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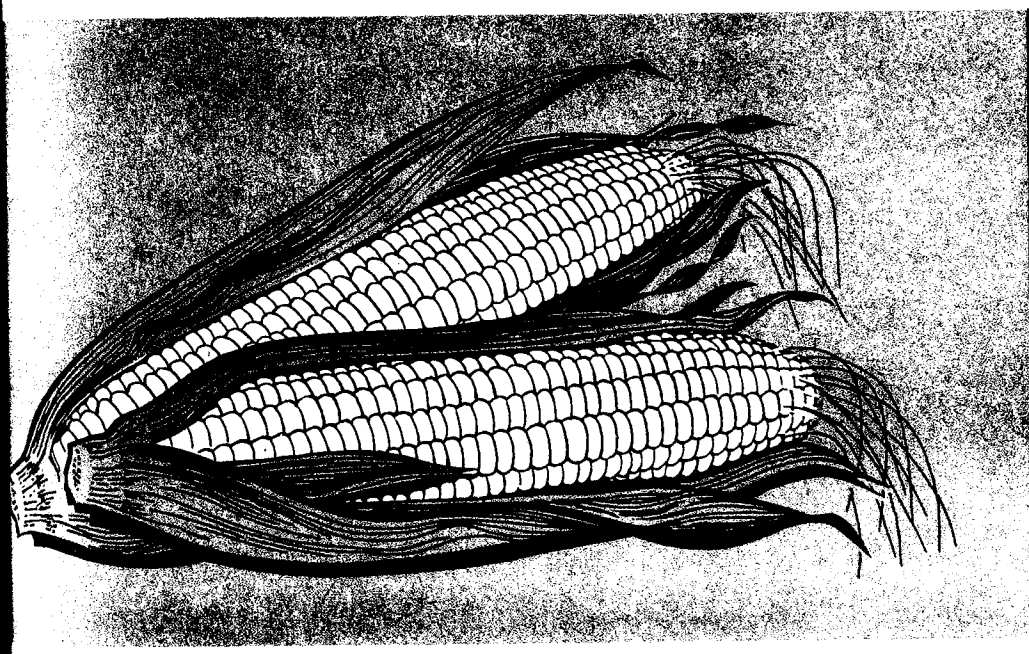
COSTS and RETURNS



Commercial Corn Belt Farms

FARM COSTS AND RETURNS STUDIES

This report is part of a continuing nationwide study of costs and returns on commercial farms and ranches in selected U.S. farming regions. The study is conducted under the general supervision of Wylie D. Goodsell, Farm Production Economics Division, Economic Research Service. Objectives, methodology, procedure, and terms are uniform for all areas studied.

The 1968 costs and returns studies cover the following commercial farms and ranches by type and size:

- Dairy Farms, New York and Wisconsin
- Corn Belt Farms
- Egg-Producing Farms, New Jersey
- Broiler Farms, Georgia
- Cotton Farms, Mississippi Delta
- Tobacco Farms, Coastal Plain, North Carolina
- Tobacco-Livestock Farms, Bluegrass Area, Kentucky and Pennyroyal Area, Kentucky-Tennessee
- Wheat Farms, Plains and Pacific Northwest
- Western Livestock Ranches

Substantial revisions have been made in some series to portray farming operations representative of major producers of specified products. Some series were discontinued because they no longer represent a major sector of commodity production or because the farm enterprise could be better represented by another series.

Summary statistics for all types of farms in the study are presented in a report, revised annually. The latest such report, published in 1968, is "Farm Costs and Returns, Commercial Farms, by Type, Size, and Location," AIB 230.

Information on the studies can be obtained from Farm Production Economics Division, Economic Research Service, U.S. Department of Agriculture, Washington, D.C. 20250.

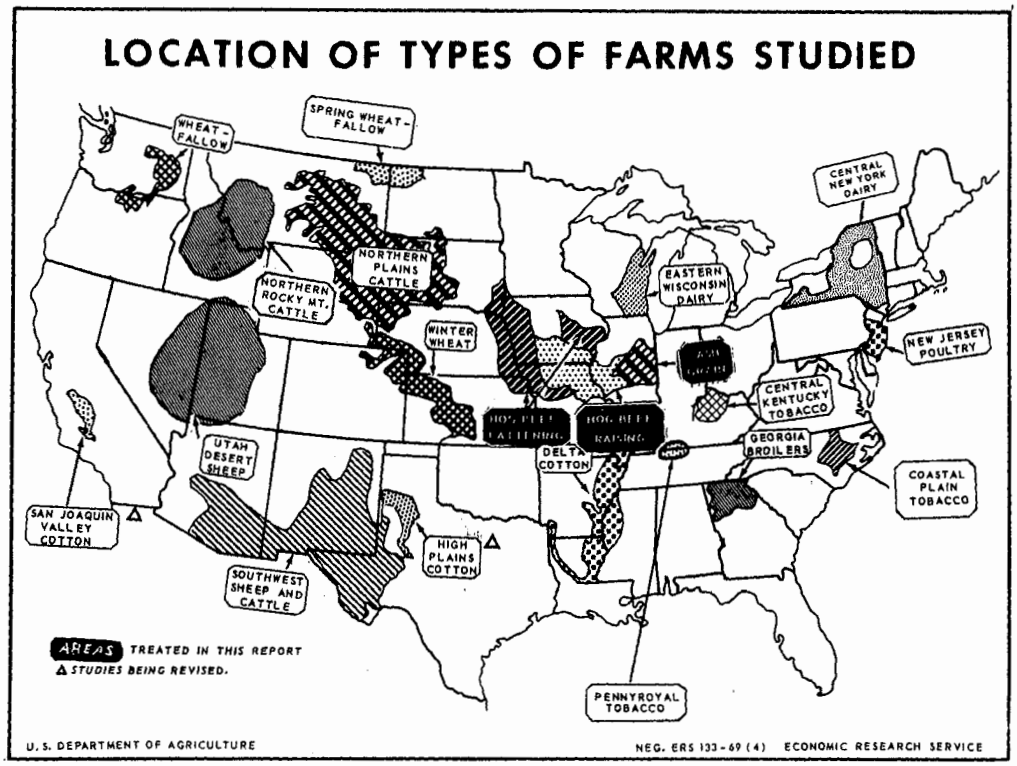


Figure 1

COSTS AND RETURNS
COMMERCIAL CORN BELT FARMS, 1968

Edwin G. Strand and Isabel Jenkins[1]

INTRODUCTION

Production organization, costs, and returns in 1968 on principal types of Corn Belt farms are covered in this study. Three types of farms are analyzed: hog-beef raising, hog-beef fattening, and cash grain.

Figure 1 shows the Corn Belt farm areas along with other areas included in the nationwide study of farm types. In figure 2, specified areas in the Corn Belt are more clearly shown within 5 North Central States.

The hog-beef raising farms are mainly in southern Iowa, northern Missouri, and western Illinois. Hog-beef fattening farms are most prevalent in two areas--one in western Iowa, eastern Nebraska, and southeastern South Dakota; the other in eastern Iowa and western Illinois. Cash grain farms, like livestock farms, are found throughout the Corn Belt, but cash grain production represented in this study is mainly concentrated in east-central Illinois.

SUMMARY

Net farm incomes in the Corn Belt increased in 1968 for operators of hog-beef raising and fattening farms but dropped for growers of cash grain crops. As shown in the following tabulation, incomes on all three types of farms were well above the 10-year average for 1957-66.

Farm type	1957-66	1967	1968	Percentage change, 1967 - 1968
Hog-beef raising	$ 4,708	$ 6,141	$ 7,489	+ 22
Hog-beef fattening	10,305	11,526	12,807	+ 11
Cash grain	11,002	13,194	11,450	- 13

[1] Agricultural Economist and Statistical Assistant, Farm Production Economics Division, Economic Research Service, U.S. Department of Agriculture.

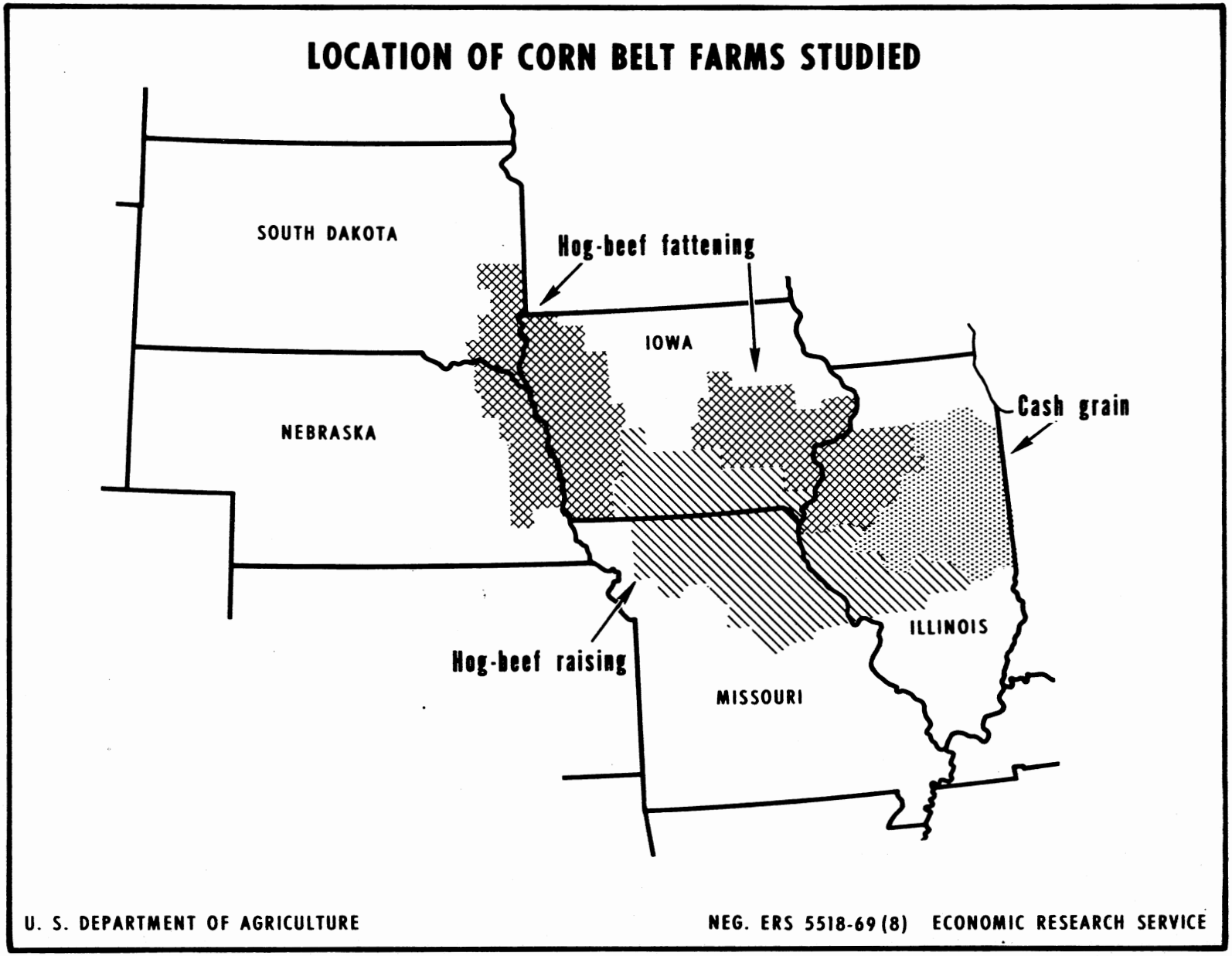

LOCATION OF CORN BELT FARMS STUDIED
SOUTH DAKOTA
NEBRASKA
IOWA
ILLINOIS
MISSOURI
Hog-beef fattening
Cash grain
Hog-beef raising
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Figure 2

As used here, net farm income is the return to the farm operator and his family for their labor, management, and total farm capital. For comparability between farm types, units are assumed to be debt free and fully owner operated.

The 1968-crop growing season was favorable in most of the Corn Belt. Planting was completed relatively early and, except in a few areas, summer weather was generally good for crop development. In the last half of May, heavy rains interrupted planting in the eastern Corn Belt, and some loss of plantings occurred there due to excess moisture in low-lying areas. In southwest Iowa, eastern Nebraska, and parts of Illinois, yields were down due to insufficient late summer moisture. Corn yields declined from the 1967 level in the cash grain area, approximated those of the previous year in the hog-beef fattening areas, and were record high in the hog-beef raising area.

Operators cut back their corn acreage in 1968, mainly because the Government offered attractive payments for additional diversion. Total production of feed grains was less than in 1967 on two types of farms. But on the hog-beef raising farms, high yields of corn and oats contributed to a record feed grain harvest. Operators on both types of livestock farms fed and marketed more cattle and hogs than in past years.

Prices to producers for fat cattle were above the 1967 level, but prices received for hogs were lower. Also down were prices received for soybeans, wheat, and oats. Farm prices for corn were only slightly higher than in 1967.

Last years total cash receipts were up on both types of livestock farms, but declined on the cash grain farms. Total cash expenses increased on all three types. Prices paid were higher than those paid a year earlier for almost all production inputs except feeder cattle, protein supplement feed, and fertilizer.

Total value of farm capital increased during the year on the three types of farms. Farm values improved substantially for land and buildings, power equipment, and machinery. Inventory values of livestock remained about the same as those a year earlier on the hog-beef fattening farms but were up on the hog-beef raising farms. Inventory values of crops declined on both types of livestock farms but changed little on the cash grain farms. Land values per acre increased about 6 percent. January 1, 1968, values per acre averaged about $310 on hog-beef raising farms, $435 on hog-beef fattening farms, and $680 on cash grain farms.

Hog-Beef Raising Farms

Returns to operator and family labor and total capital on hog-beef raising farms in the southern Corn Belt averaged close to $7,500 in 1968. This was 22 percent more than in 1967 (fig. 3 and table 1) but down 10 percent from 1966. Cash receipts totaled 13 percent larger than those in 1967, while cash expenses were up by 5 percent.

The increase in cash receipts resulted from greater returns from crops and livestock sold and larger payments from Government programs. Total receipts from sales rose mainly because of increased production, not because of higher prices. Expanded hog production alone contributed an increase of $220 per farm, even though prices of hogs were below those in 1967, and the lowest since 1964. A 35-percent increase in production of soybeans brought an average of $750 more per farm from this crop, even with lower prices. Receipts from corn sales were up about $270 per farm; the corn acreage was reduced but yields were up. Most of the corn grown is fed by the producer to his own hogs and cattle. Receipts from cattle sold averaged about $300 more per farm than in 1967, with volume up 3 percent and prices up 6 percent.

Payments earned by participating in the Government feed grain program averaged about $340 more per farm than in the previous year. The price support rate for corn (30 cents per bushel) was the same as in 1967, but payments were also earned in 1968 for acreage diversion. A farmer was required to divert 20 percent of his corn-grain sorghum base acreage to qualify for price support payments and loans. And he

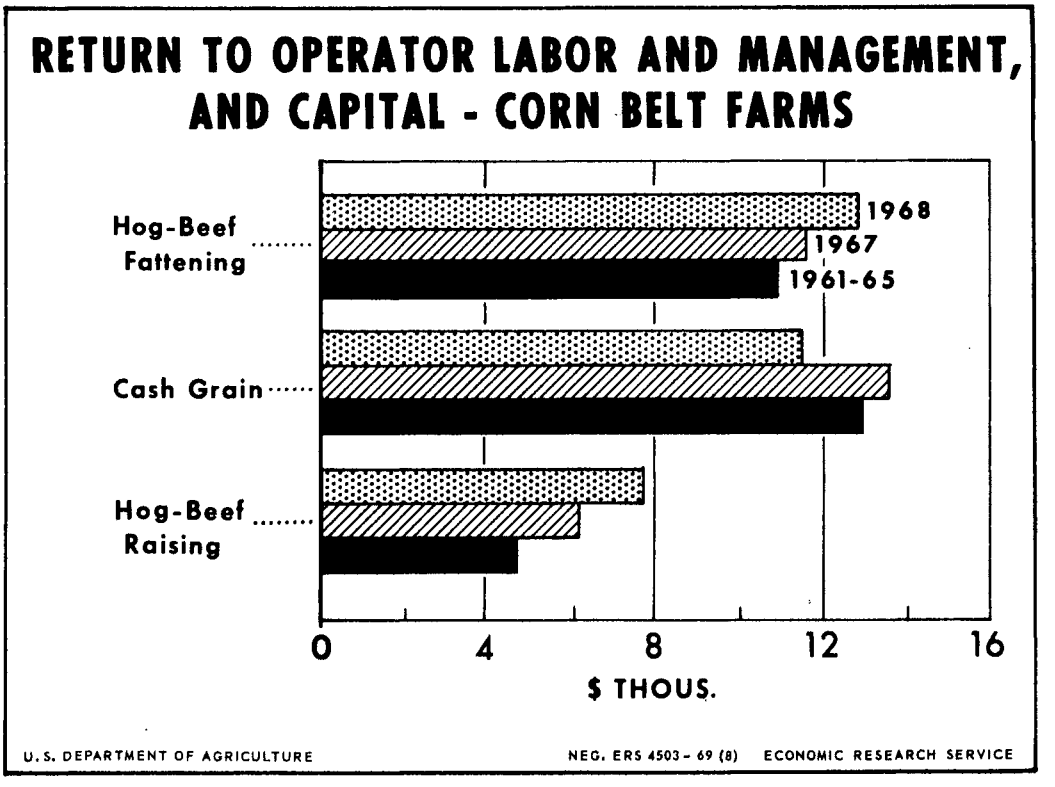

Figure 3

could earn a diversion payment for acreage diverted in excess of 20 percent and up to 50 percent of his feed grain base. Under the 1967 program a farmer could not earn a diversion payment unless his base was 25 acres or less or unless he planted no feed grains.

The average hog-beef raising farm in this study had 316 acres of land in 1968. In organization and operating characteristics, these farms--ranging in size from 200 to 500 acres--typify hog-beef raising units in the southern Corn Belt. Total value of farm capital on the representative 316-acre farm was $96,730 in 1968. This was 9 percent more than the $88,710 average value in 1967.

Principal cash expenses in 1968, like a year earlier, were for machinery purchases, machinery operation, and feed purchases. These items accounted for almost half of all cash farm expenses. Other important expense items were real estate taxes, building and fence repairs, hired labor, and commercial fertilizer.

Last year's production per unit of input was 131 percent of the 1957-59 average. This was 7 percent higher than in 1967 and 24 percent above the 1961-65 average. The continued rise in total production per unit of input reflects increased output per man-hour of labor, made possible by further mechanization and improved technology and practices in farm production.

Hog-Beef Fattening Farms

Typical hog-beef fattening farms studied in the central and western Corn Belt have 200 to 400 acres of land, of which about 75 percent is cropland. They raise 200 to 400 hogs annually and fatten 80 to 160 head of cattle. Relatively few cattle are fattened on the farm where they were born. Most of the cattle fattened are steers and heifers purchased at about 6 months of age at livestock markets or directly from other farms and ranches.

In 1968, these farms averaged 292 acres of total land, 200 acres of cropland harvested, 296 hogs raised, and 102 head of cattle fattened and sold. Net returns to operator and unpaid family labor and to capital approximated $12,800, up from $11,500 a year earlier and about $2,000 more than the 1961-65 average. Total cash receipts rose by 7 percent from 1967 and cash expenses were up 4 percent.

The increase in cash receipts in 1968 came mainly from cattle and soybean sales, and Government farm program payments. Receipts from cattle increased $2,200 per farm, or about 8 percent, as a result of more animals sold and 5-percent higher prices. Receipts from soybeans were up about $300; prices averaged a little lower than in 1967 but sales volume was up. Earnings under the feed grain program were up about $500, mainly as payments for acreage diverted from corn. Receipts from hogs were about the same as in 1967, as lower prices offset the increase in numbers sold. Cash receipts totaled about $47,630 per farm in 1968 compared with about $44,590 in 1967 (table 2).

Total cash expenditures as a percentage of total cash receipts are larger on hog-beef fattening farms than on hog-beef raising farms. In 1968, for example, total outlay for hog-beef fattening farms (table 2) amounted to 76 percent of total cash receipts; for hog-beef raising farms (table 1) the ratio was about 68 percent. The difference reflects

Table 1.--Organization, costs and returns, hog-beef raising farms, 1968, with comparisons

Item	Unit	Average 1961-65	1967	1968[1]
Land in farm	Acre	279	310	316
Cropland harvested	do.	129	157	150
Crops harvested:				
Corn for grain	do.	50.8	68.0	63.0
Oats	do.	16.2	13.0	14.0
Soybeans	do.	26.6	38.0	39.0
Hay	do.	35.6	38.0	34.0
Crop yields per harvested acre:				
Corn for grain	Bushel	67.1	78.0	89.0
Oats	do.	43.0	45.0	56.0
Soybeans	do.	26.5	25.0	33.0
Hay	Ton	2.1	2.4	2.5
Pigs raised	Number	130	143	154
Cows on hand, Jan. 1	do.	22.0	25.4	26.3
Total farm capital, Jan. 1	Dollar	59,960	88,710	96,730
Land and buildings	do.	42,440	66,030	73,000
Machinery and equipment	do.	6,510	9,090	10,050
Livestock	do.	7,440	9,550	9,900
Crops	do.	3,570	4,040	3,780
Total labor used	Hour	3,620	3,610	3,600
Hired	do.	450	610	600
Total cash receipts	Dollar	10,695	14,536	16,387
Crops	do.	2,471	4,541	5,567
Hogs	do.	4,606	5,937	6,156
Cattle	do.	2,399	3,264	3,551
Other livestock and livestock products	do.	377	304	283
Other, including Government payments	do.	842	490	830
Value of perquisites	do.	737	926	985
Change in inventory of crops and livestock	do.	525	541	466
Gross farm income	do.	11,957	16,003	17,838

Table 1.--Organization, costs and returns, hog-beef raising farms, 1968, with comparisons--Continued

Item	Unit	Average 1961-65	1967	1968[1]
Prices received:				
Corn, per bushel.....	Dollar	1.12	1.05	1.04
Soybeans, per bushel.....	do.	2.45	2.49	2.43
Cattle, per hundredweight.....	do.	21.30	23.10	24.40
Hogs, per hundredweight.....	do.	16.61	18.90	18.70
Total cash expenditures.....	do.	7,689	10,570	11,062
Feed purchased.....	do.	1,192	1,410	1,388
Livestock expense.....	do.	365	616	682
Fertilizer and lime.....	do.	582	708	694
Other crop expense.....	do.	505	847	925
Machinery.....	do.	2,679	3,696	3,895
Farm buildings and fences.....	do.	791	885	920
Labor hired.....	do.	486	775	832
Taxes.....	do.	866	1,247	1,329
Other.....	do.	223	386	397
Inventory adjustment, machinery and buildings.....	do.	-463	-708	-713
Total operating expenses.....	do.	7,226	9,862	10,349
Return to operator labor and management, and capital[2].....	do.	4,731	6,141	7,489
INDEX NUMBERS (1957-59=100):				
Net farm production.....	---	129	173	190
Production per unit of input....	---	106	122	131
Operating expense per unit of production.....	---	118	122	118
Prices received for products sold.....	---	101	106	106
Prices paid, including wages to hired labor.....	---	110	123	126

[1] Preliminary. [2] The information presented here assumes farms are debt-free and producers are full owners, primarily for comparability between types of farms.

Table 2.--Organization, costs and returns, hog-beef fattening farms, 1968, with comparisons

Item	Unit	Average 1961-65	1967	1968[1]
Land in farm	Acre	266	285	292
Cropland harvested	do.	190	215	200
Crops harvested:				
Corn for grain	do.	93.0	115.0	101.0
Corn for silage	do.	11.0	13.0	12.0
Oats	do.	32.8	27.0	27.0
Soybeans	do.	18.8	28.0	30.0
Hay	do.	34.7	32.0	30.0
Crop yields per harvested acre:				
Corn for grain	Bushel	80.1	86.5	87.0
Corn for silage	Ton	14.1	13.5	14.0
Oats	Bushel	49.5	54.5	57.0
Soybeans	do.	29.8	28.5	31.5
Hay	Ton	2.5	2.8	2.8
Pigs raised	Number	269	285	296
Cattle sold	Cwt.	887	1,143	1,168
Total farm capital, Jan. 1	Dollar	119,430	166,640	175,630
Land and buildings	do.	82,520	116,850	126,440
Machinery and equipment	do.	10,260	13,150	14,070
Livestock	do.	15,630	21,610	21,600
Crops	do.	11,020	15,030	13,520
Total labor used	Hour	3,920	4,310	4,210
Hired	do.	780	1,110	1,010
Total cash receipts	Dollar	34,668	44,588	47,627
Crops	do.	1,368	1,948	2,257
Hogs	do.	9,955	12,299	12,297
Cattle	do.	22,027	29,260	31,462
Other livestock and livestock products	do.	108	101	111
Other, including Government payments	do.	1,210	980	1,500
Value of perquisites	do.	924	993	1,017
Change in inventory of crops and livestock	do.	539	245	115
Gross farm income	do.	36,131	45,826	48,759

Table 2.--Organization, costs and returns, hog-beef fattening farms, 1968, with comparisons--Continued

Item	Unit	Average 1961-65	1967	1968[1]
Prices received:				
Corn, per bushel	Dollar	1.09	1.02	1.04
Soybeans, per bushel	do.	2.44	2.50	2.44
Cattle, per hundredweight	do.	24.83	25.60	26.94
Hogs, per hundredweight	do.	16.54	18.75	18.65
Total cash expenditures	do.	25,580	34,625	36,079
Feed purchased	do.	6,270	7,833	8,705
Livestock expense[2]	do.	10,649	14,818	15,313
Fertilizer and lime	do.	987	1,619	1,632
Other crop expense	do.	932	1,273	1,286
Machinery	do.	3,648	4,620	4,671
Farm buildings and fences	do.	648	700	675
Labor hired	do.	934	1,566	1,537
Taxes	do.	1,167	1,578	1,642
Other	do.	345	618	618
Inventory adjustment, machinery and buildings	do.	-251	-325	-127
Total operating expense	do.	25,329	34,300	35,952
Return to operator labor and management, and capital[3]	do.	10,803	11,526	12,807
INDEX NUMBERS (1957-59=100):				
Net farm production	---	123	150	144
Production per unit of input	---	102	106	102
Operating expense per unit of production	---	113	126	130
Prices received for products sold	---	98	104	108
Prices paid, including wages to hired labor	---	106	119	117

[1] Preliminary. [2] Includes purchased feeder cattle. [3] The information presented here assumes farms are debt-free and producers are full owners, primarily for comparability between types of farms.

the dissimilarity in livestock and feed purchases. On hog-beef fattening farms, 63 percent of total cash expenses were for those inputs, compared with 13 percent on hog-beef raising farms.

Under the cattle feeding system used on these farms, feeder calves in the 450- to 500-pound range are purchased in the fall. After being fed mainly on roughage with some protein supplement for about 3 months, they are full-fed in drylot for about 9 months to a market weight of 1,100 to 1,200 pounds. Normally, all the corn and oats produced on these farms are fed on the farm where grown. Since home-produced feed grains usually supply only 70 to 85 percent of the total feed grains used, additional quantities of grain, protein supplement, and other commercial feeds are bought. In 1968 purchases of feeder cattle on the typical farm amounted to 38 percent of the total cash expenses. Cost of commercial feed accounted for 24 percent.

Other major cash expenses were for machinery operation, machinery purchases, fertilizer and lime, hired labor, and real estate taxes. Machinery, power fuel, repairs, and labor in 1968 cost more than a year earlier. Because prices paid for feeder cattle, corn, and fertilizer were a little lower, the index of prices paid for all items used in production was almost 2 percent lower than in 1967. Although prices paid for feeder cattle averaged lower and prices received for fat cattle were higher than a year earlier, the margin between buying and selling prices continued negative (fig. 4).

In 1968, cattle sales accounted for two-thirds and hog marketings for about one-fourth of the total cash

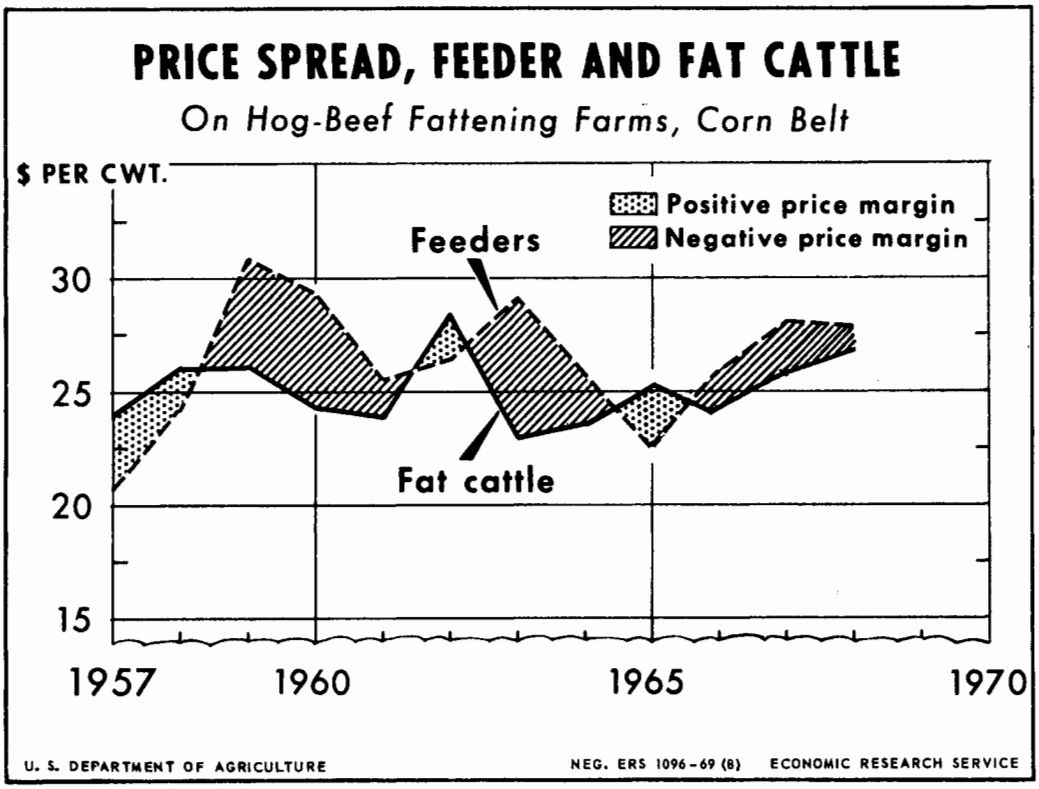

Figure 4

receipts. Sales of soybeans accounted for about 5 percent. Payments from Government farm programs largely supplied the rest of the cash receipts (about 3 percent).

Total value of farm capital in 1968 averaged nearly $176,000 per farm, an increase of about 5 percent from 1967. Value of land and buildings made up 72 percent of the total. Machinery and equipment accounted for 8 percent, cattle and hogs for 12 percent, and crop-feed inventories about 8 percent.

Production per unit of input in 1968 was 102 percent of the 1957-59 average. This was 4 percent below the 1967 level but equal to the 1961-65 average. Apparently, the reduced corn acreage and production were principal factors holding down a rise in this index in 1968. The index is computed with constant prices to provide a comparison of actual output-input ratios in different years.

Cash Grain Farms

Returns to operator labor, management, and total capital in 1968 on cash grain farms in the central Corn Belt were down 13 percent from the year before and 11 percent from the 1961-65 level. The $11,450 average for 1968 compared with $13,194 a year earlier (table 3).

Total cash receipts and gross farm income per farm each declined 4 percent from 1967, while total cash expenses were around 2 percent larger. Practically all of the cash income came from crop enterprises. Sales of crops in 1968 totaled $22,920 per farm, almost $1,500 less than in 1967. Payments from Government programs averaged about $440 per farm more than in 1967. The principal crops grown are corn, soybeans, and wheat. In 1968, sales of corn accounted for 55 percent of the total cash receipts from crops; soybeans contributed 34 percent and wheat 7 percent.

The average yield of corn in 1968, at 95 bushels per acre, was the third lowest this decade. However, the soybean yield was 33.5 bushels per acre, a new high. Yields of wheat were lower than in 1966 and 1967 but equaled the 1961-65 average. The cropping season last year was less favorable than in 1967 for corn and wheat but was relatively good for oats and soybeans.

Prices received averaged below 1967 levels for wheat and soybeans, but were slightly higher for corn. The price level of corn rose 4 cents in 1968 to $1.06 a bushel. Soybean prices averaged $2.45 a bushel, down 8 cents from the previous year. The average price received for wheat declined 20 cents to $1.19 a bushel. The index of prices received for all products sold was up 1 percent from 1967 but 7 percent under the 1961-65 level.

Higher prices were paid in 1968 for some major items used in production. This was especially true for new machinery and power units, repairs, hired labor, and seed corn. The index of prices paid for all production inputs last year was 5 percent higher than in 1967 and 21 percent above the 1961-65 average.

Total cash expenses in 1968 averaged 2.5 percent higher than a year earlier. The major items were machinery purchases, machinery operation, real estate taxes, and fertilizer. Other important items were seed, hired labor, farm building repairs, personal property taxes, and insurance.

Table 3.--Organization, costs and returns, cash grain farms, 1968, with comparisons

Item	Unit	Average 1961-65	1967	1968[1]
Land in farm	Acre	273	320	324
Cropland harvested	do.	232	281	278
Crops harvested:				
Corn for grain	do.	98.3	131.0	126.0
Oats	do.	7.9	5.0	6.0
Wheat	do.	31.3	40.0	33.0
Soybeans	do.	72.6	87.0	96.0
Hay	do.	21.7	18.0	17.0
Crop yields per harvested acre:				
Corn for grain	Bushel	95.6	105.0	95.0
Oats	do.	59.6	59.8	68.0
Wheat	do.	41.9	45.0	42.0
Soybeans	do.	31.4	33.0	33.5
Hay	Ton	2.3	2.3	2.4
Total farm capital, Jan. 1	Dollar	137,190	229,500	243,880
Land and buildings	do.	123,710	208,320	220,320
Machinery and equipment	do.	12,710	20,310	22,680
Livestock	do.	380	440	440
Crops	do.	390	430	440
Total labor used	Hour	2,290	2,620	2,580
Hired	do.	330	560	510
Total cash receipts	Dollar	21,284	25,808	24,791
Crops	do.	19,449	24,409	22,924
Poultry and eggs	do.	201	179	207
Other, including Government payments	do.	1,634	1,220	1,660
Value of perquisites	do.	1,195	1,742	1,716
Change in inventory of crops and livestock	do.	10	54	-18
Gross farm income	do.	22,489	27,604	26,489

Table 3.--Organization, costs and returns, cash grain farms, 1968, with comparisons--Continued

Item	Unit	Average 1961-65	1967	1968[1]
Prices received:				
Corn, per bushel.....	Dollar	1.12	1.02	1.06
Wheat, per bushel.....	do.	1.67	1.39	1.19
Soybeans, per bushel.....	do.	2.51	2.53	2.45
Total cash expenditures.....	do.	10,821	15,215	15,595
Feed purchased.....	do.	147	159	152
Livestock expense.....	do.	35	47	50
Fertilizer and lime.....	do.	1,255	1,784	1,602
Other crop expense.....	do.	860	1,734	1,722
Machinery.....	do.	5,360	6,928	7,206
Farm buildings and fences.....	do.	727	820	860
Labor hired.....	do.	373	743	740
Taxes.....	do.	1,565	2,293	2,546
Other.....	do.	499	707	717
Inventory adjustment, machinery and buildings.....	do.	-1,198	-805	-556
Total operating expenses.....	do.	9,623	14,410	15,039
Return to operator labor and management, and capital[2].....	do.	12,866	13,194	11,450
INDEX NUMBERS (1957-59=100):				
Net farm production.....	---	138	184	170
Production per unit of input....	---	120	129	119
Operating expense per unit of production.....	---	98	110	124
Prices received for products sold.....	---	107	99	100
Prices paid, including wages to hired labor.....	---	112	129	135

[1] Preliminary. [2] The information presented here assumes farms are debt-free and producers are full owners, primarily for comparability between types of farms.

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Production per unit of input in 1968 was 119 percent of the 1957-59 average, but 8 percent lower than in 1967. This index reflects yields and efficiency in crop production, output per hour of labor, and net farm production. The drop in the output-input ratio resulted mainly from the reduced production of corn and wheat without equivalent reduction in inputs. This was mainly due to losses from adverse weather.

Total farm capital increased 6 percent from 1967 to 1968. The average value per farm rose to $243,880. Value of land and buildings made up 90 percent of the total. Machinery and equipment accounted for about 9 percent, amounting to an average of $22,680 per farm. Intense mechanization makes it possible for the operator to accomplish the farmwork with a minimum of hired labor.

About one-fourth of the operators of these farms are full owners and one-third are part owner. The rest (a little less than half the total number) are tenants. Because land and building investment is to a large extent in the hands of landlords, they can claim part of the farm income by renting for cash or a share of the crops. Typically, most of the machinery and equipment is owned by the farm operators.