U. S. DEPARTMENT OF AGRICULTURE • ECONOMIC RESEARCH SERVICE • MAY 1962 • FCR-2

COSTS and RETURNS

Commercial Dairy Farms

Northeast and Midwest

1961

This report is part of a continuing nationwide study of costs and returns on farms and ranches by type and size in some of the important farming regions of the United States, conducted under the general supervision of Wylie D. Goodsell, Farm Economics Division, Economic Research Service. Objectives, methodology, procedure, and terms are uniform for all areas covered in the study.

Publications in this series are:

Costs and Returns, Commercial Dairy Farms, Northeast and Midwest, 1961
Costs and Returns, Commercial Corn Belt Farms, 1961
Costs and Returns, Commercial Egg-Producing Farms, New Jersey, 1961
Costs and Returns, Commercial Cotton Farms, 1961
Costs and Returns, Commercial Tobacco Farms, Coastal Plain, North Carolina, 1961
Costs and Returns, Commercial Tobacco-Livestock Farms, Bluegrass Area, Kentucky, 1961
Costs and Returns, Commercial Wheat Farms, Plains and Pacific Northwest, 1961
Costs and Returns, Western Livestock Ranches, 1961

Summary statistics for all types of farms in the series are presented in the annual report, Farm Costs and Returns, Commercial Farms, by Type, Size, and Location, Agriculture Information Bulletin No. 230, Revised, 1962. In this annual report, information is given for 1961 with comparisons with 1960 and 1959, and with the period 1957-59.

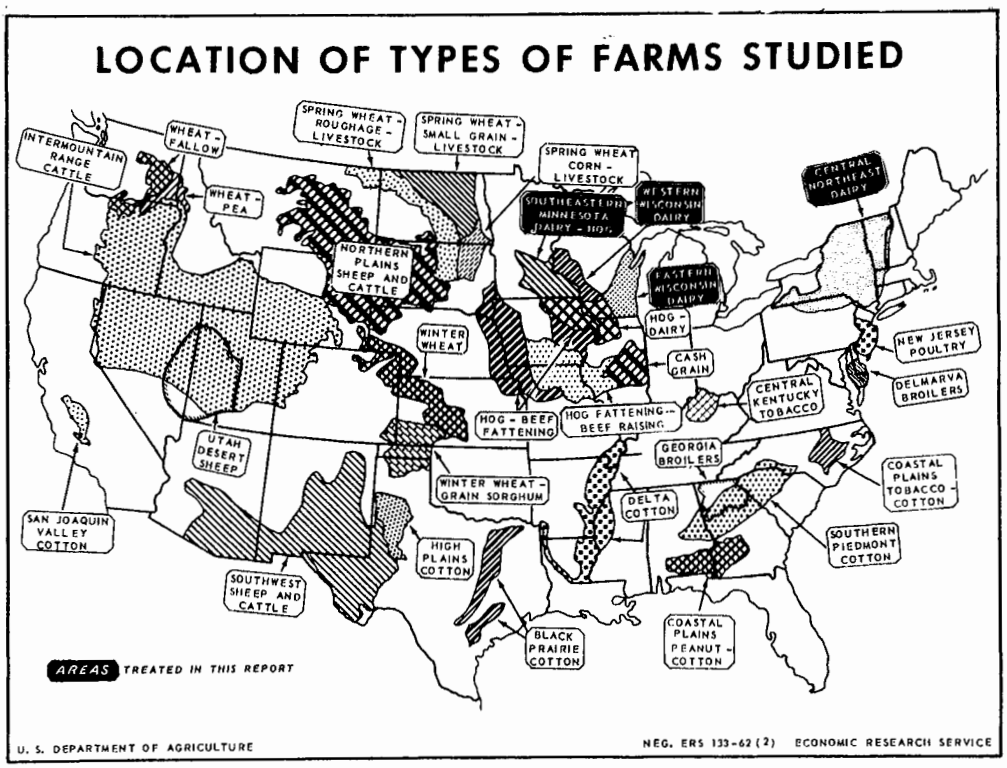

Figure 1.

COSTS AND RETURNS, COMMERCIAL DAIRY FARMS, NORTHEAST AND MIDWEST, 1961

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THE COUNTRY AS A WHOLE

For the United States as a whole, milk production reached a new high of 125.5 billion pounds in 1961, 2.2 percent above 1960 and about 0.6 billion pounds above the previous record of 124.9 billion pounds set in 1956. While total U.S. milk production increased by about 2.6 billion pounds, consumption of milk and dairy products (milk equivalent) declined from 115.9 billion pounds in 1960 to 115.4 billion pounds in 1961. On a per capita basis consumption declined from 653 pounds in 1960 to 640 pounds in 1961. However, excluding Commodity Credit Corporation donations and the milk consumed in the National School Lunch and Special Milk Programs, civilian consumption fell about 2 billion pounds.

The number of milk cows on all farms in the United States changed only slightly between January 1961 and January 1962. On January 1962, a total of 19,215,000 milk cows and heifers 2 years old and over were reported on farms as compared with 19,342,000 a year earlier. This was a decrease of 0.7 percent in 1961 compared with 0.9 percent in 1960. These rates of decline were much smaller than in 1958 and 1959 because of improved milk-beef cattle price relationships and continuing favorable milk-feed price ratios.

In addition to this tapering off in the decline of milk cows, the number of heifers 1 to 2 years old per 100 milk cows increased each year from 1957 to 1961, and established a new high in January 1961. Similarly, the number of heifer calves under 1 year old kept for milk cows reached new records in both January 1960 and January 1961.

The small declines in the number of milk cows in 1960 and 1961, together with the increase in the number of dairy heifer replacements, were important to the total milk production picture in 1961. Despite the fact that greater numbers of younger milking animals were added to the herds and culling was less extensive in both 1960 and 1961, the milk production per cow rose to record levels. For the United States, milk production per cow reached 7,000 pounds for the first time in 1960; it was 7,211 pounds in 1961.

Production rates are continuing their upward trend, numbers of farms selling milk continue to decline, and dairy-producing units are becoming larger and fewer. From 1954 to 1959, the number of commercial dairy farms in the United States declined by approximately 120,000, over 4 percent a year, but at the same time total milk production from the remaining farms reached new record levels, and sales of dairy products increased substantially.

SPECIALIZED DAIRY AREAS

Typical farms discussed here are dairy farms in the Central Northeast and, in the Midwest, Eastern Wisconsin farms producing grade A milk, Eastern and Western Wisconsin farms producing grade B milk, and Southeastern Minnesota dairy-hog farms (fig. 1).

The specialized dairy areas studied, like the rest of the country, have been losing producers, and some of the herds and farms sold by the producers going out of business have been absorbed into the remaining units. Due in part to this elimination process, production per farm has attained record levels and net incomes have climbed, slowly but steadily.

However, this is not the only explanation for the rise in net incomes on dairy farms from 1960 to 1961. There are many other reasons which should be examined more closely.

The increase in net farm incomes shown for all five groups of dairy farms (fig. 2) was due mostly to greater production per farm. The most important single factor contributing to this was an increase in milk production. On the Midwestern dairy farms, an increase in prices received was also an important factor in the rise in incomes, but prices received by dairy farmers in the Central Northeast declined from 1960 to 1961.

In September 1960, the United States price support level for manufacturing milk was raised from $3.06 per hundredweight to $3.22 by an Act of Congress. The higher support had little immediate price-boosting effect because market price adjusted to the annual average fat test was above the $3.22 level. Prices continued substantially above supports until March 1961, when a second increase in the level of supports to $3.40 per hundredweight placed a floor immediately beneath the current market prices.

After April 1961, more milk became available for manufacturing than in the same period of 1960. Consequently, manufacturing milk prices pressed strongly against the annual support level of $3.40 per hundredweight, minimizing seasonal variation in these prices in the last 7 months of 1961. As a result, the increases from 1960 to 1961 in prices received for manufacturing milk on grade B dairy farms in Eastern and Western Wisconsin and dairy-hog farms in Southeastern Minnesota were close to the rise in price supports for manufacturing milk. On these farms, higher prices coupled with increased milk production contributed much to the rise in net incomes from 1960 to 1961.

Prices received for grade A milk in Eastern Wisconsin did not increase as much in 1961 as prices received for grade B milk in Eastern and Western Wisconsin. This was because more surplus grade A milk was produced in 1961 than a year earlier, and this surplus was diverted into manufactured milk channels at lower prices, lowering the "blend" price of all milk sold by grade A producers. Thus, from 1960 to 1961 the farm price of grade A or market milk did not increase as much as the farm price of grade B or manufacturing milk.

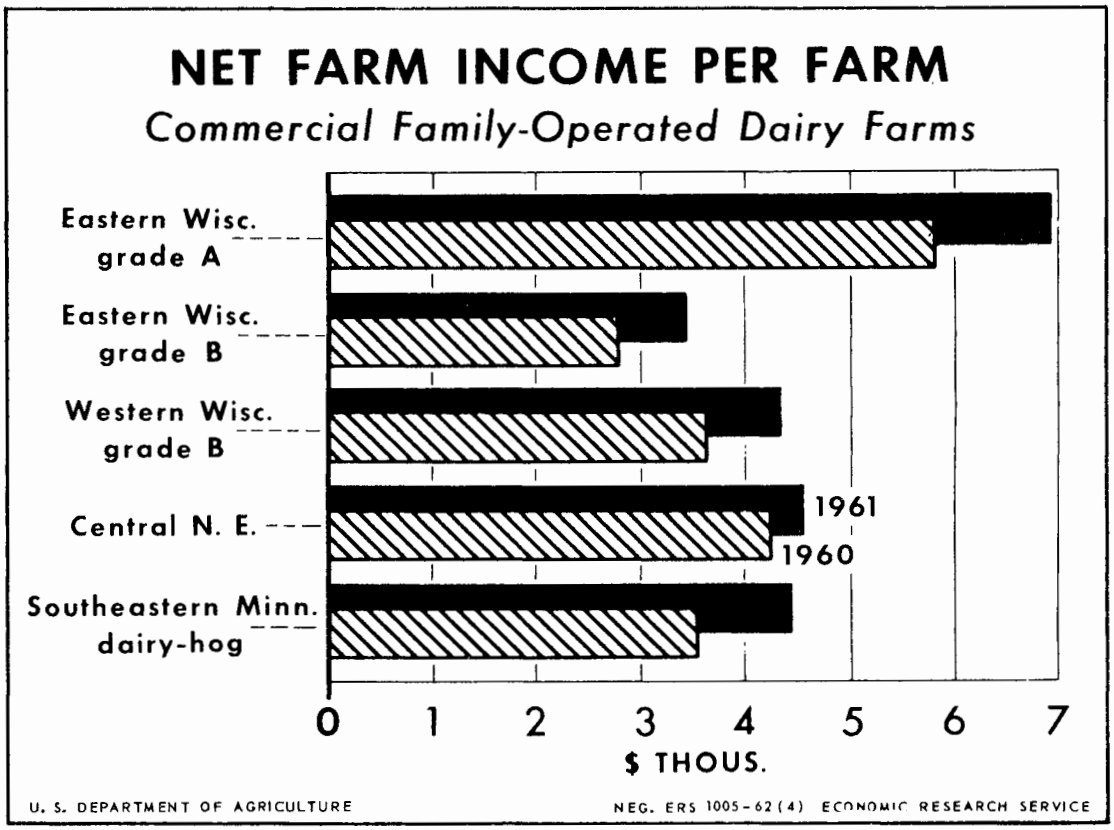

Figure 2.

In 1960, the Wisconsin price of market milk (milk produced on grade A dairy farms) averaged 50 cents per hundred pounds above that received for manufacturing milk, but in 1961 this margin was reduced to about 45 cents.

Most of the grade A producers in Eastern Wisconsin have their milk priced by a manufacturing-milk formula even though the greater proportion of the milk they sell is used for fluid or market-milk purposes. Manufacturing-milk formulas are based on the value of milk when converted into certain manufactured milk products. Consideration is given to the price of these products in determining the farm price of market milk. Specified amounts are usually added to this basic price to account for the increased value of milk for fluid use.

On dairy farms in the Central Northeast, prices received for milk are based on economic formulas which relate fluid milk prices to selected economic factors. From 1960 to 1961, prices received for milk sold by dairy farmers in the Central Northeast declined about 11 cents a hundredweight. This is in direct contrast to the situation on the Midwestern dairy farms where prices received for milk increased during the same period.

The supply-demand balance of class I sales is one of the major components of the economic pricing formula used in the Central Northeast. The lower prices received for milk sold by dairy farmers in the area in 1961 was due to the supply-demand imbalance for class I milk (called grade A milk in the Midwest). Greater production of class I milk was not sufficiently balanced by an increase in demand, and as a result the blend milk price received by these producers was lowered.

In 1961, cash receipts from the hog enterprise on the Midwestern dairy farms were higher than receipts in 1960. On the three Wisconsin farms, fewer hogs were marketed per farm in 1961, but a rise of approximately 9 percent in price received per hundredweight offset the lower marketings. On the dairy-hog farms in Southeastern Minnesota, cash receipts from the hog enterprise increased more from 1960 to 1961 than on the Wisconsin farms. Dairy-hog farmers in this area marketed more hogs per farm in 1961 than a year earlier, at prices averaging 7 percent above those received in 1960.

Prices received for chickens and eggs sold by dairymen in all five areas declined from 1960 to 1961. In this age of specialization more and more dairymen are eliminating the poultry enterprise on their farms. Average cash receipts from the sale of chickens and eggs on these farms are declining sharply, due both to lower prices received and to reduction in size or elimination of the enterprise.

Still another factor has to be considered in the rise in net farm incomes on these dairy farms. Crop yields were substantially higher in 1961 than a year earlier, and reached a record level on all five groups of farms.

Record yields of corn for grain and for silage accounted for most of the increase in the crop yield index. Average increases in yields of corn silage ranged from 3.7 tons per acre on the Western Wisconsin dairy farms to 1.2 tons per acre on the Northeastern dairy farms. Increases in yields of corn grain ranged from 12.3 bushels per acre on dairy-hog farms in Southeastern Minnesota to 10.9 bushels per acre on Eastern Wisconsin grade B dairy farms (table 1). However, the total acreage of corn on all five groups of farms was less in 1961 than in 1960 due to participation in the 1961 Feed Grain Program.

The record crop yields in 1961 provided more than enough homegrown feed for the livestock fed on these farms. As a result, quantities of crops held in inventory on January 1, 1962, were higher than a year earlier.

Net farm production rose substantially from a year earlier to 1961 record highs on all five groups of dairy farms. The increases in both milk production and crop yields coupled with the increase in farm size pushed net farm production up

Table 1.-- Organization and production, commercial dairy farms, specified locations, 1960 and 1961

Item	Unit	Eastern Wisconsin dairy				Western Wisconsin dairy		Central Northeast dairy		Southeastern Minnesota dairy-hog	
		Grade A		Grade B		Grade B					
		1960	1961[1/]	1960	1961[1/]	1960	1961[1/]	1960	1961[1/]	1960	1961[1/]
Land in farm	Acre	163	167	136	139	176	180	226	231	163	167
Cropland harvested	do.	109	111	80	82	83	85	84	85	103	102
Crops harvested:											
Corn for grain	do.	21.0	21.6	10.8	10.9	15.8	17.0	0	0	32.6	33.6
Corn for silage	do.	16.6	15.4	11.6	11.0	10.6	8.4	11.0	10.8	12.3	10.6
Small grains	do.	27.2	29.0	24.2	26.3	22.2	22.7	13.8	14.0	29.2	28.1
Hay	do.	38.7	38.4	32.3	32.0	34.1	35.9	59.0	60.0	28.8	30.1
Crop yields per harvested acre:											
Corn for grain	Bushel	67.4	78.5	59.3	70.2	56.4	68.3	---	---	54.9	67.2
Corn for silage	Ton	10.4	12.0	9.2	10.7	8.5	12.2	10.3	11.5	8.8	11.8
Oats	Bushel	51.3	61.4	47.7	56.8	51.7	58.1	52.0	52.0	47.8	50.8
Hay	Ton	3.2	3.1	2.6	2.5	2.9	2.8	2.0	2.1	2.8	2.8
Cattle on farm, Jan. 1:											
All cattle	Number	48.3	50.7	30.5	32.0	39.2	40.9	42.9	43.3	33.0	34.7
Cows and heifers, 2 years and over	do.	29.0	30.2	19.7	20.4	21.0	22.0	28.8	28.9	19.9	20.5
Milk production per cow	Pound	9,780	9,950	8,320	8,480	8,010	8,160	8,160	8,450	8,250	8,380
Total farm capital, Jan. 1	Dollar	60,120	62,350	40,210	41,170	31,220	32,860	40,600	41,500	49,890	49,860
Land and buildings	do.	34,230	35,230	25,020	25,720	17,460	18,850	21,200	22,200	33,430	33,080
Machinery and equipment	do.	10,690	11,350	6,290	6,290	3,910	4,000	7,200	7,300	7,090	7,180
Livestock	do.	11,030	11,380	6,000	6,200	7,060	7,320	9,700	9,400	6,120	6,680
Crops	do.	4,170	4,390	2,900	2,960	2,790	2,690	2,500	2,600	3,250	2,920
Total labor used	Hour	4,380	4,460	3,620	3,670	4,190	4,190	4,400	4,440	3,990	4,060
Hired	do.	430	460	90	90	310	290	840	820	320	300

1/ Preliminary.

by around 9 percent on the Eastern Wisconsin grade A farms and 8 percent on each of the other four groups of dairy farms. However, this increase in net farm production did not come about without an increase in expenditures.

With the sole exception of hired labor, cash expenditures increased from 1960 to 1961 in all categories on all five farms (table 2). Wage rates also increased during this period, but the amount of labor hired per farm decreased more than enough to offset the higher wage rates. Average increases in cash expenditures ranged from nearly $900 on dairy farms in the Northeast to around $260 on grade B dairy farms in Western Wisconsin.

Most of the increase in cash expenditures can be attributed to greater quantities of inputs purchased. Prices paid increased between 1 and 2 percent on all five groups of farms. Higher prices paid for taxes, feed, farm machinery, and hired labor largely offset lower prices paid for seed, motor vehicles, and farm buildings and fences. Despite an average increase of nearly 8 percent in cash expenditures from 1960 to 1961, the index of total cost per unit of production was lower on all farms in 1961 than a year earlier. The substantial increase in net farm production more than offset the combined effect of the higher prices paid for the greater quantities of inputs purchased.

From 1960 to 1961, operating expenses per dollar of gross farm income decreased on all four Midwestern dairy farms and remained constant in the Northeast (fig. 3). However, with the presently high ratio of total operating expenses to gross farm income it takes a considerable rise in gross income to make a significant change in net income or to reduce operating expenses per dollar of gross income appreciably. The current relationship between prices paid for goods and services used in production and prices received for products sold also adds to this problem.

For instance, on grade A dairy farms in Eastern Wisconsin average gross farm income increased $1,684 from 1960 to 1961. At the same time, total operating expenses increased only $604. In other words, for every $1.00 increase in operating expenses (with no allowance for return to operator and family labor and return on investment) gross income increased $2.79. Despite this, however, operating expense per dollar of gross income was reduced only 3 cents.

During the same period, gross income of dairy farmers in the Central Northeast increased $1,042 while operating expenses increased $686. However, in both 1960 and 1961, operating expenses per dollar of gross income remained constant at 66 cents.

On January 1, 1962, the current market value of all farm capital on these typical dairy farms was at a record high except for the dairy-hog farms in Southeastern Minnesota. On this group of farms,

Table 2.-- Receipts and expenditures, commercial dairy farms, specified locations, 1960 and 1961

Item	Eastern Wisconsin dairy				Western Wisconsin dairy		Central Northeast dairy		Southeastern Minnesota dairy-hog	
	Grade A		Grade B		Grade B					
	1960	1961[1/]	1960	1961[1/]	1960	1961[1/]	1960	1961[1/]	1960	1961[1/]
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Total cash receipts	12,372	13,955	7,026	7,531	7,546	8,001	11,411	11,585	8,708	9,234
Dairy products	9,447	10,366	4,766	5,267	4,793	5,342	9,820	10,375	4,882	5,429
Cattle and calves	1,750	1,846	936	942	1,389	1,452	1,266	906	1,111	1,130
Hogs	940	977	751	733	548	660	0	0	1,488	1,713
Poultry and eggs	0	0	425	379	408	336	251	213	517	442
Crops	216	633	134	154	371	118	0	0	681	378
Other, including Government payments	19	133	14	56	37	93	74	91	29	142
Total cash expenditures	9,062	9,697	5,480	5,847	5,017	5,275	8,442	9,341	6,227	6,694
Feed purchased	965	1,047	705	807	683	737	2,559	2,894	739	816
Livestock expense	575	612	430	439	380	394	485	609	371	427
Fertilizer and lime	343	389	214	242	236	266	378	397	224	240
Other crop expense	497	526	408	415	385	390	323	331	375	409
Machinery	3,715	3,868	2,158	2,235	1,927	2,014	2,580	2,773	2,604	2,631
Farm buildings and fences	1,212	1,367	559	631	404	446	520	670	678	847
Labor hired	418	450	89	86	288	271	738	726	310	302
Taxes	1,047	1,132	682	738	525	564	631	688	726	791
Other	290	306	235	254	189	193	228	253	200	231
Net cash income	3,310	4,258	1,546	1,684	2,529	2,726	2,969	2,244	2,481	2,540

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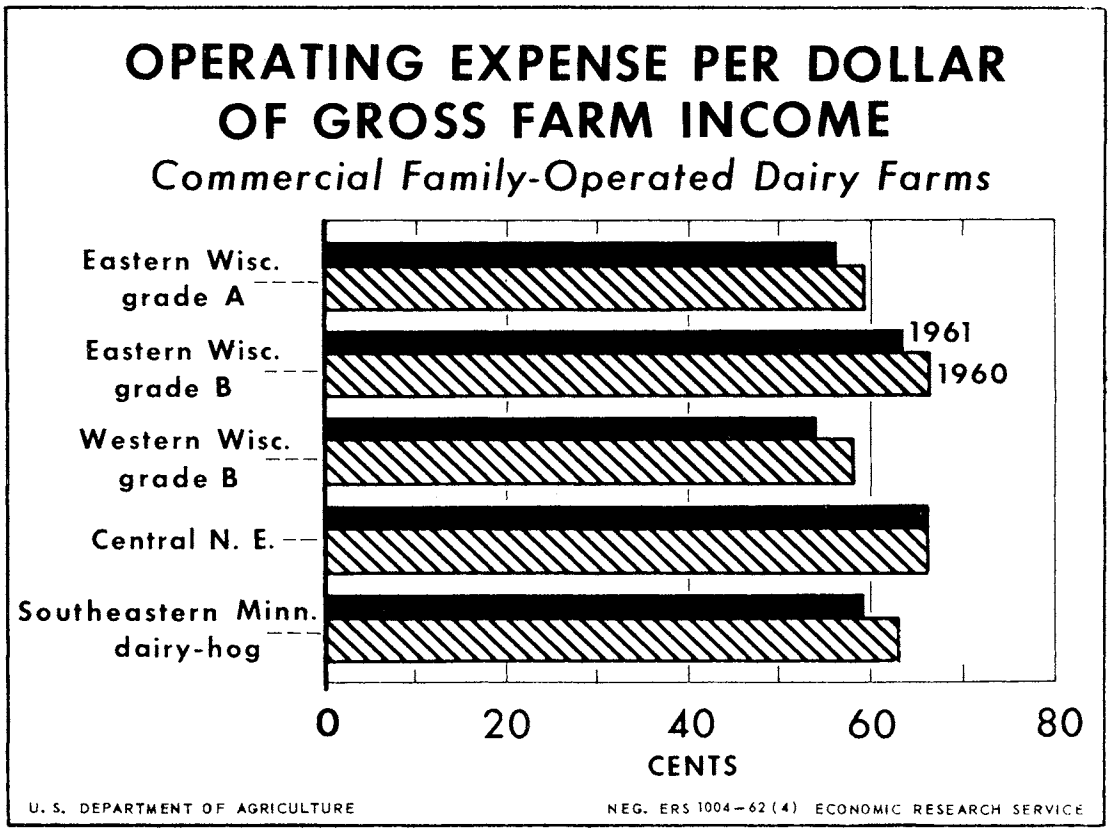

Figure 3.

investment was down slightly from the record high established a year earlier. With total farm investment at record or near record levels it becomes increasingly difficult to expand a given size unit or to pay for an existing unit from current earning. This is especially true at current high interest rates if one has to borrow a high proportion of the capital.

Any charge for capital invested in assets on a group of farms must be an arbitrary one. Farm assets vary greatly in kind and are purchased at different times. Most farmers and ranchers make new investments each year. Some farm assets have a ready market, whereas others may be disposed of only at a sacrifice. Thus it is difficult to determine a correct and valid charge for capital. Determining the return to operator and family labor is involved in this decision, because this return is the net left to them after all production expenses have been met and appropriate capital charges have been made for the use of capital in the farm business.

Two charges for capital have been used in the income estimates in table 3. The first is obtained by multiplying total capital invested in the farm business by the current interest rate in effect January 1

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ERRATA - Costs and Returns, Commercial Dairy Farms, Northeast and Midwest, 1961. U.S. Dept. Agr., Econ. Res. Serv. FCR-2, May 1962.

Page 9, table 3, under Eastern Wisconsin dairy, Grade A, 1960, change .06 to .86

Table 3.-- Income and related data, commercial dairy farms, specified locations, 1960 and 1961

Item	Eastern Wisconsin dairy				Western Wisconsin dairy		Central Northeast dairy		Southeastern Minnesota dairy-hog	
	Grade A		Grade B		Grade B					
	1960	1961 1/	1960	1961 1/	1960	1961 1/	1960	1961 1/	1960	1961 1/
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Net cash farm income	3,310	4,258	1,546	1,684	2,529	2,726	2,969	2,244	2,481	2,540
Value of perquisites	1,046	1,062	982	985	819	844	945	955	765	783
Change in inventory:										
Crops and livestock	741	826	348	814	250	732	113	971	227	993
Machinery and buildings	761	792	-77	-16	38	58	207	420	79	174
Gross farm income	14,159	15,843	8,356	9,330	8,615	9,577	12,469	13,511	9,700	11,010
Operating expenses	8,301	8,905	5,557	5,863	4,979	5,217	8,235	8,921	6,148	6,520
Net farm income	5,858	6,938	2,799	3,467	3,636	4,360	4,234	4,590	3,552	4,490
Charge for capital at current interest rates 2/	3,607	3,429	2,413	2,264	1,873	1,807	2,436	2,490	2,993	2,742
Return to operator and family labor	2,251	3,509	386	1,203	1,763	2,553	1,798	2,100	559	1,748
Return per hour	.57	.88	.11	.34	.45	.65	.51	.58	.15	.46
Charge for capital at 4.1 percent interest 2/	2,465	2,556	1,649	1,688	1,280	1,347	1,665	1,702	2,045	2,044
Return to operator and family labor	3,393	4,382	1,150	1,779	2,356	3,013	2,569	2,888	1,507	2,446
Return per hour	.86	1.10	.33	.50	.61	.77	.72	.80	.41	.65
	Index numbers (1957-59=100)									
Net farm production	108	118	107	116	106	115	108	117	103	111
Total milk production	111	119	108	115	107	115	113	122	111	116
Crop yields per acre	104	114	104	114	103	112	106	111	99	111
Total cost per unit of production	101	99	101	97	102	98	104	101	107	103
Prices received for products sold	103	105	102	105	101	105	99	97	98	106
Prices paid, including wages to hired labor	104	106	104	105	104	106	103	104	104	105

1/ Preliminary. 2/ See text, page 10).

Note: Information presented here is on an owner-operator basis primarily for comparability between types of farms. Net farm income is the return to operator and unpaid members of the family for their labor and management on the farm and return to total capital. No allowance has been made for payment of rent, interest, or mortgage.

for new loans by the Federal Land Banks in the respective areas. In 1961, this interest rate was 5.5 percent for Midwestern farms and 6.0 percent for the Northeastern farms. In 1960, the rate in both regions was 6.0 percent.

The second estimate of capital charge is obtained by multiplying the farm investment values January 1 by 4.1 percent. This is the average rate paid by farmers on outstanding debt held by the Federal Land Banks in the United States from 1940 to 1960. In 11 of these 21 years the interest rate was 4.1 percent.

Return per hour to operator and family labor varies considerably from one group of farms to another. Based on an interest rate of 4.1 percent on capital, average hourly returns in 1960 ranged from 86 cents on Eastern Wisconsin grade A farms to 33 cents on Eastern Wisconsin grade B farms. With this rate, hourly returns on all five groups of farms increased in 1961, as did the variation among the different groups of farms. The average hourly return ranged from 50 cents on grade B farms in Eastern Wisconsin to $1.10 on grade A dairy farms in the same area. If the alternative capital charge of 5.5 percent is used, average hourly returns in 1961 on these two groups of Wisconsin farms are reduced by 16 and 22 cents, respectively.

Growth Through Agricultural Progress