, by Type of Farm, 1956**

	Type of farm			
	Dairy	Hog	General livestock	Cash grain
	Dollars	Dollars	Dollars	Dollars
Total farm cash receipts -----	8,100	10,400	11,375	7,700
Off-farm income -----	0	0	0	600
Total cash income -----	8,100	10,400	11,375	8,300
Operating expenses -----	4,350	4,800	3,900	3,600
Capital purchases -----	650	1,100	900	800
Inventory change -----	-550	-1,100	-2,250	-2,400
Net family income -----	2,550	3,400	4,325	1,500
Allowance for unpaid labor* -----	625	375	250	375
Operator's income -----	1,925	3,025	4,075	1,125
Interest on owned capital† -----	2,275	2,430	2,850	2,710
Labor income -----	-350	595	1,225	-1,585
Allowance for perquisites‡ -----	850	1,100	950	800
Labor earnings -----	500	1,695	2,175	-785
Owned capital -----	45,500	48,600	57,000	54,200
	Percent	Percent	Percent	Percent
Rate earned on owned capital§ -----	.82	3.55	4.61	-.88

\*Because of inclusion of wife and children, unpaid labor was valued at \$125 per month. Operator's labor is not included.

†Computed at 5 percent. Borrowed capital was computed from interest paid when no indebtedness on January 1 was typical.

‡House rent was charged as 8 percent of value of dwelling. Products raised on the farm and used in the household were valued at farm price.

§Computed as operator's income plus allowance for perquisites minus \$2,400 as labor income. The total is then divided by owned capital.

category. Inventory decrease and interest allowed on owned capital were also substantially lower than the other groups. Total costs were thus lowest for the dairy group. The typical dairy farm returned \$1.12<sup>4</sup> for each \$1.00 of cost, excluding the farm family's labor and management contribution. Table 6 shows a comparison of operating costs and capital purchases, and Table 7 contains a comparison of inventory changes by type-of-farm.

### Income Summary

The comparative figures for labor income, labor earnings, and rate earned on owned capital are shown in Table 7. Lower gross income, a larger allowance for unpaid family labor, and a relatively low value of perquisites place the most likely dairy farmer in a less favorable net income position than operators of the other types of farms. Less inventory decrease provides a partial compensation, however. Allowing \$2,400 for operator's management and labor and including house rent and value of products used in the household, the rate earned on owned capital is 0.82 percent.

## HOG FARMS

### Land Use

The average age of operators of hog-type farms is 48. The typical farm of this type is on gently rolling land, and the operator uses a corn-corn-small grain-meadow rotation. About 81 percent of his farm is tillable, with 10 percent permanent pasture and the rest in woodland, farmstead, and roads. He uses less commercial fertilizer than operators of the other groups of farms but is second in yields of corn and oats. His wheat and hay yields are the lowest of the sample farms.<sup>5</sup>

### Livestock Enterprises

The beginning inventory shows 18 sows and gilts, 17 of which farrow in February or March. Twelve of these sows are rebred for September or October litters. About 175 hogs are sold during the year, at average selling weights of 200 pounds for fall pigs and about 215 pounds for spring pigs. The fall litters average about one-half pig larger than

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<sup>4</sup>This value is computed from the following fraction:

$$\frac{\text{Cash receipts} \pm \text{feed and livestock inventory change}}{\text{+ value of perquisites}}$$

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Operating expenses + livestock purchases + building and machinery depreciation + interest on owned capital

<sup>5</sup>See footnote 2 to Table 1.

the spring litters, probably because of more favorable temperature at farrowing time. The operator may sell the sow after two litters, or he may sell after three farrowings. A few operators take four litters before selling the sows.

The most likely hog farm has no dairy enterprise but keeps about 6 beef cows, usually Hereford, and each year sells 9 head of fat cattle weighing 850 to 950 pounds. Usually another is butchered at this weight. Calves are dropped in the spring. The general practice is to sell one cull cow and to buy about five feeder calves each year.

Another livestock enterprise is poultry. The normal opening inventory is 150 hens, and these lay 205 eggs each during the year.

### **Resources Available**

The land on this group of farms represents 47 percent of the total farm investment, but the building and improvement values run somewhat less than for any of the other three types, representing only 32 percent of the total value of resources. Machinery inventory and feed investment are also lower than on the other farm types. Investment in livestock is less than on dairy or livestock farms but greater than on cash grain farms.

Labor utilization is reported as 15 man-months of family labor and one month of seasonal hired labor. The normal operator gives 11 hours as the usual length of his working day in spring and summer and 6 hours in late fall and winter. Very few operators do outside custom work or receive government payments.

The most likely hog farm is not mortgaged. About a third of the farms are not fully paid for, with \$5,000 the most common amount owed. The usual short-term indebtedness on these farms is \$2,500. This is the highest of the four groups. The typical operator has an owned equity of about 95 percent of his total controlled investment.

The machinery inventory includes a full line of tillage and harvesting equipment, with two tractors, a combine, and a corn picker. A few farmers have trucks, and an occasional baler is found. Operators of these farms apparently have the newest machinery of any of the four groups; annual machinery depreciation is 22.5 percent of beginning inventory plus capital purchases. This was computed on the basis of a constant percentage of remaining value.

### **Income Distribution**

Cash receipts from sales of hogs constitute 59 percent of total cash receipts; cash grain sales, 15 percent; beef sales, 17 percent; and poultry and egg sales almost 9 percent.

## **Costs**

Cash operating expenses and amount of capital purchases are higher per hog farm than for any of the other three types of farms. Inventory decrease is less than for the livestock or cash grain farms. Interest charge on owned capital is greater than for the dairy group but less than for the other two farm types. For each dollar of costs, these operators get \$1.21 gross income.<sup>o</sup>

## **Income Summary**

Because of higher cash operating expenses and lower gross receipts, the labor income on these farms is lower than on the general livestock farms. Including value of house rental and farm-raised products used in the household, the rate earned on owned capital is 3.6 percent when \$2,400 is allowed for operators' labor and management.

## **GENERAL LIVESTOCK FARMS**

### **Physical Description**

The typical general livestock operator may be either 33 or 57 years of age. Half of the sample clusters closely about each of these ages, whereas the dairy and hog farm operators were in their forties. This might indicate that farmers start in a diversified type of farming because of risk aversion, then specialize as their risk-bearing position improves, and revert to diversification again for the few years prior to retirement.

Farms of this type are less rolling than the dairy farms but more so than the hog or cash grain farms. Only 77 percent of the land is tillable as compared with more than 80 percent for hog and cash grain farms. Of the 160 acres, 17 acres are in permanent pasture and 14 acres in woodland.

The typical rotation is corn–small grain–meadow, a cropping system of medium intensity. Corn yields are high and yields of small grain higher than on any other of the four types. Table 1 shows comparative acreages and yields by groups of farms.

### **Livestock Enterprises**

The chief livestock enterprise is swine, which accounts for about 40 percent of the total cash receipts from livestock and livestock products. This is followed, in order, by dairy, beef, and chicken operations, with 29 percent, 24 percent, and 7 percent, respectively.

The typical operator farrows eight sows in the spring and seven in the fall. Litters average about 7.3 weaned pigs. Approximately 97 fat hogs, averaging 215 pounds, are sold per year.

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<sup>o</sup>See footnote 4.

The dairy enterprise consists of 11 Holstein cows, of which an average of 9 are milked during the year. Grade C milk is most commonly produced. In 1956, production per cow averaged 8,300 pounds, corrected to 3.5 percent butterfat. Freshening is scattered throughout the year, with no apparent pattern discernible.

Some beef production is found on more than two-thirds of the farms. Most of the operators who have no beef carry a supplemental sheep enterprise instead. The most likely farm, therefore, is to be considered as raising beef rather than sheep. Almost 24 percent of the total cash receipts from livestock sources come from the beef operation.

The majority of beef raisers use a cow-calf system. The modal number of cows in the beginning inventory is 12. Nine head of heifers and steers are sold each year. Usually two heifers are kept for replacement, and one animal is butchered each year. The calving percentage varies between 90 to 100 percent on most farms. Calves are usually dropped in the spring. Most beef animals, other than cows, are sold at 850 to 950 pounds.

About a third of the beef producers buy feeder calves and keep no cows. The calves are usually bought in the fall and sold the following fall. The average number sold and the selling weights are about the same as those of the cow-calf group.

The typical livestock farm has a supplemental chicken flock of about 100 hens. Egg production is 195 eggs per beginning inventory hen, with 1,500 dozen eggs sold during the year. Cash receipts from sales of hens and eggs constitute about 7 percent of the total cash receipts from livestock sources.

### **Available Resources**

Table 3 shows the distribution of investment on these farms. No specific resource is emphasized, as is done on the more specialized types of farms.

Less family labor, other than operator, is used than on any other group of farms. The most reasonable explanation for this lies in the bimodal age distribution of operators of the general livestock farms. About half the operators are in their late fifties; most children have left the farm; and the enterprise combination is such as to alleviate labor peaks and intensive labor requirements.

The typical general livestock farmer has rather limited liabilities. In 1956, only about 25 percent of the operators had mortgages on their farms, and these averaged about \$6,500. As of January 1, 1956, less than half the farmers owed short-term debts. If short-term liability exists, it is usually about \$2,000.

The value of machinery inventory on these farms is second only to that on the cash grain farms. The usual complete line of tillage equipment is supplemented by two tractors, a combine, and a corn picker. About 40 percent of these operators own a one-man baler. An annual depreciation of 17.5 percent indicates that these farmers usually have older machinery than do operators of the other farm-type groups, assuming that farmers in each group buy approximately the same proportions of new and used machinery.

### **Income Distribution**

In 1956, cash receipts from sales of crops were 28 percent of total cash receipts, with corn (16.7 percent) and wheat (7.9 percent) the principal crops sold. Corresponding percentages from sales of livestock and livestock products were: hogs, 29.0 percent; dairy, 20.7 percent; beef, 17.1 percent; and poultry, 5.1 percent. Very few of the operators received income from custom work or from government payments. Income distribution is summarized in Table 5.

### **Costs**

Total cash costs, including inventory decrease, are higher on these farms than on those of the other groups studied. Cash operating expenses are low, but capital purchases and inventory decreases are high. Efficiency, in terms of dollars of gross income per dollar of cost, is highest on these farms as compared with the other groups of farms (\$1.25 per \$1 of cost).<sup>7</sup> A more complete cost breakdown is shown in Table 6.

### **Income Summary**

Total gross income for this group is higher than for any of the other three farm-type classes. This gain is offset somewhat by the high values of capital purchases and inventory decreases. Labor income is highest of the four groups. General livestock farms also ranked first in 1956 in rate earned on owned capital with 4.61 percent. Table 7 is a comparative summary of income and costs.

## **CASH GRAIN FARMS**

### **Physical Description**

These farms are gently rolling with a higher percentage of cropland and less permanent pasture per farm than the other farms. Almost 81 percent of all farmland is tillable. Cropping is more intensive than on the dairy or general livestock units, with corn-corn-small grain-meadow as the usual rotation. Despite this 50-percent corn-cropping

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<sup>7</sup>See footnote 4.



plan, the typical cash grain operator obtains higher corn yields, with somewhat greater application of fertilizer, than does the typical dairy, hog, or livestock operator. Oat yields are low, but wheat yields are high. These operators usually only take one cutting of hay, whereas operators of the other types of farms put up two cuttings.

### **Livestock Enterprises**

There is no most likely livestock enterprise on these farms. The normal operator has about six animal units of livestock, but they may consist of hogs, beef, sheep, or poultry, or some combination of two or more kinds. In this discussion, no attempt is made to identify any particular livestock enterprise, but simply to show the modal value of cash receipts and inventory changes for livestock in general.

### **Resources Available**

Total investment is high for this type of farm, with greater land and machinery inventory values accounting for the higher total investment. Buildings and improvement values are higher than for the hog or general livestock farms, perhaps indicating that these units were not originally designed as cash grain farms. Livestock inventory is much lower than for the other groups of farms.

Labor utilization on the farm is less than for the other groups, but this is offset by the operator's off-farm work. More than half of the operators reported some work for pay off the farm with about two months per year as the mean amount. The majority of these farmers had no hired labor during the year. The typical cash grain operator is about 55 years of age.

Most (62 percent) of the operators reported no real estate mortgage on the farm, and no short-term indebtedness at the beginning of the 1956 calendar year. Existing farm mortgages were commonly for \$5,000, and those farmers who had current liabilities averaged about \$1,000 each. The typical grain farmer spent \$140 for interest payments during 1956, so he must have used something over \$2,000 of borrowed short-term capital, computed on a year-equivalent basis.

Less than 40 percent of these operators owned trucks and less than 20 percent had balers. The usual line of tillage equipment is supplemented by a combine, a corn picker, and two tractors. Annual depreciation amounted to 20.8 percent of opening inventory value plus capital purchases. This turnover rate suggests that these farmers are second only to hog farmers in general newness of machinery and equipment.

### **Income Distribution**

The cash grain farms ranked lowest of the four groups of farms in total gross farm income. This was partly offset by lower operating costs and about \$600 per year from off-farm work.

In 1956, sales of livestock and livestock products accounted for only about 8 percent of total cash receipts from sales and off-farm work. Cash receipts from grain sales were: corn, \$4,600; soybeans, \$1,500; and wheat, \$900.

### **Costs**

Total cash operating expenses and value of capital purchases were relatively low on this group of farms. Gross returns per \$1.00 of cost<sup>s</sup> were only \$ .96. Inventory decrease is the major cost item other than interest on owned investment.

### **Income Summary**

From the standpoint of labor earnings, these farms returned less than any of the other three groups. This would seem reasonable considering the favorable position of livestock in the ratio of livestock-grain price relationship to feed-conversion relationship. When products produced on the farm but consumed in the household are considered as receipts, the rate earned on owned capital in 1956 was -.88 percent. This was substantially below the rate earned by the other kinds of farms.

## **CONCLUSIONS**

These sample farms show a high correlation between farm type and type-influencing factors. The typical farm shows a high degree of consistency within its organization. In terms of topography and percentage of land in crops, the rougher farms with the greater amounts of permanent pasture have adopted dairy and beef and sheep enterprises. The more level land, with the higher percentage of cropland, is more generally used for the raising of cash grain or for hog production in which a large quantity of corn is needed.

Rotations used on the various farm types vary directly with the type of feed-consuming livestock on the units. The dairy farmers need, and their farms are more suited to, forage. Thus, they use a 25-percent corn and 50-percent meadow rotation. The cash grain farmers have very little livestock; they have reduced forage production to a level believed to approximate optimum complementarity of meadow and grain.

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<sup>s</sup>See footnote 4.

These sample farms seem to show a certain relationship between age of operator and type of farm organization. In general, younger operators seem to start farming with general livestock type organization, evolve to a more specialized dairy or hog operation, and then shift back to general livestock or cash grain farming during the last few years before retirement. This, of course, is consistent with amounts of capital, family labor, and risk-bearing ability possessed by operators during the various phases of the life cycle of the farm operation. The shift during the older age of the farmer is probably due to a desire for more leisure time, less physical labor, and a diversified operation to safeguard accumulated assets.

The typical 160-acre farm has more livestock housing space than an optimum enterprise combination requires. Linear programming solutions show this excess to be about 1,000 square feet. Twenty percent of the sample units are consolidations of two smaller farms and thus have two sets of buildings. The greatest overinvestment in improvements, however, occurs on the cash grain farms where very little livestock housing is needed. Apparently, these farms were organized for livestock at the time the farmstead was built.

Machinery investment per crop acre is high on these farms because considerably more acreage could be farmed with no appreciable increase in equipment inventory. The normal complement of machinery consists of a complete line of sowing, tillage and harvesting machines, including two tractors, a combine, and a corn picker. Only the dairy farmer, who has the greatest need for forage, typically owns a baler. Most of these farmers can justify ownership of major harvesting equipment only on the grounds of timeliness of harvest rather than sufficiency of crop acreage.

When efficiency is measured in terms of the percentage that costs are of gross income (cash receipts plus or minus inventory change), general livestock farms lead with 62.1 percent. Cash grain farms have the high cost percentage of 74.6 percent. Hog and dairy type farms have 67.1 and 68.5 percent, respectively.

The most likely livestock or cash grain farmer has no real estate mortgage and only a few hundred dollars of current indebtedness. Liabilities on the typical dairy or hog farm are not large enough to cause any appreciable amount of capital rationing. Credit is available to most of these farmers at 5 to 7 percent interest rates. Linear programming analysis indicates that the typical operator is stocked somewhat below the optimum rate for the resources available. Thus, in many instances, borrowing additional capital for livestock purchases would probably be profitable.

Only an occasional farmer in the 160-acre sample put land in the soil bank. The general feeling among these farmers was that their units were too small for them to benefit by doing so, as machinery cost per crop acre would increase and they needed the feed to maintain enough livestock to utilize available labor. They felt that to decrease livestock numbers would decrease income disproportionately.

Most operators who raised wheat stayed within their wheat acreage allotment, but very few of the sample farmers complied with corn acreage quotas. During 1956, 54 percent of the wheat growers in the sample stored some or all of their grain under CCC loan, whereas only 24 percent sealed a portion of their corn crop.

Most operators had no government payments in any given year. A few received some wool and lamb payments; a few received payments for pond building, tile, or other soil-improving practices; but the majority of operators received no payments in 1956.

This bulletin has set forth the resource inventory and general organization of the most likely 160-acre farm in each major type-of-farming category, as found in 1956. Another bulletin expected to be released next year will give the same type of information for a sample of farms about 320 acres in size.