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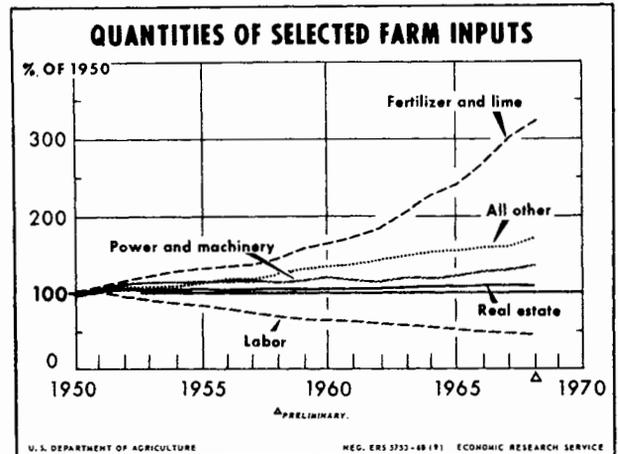
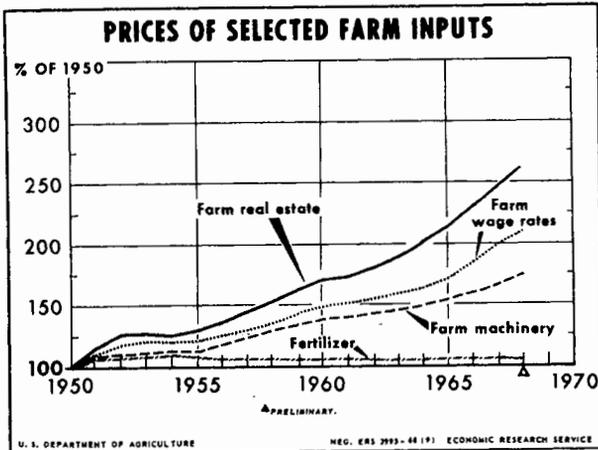
# The FARM COST SITUATION

FC-40

1969 OUTLOOK ISSUE

FOR P.M. RELEASE

FEBRUARY 24, 1969



The price movements for different farm inputs since 1950 have varied significantly. For example, fertilizer prices have been stable to slightly downward in the face of sizable increases in the prices of most other inputs. Farm machinery prices have increased but more slowly than farm wage rates or real estate values. Partly because of these changing price relationships, farmers have expanded the use of fertilizer and machinery. Similar shifts are likely in the future as wage rates continue to rise and as technology makes possible the increased use of fertilizer, along with improved machinery and other devices and materials to increase crop yields, livestock productivity, and labor achievements per man-hour.

Commodities and services used in farm production: Index numbers of cost rates and prices paid by farmers, United States, 1950-69

(1957-59 = 100)

Period	Commodities, interest, taxes, and wage rates	Commodities only	Feed	Live- stock	Motor supplies	Motor vehicles	Farm machinery	Farm supplies	Building and fencing materials	Fertil- izer	Seed	Wage rates
1950...	89	94	105	113	86	78	78	94	81	94	109	73
1951...	98	104	118	137	90	83	83	100	89	100	111	81
1952...	100	104	126	115	91	87	86	106	90	102	125	87
1953...	95	97	114	83	93	86	87	104	91	103	112	88
1954...	95	97	113	85	94	86	87	100	90	102	107	88
1955...	94	96	106	83	95	87	87	99	92	102	114	89
1956...	94	95	103	78	97	89	92	99	96	100	99	92
1957...	97	98	101	86	100	96	96	100	99	100	103	96
1958...	101	101	99	107	100	100	100	100	99	100	101	99
1959...	102	101	100	107	100	104	104	100	102	100	96	105
1960...	103	101	98	100	101	102	102	100	102	100	101	109
1961...	104	101	98	100	102	102	110	101	101	100	100	110
1962...	106	103	100	104	101	105	111	101	101	100	103	114
1963...	108	104	104	98	101	109	113	101	101	100	110	116
1964...	108	103	103	87	101	111	116	102	100	99	109	119
1965...	111	105	104	96	102	113	119	103	101	100	113	125
1966...	114	109	109	107	102	117	124	103	103	100	110	135
1967...	119	109	106	104	105	121	129	104	105	100	112	146
1968:												
Jan...	121	110	104	102	---	---	---	---	---	---	---	150
Feb...	122	111	104	106	---	---	---	---	---	---	---	150
Mar...	122	111	103	110	107	126	133	106	109	100	112	150
Apr...	123	111	103	112	---	---	---	---	---	98	119	157
May...	124	112	103	111	---	129	---	---	---	---	---	157
June...	124	112	102	110	107	129	136	106	111	98	119	157
July...	124	112	101	112	---	---	---	---	---	---	---	159
Aug...	123	111	99	110	---	---	---	---	---	---	---	159
Sept...	124	111	100	108	107	128	138	106	113	96	120	159
Oct...	124	111	99	108	---	---	---	---	---	---	---	166
Nov...	125	112	101	109	---	130	---	---	---	---	---	166
Dec...	125	113	101	111	108	130	139	108	116	96	120	166
1969:												
Jan...	127	113	102	109	---	---	---	---	---	---	---	166

Source: Statistical Reporting Service, USDA.

# THE FARM COST SITUATION

Approved by the Outlook & Situation Board, February 14, 1969

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## SUMMARY

The costs of farming, continuing their upward trend in 1968, were about 3 percent, or just over \$1 billion, higher than in 1967 (table 1). At the same time production increased about 2 percent. Total farm expenses in 1968 for inputs and services of nonfarm origin were almost 5 percent above 1967, while outlays for farm-produced items--feed, seed, and livestock--were down 1 percent. Overhead costs continued a persistent rise.

The higher total expenses in 1968, however, were more than offset by increased receipts from farming, and realized net farm income for the year was around \$14.9 billion, up from \$14.2 billion in 1967 but below the \$16.4 billion in 1966.

The higher expenses in 1968 resulted mostly from higher prices paid for several important production inputs. Prices or cost rates paid by farmers increased for feeder livestock, seed, building materials, wages, interest rates, and real estate taxes per acre, but declined slightly for feed and fertilizer. Considering all farm inputs, the index of prices paid for production items, interest, taxes, and wage rates rose 3 percent in 1968.

Farm production expenses are likely to rise by \$1 billion or more in 1969 as inflationary pressures continue. Continuing increases are also probable for taxes, interest, and insurance. Larger expenditures due to greater use as well as higher prices are likely for several important production inputs, including feed, fertilizer, and pesticides. However, expenses for hired labor may continue about level as higher wage rates are largely offset by a declining number of workers.

A major feature of U.S. farming since 1940 has been the increasing use of purchased inputs (such as fertilizer, pesticides, and machinery) in relation to use of nonpurchased inputs (such as family labor and operator-owned real estate). In 1940, purchased inputs were 46 percent of total inputs. In 1968, they were 74 percent. This means, among other things, that prices paid by farmers for purchased inputs are becoming increasingly important in the farm cost picture.

Table 1.--Gross farm income, production expenses, net income, and related indexes, United States, specified years, 1950 to 1968 1/

Item	1950-54 average	1960-64 average	1965	1966	1967	1968 <u>2/</u>
	Billion dollars	Billion dollars	Billion dollars	Billion dollars	Billion dollars	Billion dollars
Cash receipts from farm marketings.....	31.0	35.9	39.2	43.2	42.8	44.1
Nonmoney income and Government payments.....	4.2	4.7	5.7	6.5	6.3	6.7
Realized gross farm income.....	35.2	40.6	44.9	49.7	49.1	50.8
Farm production expenses.....	21.4	28.1	30.7	33.3	34.8	35.9
Farmers' realized net income.....	13.8	12.5	14.2	16.4	14.2	14.9
Net change in farm inventories.....	.5	.2	1.0	-.2	.4	.5
Farmers' total net income.....	14.3	12.7	15.2	16.2	14.6	15.3

Index numbers (1957-59 = 100)

Volume of farm marketings:						
Livestock and livestock products.....	86	111	118	120	124	125
Crops.....	87	114	120	121	124	128
All farm products.....	86	112	118	120	124	126
Volume of purchased inputs.....	94	108	117	122	128	130
Productivity, or output per unit of total input.....	88	107	110	106	106	107
Prices received by farmers:						
Livestock and livestock products.....	112	96	101	113	107	112
Crops.....	112	104	104	106	100	102
All farm products.....	112	99	103	110	104	108
Prices paid by farmers for commodities used in production, interest, taxes, and wage rates.....	95	106	111	116	119	123
Ratio of prices received to prices paid for production items (including interest, taxes, and wage rates) <u>3/</u> .....	118	93	93	95	87	88

1/ 48-State data.

2/ Preliminary.

3/ Not to be confused with Parity Ratio, which includes prices paid for items used in family living, and has a 1910-14 base.

## HIGHLIGHTS

Farm Labor--Higher minimum farm wages, greater supplementary labor expenses, a tight supply of competent labor, and increased wage rates in nonfarm industries--the factors which have created the greater than usual increases in the past 3 years--will also be present in 1969. The hourly equivalent of all types of farm wage rates averaged \$1.21 nationally for 1968, up 9 percent from 1967 and up 17 percent in only 2 years. Wage rates are expected to rise further in 1969 (to about \$1.35 per hour) and farmers will continue to substitute other inputs for labor.

Farm Power and Machinery--Farmers bought 5 percent more wheel tractors of 100 horsepower and over during January-October 1968 than in the comparable period of 1967. This occurred although total sales of wheel tractors to farmers declined 11 percent--a reflection of the strong demand for high-capacity farm machines. Large machines are important in substitution of machinery for farm labor. In 1968, farmers had \$3.62 invested in machinery and equipment per man-hour of labor compared with only 19 cents in 1940.

Fertilizer--After experiencing record-low prices in 1968, fertilizer manufacturers and dealers have scheduled price increases for the coming season. However, prices are likely to continue weak for 1969. Productive capacity for the primary plant nutrients--nitrogen, phosphorus, potassium--and materials used in their manufacture are far in excess of current demand. Among recent innovations is the domestic transportation of ammonia by pipeline. One pipeline is now operational; another is scheduled to start up this summer. Both reach into the Corn Belt from the South.

Fertilizer use will probably reach record levels in 1969 as it did in 1968, when 38.3 million tons containing 11.7 million tons of N-P-K were applied to soils in the 50 States and Puerto Rico.

Pesticides--Farmers are using more pesticides each year. The major factor in the increase is the substitution of chemicals for mechanical cultivation to control weeds. Production of herbicides has increased at an annual rate of 15 to 25 percent for about 10 years. Increases in the use of insecticides and fungicides appear to be leveling off. Total expenditures for herbicides are working their way up, mostly because of the use of more specialized products, which will likely continue to raise average costs of herbicide materials.

Feed--For the current feeding year (which began October 1, 1968), numbers of grain-consuming animal units are up 3 percent. Concentrates fed to livestock probably will total about 4 percent above a year earlier. Prices for corn and grain sorghum have shown some recovery from harvest lows, while lower prices for oilseed meals and only slightly lower livestock-poultry prices should help to keep livestock-feed price ratios favorable to feeders. Formula feed prices will remain relatively stable to slightly higher during 1968/69, due primarily to increased feed grain prices for the latter half of the year.

Feeder and Replacement Livestock--Prices similar to those of 1968, or slightly lower, are expected for feeder and replacement livestock in 1969. Slight price weaknesses may develop in the first half of the year when large marketings of livestock occur. Relatively strong fed cattle prices coupled with increased cattle slaughter and a large feed grain supply should result in feeder cattle prices averaging around 1968 levels through midyear.

Seed--Supplies of most field seeds are considerably below average levels. As a result, seed prices are expected to be generally higher in 1969. Seed varieties now being developed and tested will increase the potential output of crops per acre and also their quality.

Property Taxes--Taxes levied on farm property increased more in 1967 than they have in any of the past 25 years. The increase was 8 percent above the previous year's levy to a total of almost \$2.3 billion. Real estate levies amounted to \$1,940 million, and personal property levies \$337 million. Preliminary estimates for 1968 indicate further increases of 6 to 7 percent. Property taxes are used mainly to finance the rapidly expanding needs of local school districts. If new sources of revenue for local schools are not found, farmers' property taxes are likely to keep rising.

Interest--Interest charges on farm debt totaled nearly \$3.0 billion in 1968 and are expected to be over \$3.2 billion in 1969. Farm debt outstanding January 1, 1969, totaled \$53.1 billion (excluding Commodity Credit Corporation loans)--up \$4.1 billion from a year earlier. Funds for farm loans were adequate in 1968 in most areas. Interest rates on new farm mortgage and non-real estate loans ranged from 0.30 to 0.75 percentage point higher in 1968 than during 1967. Interest rates on new farm loans in 1969 are not expected to drop from the high 1968 rates, and may rise further in some areas.

Insurance--Farmers' insurance and social security payments will continue to rise in 1969 because of more protection and higher premium and social security tax rates. Increased property values and production investments and the growing importance of some risks are resulting in greater demand for protection. Higher premium rates are being caused by more costly insurance claims, reflecting rising expenses of building replacement, automobile repair, and medical services. An increase in social security taxes has accompanied expanded benefits.

Farm Real Estate--Market values of farm real estate rose 6 percent during the year ended November 1, 1968, an increase consistent with the upward trend of recent years. The average value of real estate per farm has also climbed with rising land values and increasing farm size. On March 1, 1968, commercial farms averaged 550 acres and at market prices were valued at \$100,000 per farm. Farmland values are expected to increase moderately in 1969, although slower market activity appears likely. The larger capital requirements of today's commercial agriculture have expanded the demand for rental land.

Farm Service Buildings--Farm service buildings were valued at \$17.7 billion on March 1, 1968. Service buildings account for a declining share of total real estate value primarily because of farm consolidation and obsolescence of buildings. Expenditures for new service building construction are made primarily by the larger commercial farms, according to the 1965 Sample Survey of Agriculture. Not only was the incidence of service building construction largest, but expenditures per farm were also considerably greater than those of smaller farms.

Farm service buildings will likely continue to decline in importance relative to farmland in 1969. Most expenditures for new construction will be made by the larger farm operators.

Costs by Type of Farm--Preliminary estimates of production, costs, and returns in 1968 for 6 selected types of farms and ranches reflect a

continuation of the upward trends in farm operating expenses and prices paid for items and services used in production. Operating expenses rose in 1968 on 4 of the 6 farm types. They were lower on cattle ranches because of reduced outlays for feed. A bumper hay crop was obtained in 1967 with a resulting large carryover to the January-April 1968 feeding season. Operating expenses were slightly lower in 1968 on the tobacco farms, with a reduction in hired labor resulting from lower production and a further shift to marketing of untied tobacco.

Enterprise Input Costs--Farmers in general are raising their yield expectations per acre of crops as new technology and its potential become known to them. Leading farmers are especially alert, and are putting together packages of inputs, including changes in plant population, fertilizers, and chemical pest control, to achieve yields undreamed of a few years ago. This usually raises the direct cost per acre, but the resulting increase in yield normally reduces unit costs and increases net returns per acre.

Farm costs are affected by the alternative ways by which farmers can obtain the use of production resources. For land, the chief alternatives are to own or lease. For farm machinery, custom work is an established alternative to ownership in many situations. Also a number of fairly new practices, now in limited use, may gain in importance. These include such options as renting cattle and buildings, and renting of machinery as opposed to either ownership or customwork. In a different vein, corporate organizations, or partnerships as alternatives for bringing capital into farming, can sometimes facilitate the assembly of production inputs. Another method now widely used in a few types of farming, but not generally, is production under contract with a farm supply or marketing firm.

## FARM LABOR

The decline in the number of workers (including operators) on farms has slowed in the last 2 years. In 1968, the drop of about 3 percent was only half the decline in 1967. The number of hired laborers, comprising about one-fourth of the labor force, continued to decline more rapidly in 1968 than the number of family workers--4 percent compared with 3 percent.

Total man-hours of farmwork declined about 2 percent in 1968, somewhat more than in 1967, yet only half the annual decline of the past 10 years (table 2).

Farm output reached another new record in 1968 and output per man-hour maintained its upward climb. In combination with machinery and other capital investments, an hour of labor was able to produce about 6 percent more in 1968 than in 1967.

Factors which created greater than average wage-rate increases in 1965-67 persisted in 1968. The estimated annual average of \$1.21 per hour was 8 percent above the 1967 annual rate (table 3).

An important factor tending to increase wage rates was the increase from \$1.00 to \$1.15 per hour in the minimum wages for farmworkers covered under the Fair Labor Standards Act. On February 1, 1969, the minimum was further increased to \$1.30 per hour.

The impact of the minimum wage law on farm wage rates varies greatly by area. In 1968, cash farm rates in 7 Southern States still averaged less than \$1.15 an hour (without board or room). In 6 other States, rates were less than the 1969 minimum of \$1.30. As of October 1968, farmers in 20 States were paying over \$1.50 an hour. In 9 of those States, farmers were paying more than \$1.60 an hour. Most of these States were in the Northeast where the rates keep increasing to compete with nonfarm rates. Thus, compliance with the minimum wage law will continue to be felt most keenly in the South.

Other forces tending to increase costs per unit of labor in 1968 and again in 1969 include: (1) Increased social security withholding taxes. The rate for farmworkers was 4.2 percent in 1966, and 4.4 percent in 1967 and 1968, but went to 4.8 percent on January 1, 1969. Also, more workers will be earning the \$150 (calendar-year) minimum required. (2) Higher workmen's compensation rates in some States. (3) "Adverse effect wage rates" set by the Secretary of Labor effective April 24, 1968 increased wage rates in 11 States where farmers use foreign nationals to harvest crops. (4) Greater demand by nonfarm industries for workers and low levels of unemployment. Over the past 8 years, the number of persons unemployed and looking for work has declined by nearly one-fourth in the United States. This varies by region. In the Pacific and Mountain regions there was some increase last year in unemployment, but in the Mid-Atlantic region the number of unemployed persons decreased by 37 percent. Decreases of over 25 percent also occurred in the 3 Southern regions. Employment on nonagricultural establishment payrolls increased 22 percent from 1960 to 1967. The increases ranged from 30 percent in the Southern and Pacific regions to 13 percent in the Mid-Atlantic. The decline in unemployed persons along with increased demand for nonfarmworkers means a smaller reservoir of local labor from which the farmer can acquire his hired help.

Table 2.--Labor used on farms, wage rates, and related data, United States, 1940-68 <sup>1/</sup>

Year	Farm employment			Man-hours of farmwork	Farm output index (1957-59=100)		Average hourly wage rates	
	Total <u>2/</u>	Family <u>2/</u>	Hired		Total <u>3/</u>	Per man- hour	Farm- workers <u>4/</u>	Industrial workers <u>5/</u>
	Thou- sands	Thou- sands	Thou- sands	Millions			Dollars	Dollars
1940.....	10,979	8,300	2,679	20,472	70	36	0.17	0.66
1945.....	10,000	7,881	2,119	18,838	81	46	.48	1.02
1950.....	9,926	7,597	2,329	15,137	86	61	.56	1.44
1955.....	8,381	6,345	2,036	12,808	96	80	.68	1.86
1960.....	7,057	5,172	1,885	9,821	106	115	.82	2.26
1961.....	6,919	5,029	1,890	9,450	107	120	.83	2.32
1962.....	6,700	4,873	1,827	9,055	108	127	.86	2.39
1963.....	6,518	4,738	1,780	8,762	112	137	.88	2.46
1964.....	6,110	4,506	1,604	8,321	111	142	.90	2.53
1965.....	5,610	4,128	1,482	7,901	114	154	.95	2.61
1966.....	5,214	3,854	1,360	7,512	113	159	1.03	2.71
1967.....	4,903	3,650	1,253	7,408	118	169	1.11	2.83
1968 <u>6/</u> ....	4,749	3,550	1,199	7,245	120	179	1.21	3.01

<sup>1/</sup> Data on farm employment and farm wage rates are from the Statistical Reporting Service, USDA.

<sup>2/</sup> Includes farm operators and members of their families.

<sup>3/</sup> Net calendar-year production for eventual human use.

<sup>4/</sup> Composite or hourly equivalent of all types of rates, excluding perquisites.

<sup>5/</sup> Average hourly earnings of production workers in manufacturing. From the Bureau of Labor Statistics, U.S. Dept. Labor.

<sup>6/</sup> Preliminary. Estimates on farm output and man-hours based on October 1968 Crop Production report and other releases of the Statistical Reporting Service, USDA.

Although Public Law 78 has been terminated, farmers with bona fide shortages of labor can still bring in foreign nationals under the provisions of PL 82-414. The Secretary of Labor certified the need in 1968 for 17,929 foreign workers in 10 States. British West Indians and Canadians were brought in for work in sugarcane planting, and apple and potato harvesting.

Although the Secretary of Labor's certification was for below the 300,000 or more brought in annually during the early part of the present decade, importation is still an important source of labor where there is a proven need.

Farm wages (per hour without board and room) increased 73 percent between 1955 and 1968, but were still only about half of the cash wage rates of production workers in manufacturing. During 1968, manufacturing rates increased by 18 cents to \$3.01 per hour while farm wages increased an average of about 10 cents to \$1.43 per hour without board and room.

Table 3.--Farm wage rates: United States, 1950-68 <sup>1/</sup>

Period	Per month		Per week,	Per day,	Per hour		Composite rate per hour <sup>3/</sup>
	With house	With board and room	without board or room <sup>2/</sup>	without board or room <sup>2/</sup>	With house	Without board or room	
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1950.....	121	99	31.00	4.50	0.62	0.69	0.56
1955.....	154	123	38.00	5.30	.74	.82	.68
1960.....	192	149	45.75	6.60	.88	.97	.82
1961.....	195	151	46.50	6.60	.90	.99	.83
1962.....	200	155	47.75	6.90	.92	1.01	.86
1963.....	206	159	48.50	7.10	.94	1.05	.88
1964.....	212	162	49.50	7.30	.97	1.08	.90
1965.....	223	170	51.50	7.60	1.03	1.14	.95
1966.....	243	185	55.75	8.20	1.10	1.23	1.03
1967.....	262	200	60.50	8.90	1.18	1.33	1.12
Jan.....	249	193	55.50	8.40	1.04	1.33	1.14
April....	253	192	58.75	8.70	1.07	1.34	1.00
July.....	275	202	65.00	9.00	1.23	1.36	1.10
Oct.....	261	203	60.50	9.50	1.32	1.29	1.16
1968.....	283	217	66.25	9.90	1.28	1.43	1.21
Jan.....	269	209	60.50	9.30	1.15	1.42	1.24
April....	270	206	63.50	9.40	1.17	1.43	1.07
July.....	294	220	70.50	9.80	1.33	1.45	1.18
Oct.....	283	220	66.50	10.50	1.42	1.41	1.27

<sup>1/</sup> Data from Statistical Reporting Service, USDA. Annual data are weighted average of five quarters.

<sup>2/</sup> Other rates with house or board and room are omitted but are included in computing composite rates.

<sup>3/</sup> Hourly equivalent of all types of rates.

While not all farmworkers have the necessary skills to enter the nonfarm labor market or the desire to shift occupations, the differential between farm and nonfarm wage rates has had the effect of drawing labor out of agriculture. No attempt is made here to indicate an acceptable ratio between farm and nonfarm industrial wage rates; the data suggest that farm wages are not competitive. In 1967, there were 36 States with cash farm wage rates less than half as high as rates for production workers in manufacturing. The 6 New England States were among the 10 States with highest ratios of farm-to-manufacturing wages.

There is some indication that pay for regular hired farmworkers is still increasing at a faster pace than wages for seasonal workers. Workers paid by the hour (mostly seasonal laborers) had a slower increase in wage rates between 1966 and 1968 than workers paid by the week or month.

Under the Sugar Act administered by the Department of Agriculture, hourly and piece-work minimum rates for field workers have increased steadily since 1960. The minimum rates for sugarbeet workers increased

by 10 cents to \$1.50 per hour in 1968. Rates for sugarcane workers in 1968 ranged in Louisiana from \$1.30 to \$1.45 per hour and in Florida from \$1.55 to \$1.80 per hour.

With increased capital investment in laborsaving technology, the aggregate cost of hired labor on U.S. farms has continued to decline as a percentage of total expenses. In 1968, hired labor took only 8.3 cents of every dollar spent for farm production inputs compared with 14.5 cents in 1950. Quantities of each of the major inputs except hired labor have increased while the quantity of labor has decreased.

Considering the likelihood of continued relatively full employment and the relative attractiveness of nonfarm wage rates, we foresee a continued generally tight labor market, particularly in the North and South-east. These factors pose a challenge for the farmer in competition for workers, and will stimulate further investment in laborsaving technology. Farm employers can perhaps make farmwork competitively more attractive by offering inducements commensurate with nonfarm jobs requiring equal skill and ability.

## NONFARM INPUTS

### Power and Machinery

Machinery costs are an important part of farm production costs but vary by size and type of farm operation. On a national basis, repairs, operation and depreciation of machinery, equipment, and motor vehicles have amounted to 22 percent of total farm production expenses in recent years. Summaries for Kansas Farm Management Association farms show 5-year average (1961-65) machinery costs ranging from 23 to 40 percent of total farm costs depending on farm type.<sup>1/</sup>

Farmers face the problem of minimizing these costs without unduly affecting output. Background information on equipment needs for timely operations on rice farms has just been released.<sup>2/</sup> A second phase to be reported later will present short-run income and cost curves for the alternative equipment and labor combinations established in phase I. Studies such as these put timeliness of operations in fairly precise perspective.

In addition to ownership of new machinery, several alternatives to reduce costs are now available to obtain needed power and machine inputs. Depending on circumstances, major alternatives for consideration include custom work, joint ownership, purchase of used equipment, and machinery rental.

Price trends for new machinery are shown in table 4. In October 1968, the wholesale price index for farm machinery and equipment was 28 percent above the 1957-59 base. This compares with a rise of 32 percent

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<sup>1/</sup> Examining Your Machinery Costs. Extension Service, Kansas State University, Sept. 1967.

<sup>2/</sup> Equipment Technology and Weather on Rice Farms in the Grand Prairie, Arkansas, Part I. Ark. Agr. Expt. Sta. Bul. 734, Dec. 1968 (in cooperation with FPED-ERS-USDA).

Table 4.--Factors related to costs of farm power and equipment, 48 States, selected years, 1940-68

Year	Gross capital expenditures for motor vehicles and other farm machinery <u>1/</u>	Wholesale prices of farm machinery and equipment <u>2/</u>	Constant dollar value of shipments of farm machinery and equipment <u>3/</u>	Inventory value of machinery and motor vehicles used in farming <u>4/</u>	Investment in farm machinery and equipment per man-hour of labor input <u>5/</u>
	Billion dollars	(1957-59=100)	(1957-59=100)	Billion dollars	Dollars
1940.....	0.6	50	28	3.8	0.19
1945.....	1.2	53	75	6.9	.37
1950.....	3.2	80	129	11.2	.74
1955.....	2.8	89	105	15.8	1.23
1956.....	2.4	92	87	16.5	1.37
1957.....	2.5	96	90	16.9	1.53
1958.....	3.2	100	104	17.0	1.61
1959.....	3.2	103	106	18.1	1.76
1960.....	2.7	105	84	19.1	1.94
1961.....	2.9	107	87	18.6	1.97
1962.....	3.1	109	93	18.8	2.08
1963.....	3.6	111	102	19.1	2.18
1964.....	3.7	113	108	19.9	2.39
1965.....	4.2	115	122	21.2	2.68
1966.....	4.8	118	142	22.5	3.00
1967.....	4.8	122	141	24.3	3.28
1968.....	---	127	132	26.2	3.62

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1/ Farm Income Situation, FIS 211, Economic Research Service, USDA, July 1968.

2/ Bureau of Labor Statistics, U.S. Dept. Labor. 1968 is the average of the first 10 months.

3/ Current Industrial Reports, Annual Series M35S and M35A, Bureau of the Census, adjusted by the wholesale farm machinery price index. 1968 estimated from data for first 7 months.

4/ Balance Sheet of Agriculture, U.S. Dept. Agr., Agr. Inform Bul. No. 334, Jan. 1969, table 18.

5/ Man-hours from Changes in Farm Production and Efficiency, U.S. Dept. Agr. Statis. Bul. No. 233, Rev. June 1968.

for construction machinery. Since 1960, wholesale prices of farm machinery and equipment have increased about 20 percent, and prices paid by farmers for farm machinery and equipment (including motor vehicles) about 25 percent.

Since 1960, farmers have spent an increasing percentage of their gross farm income for machinery and motor vehicles. Also reflecting general gains in farm income, spending for these machines has risen nearly 10 percent a year (table 4). On a current-dollar basis, the value of farm machinery shipped from factories for domestic use (including tractors) in 1967 was \$2.4 billion--the largest in history. However, on a constant-dollar basis, volume of these shipments was largest in 1951 (\$2.0 billion) followed closely by the volume in 1966-68.

Despite the decline from 1967 to 1968 in value of domestic shipments of machinery, and numbers sold to farmers, sales for all large machines for which data are available increased. Examples are large sizes of combines and corn and grain heads for them, and tractors of 100 h.p. and over. This continues a trend toward larger machines. For example, the proportion of wheel tractors of 90 h.p. and over sold to farmers in 1962 represented less than 1 percent of the total number sold to farmers, and in 1968 (through November) 33 percent or over 47,000 units. Furthermore, farmers bought 5 percent more wheel tractors of 100 h.p. and over during January-October 1968 than in the comparable period of 1967. This occurred although total sales of wheel tractors to farmers declined 11 percent--a reflection of the strong demand for high-capacity farm machines.

Large size machines are a big factor in substitution of machines for labor. Substitution may be viewed in broad perspective by relating man-hours of labor input to inventory value of machinery and equipment over time. In 1940, only 19 cents was invested in machinery and equipment per man-hour of labor input (table 4). In 1968, investment per man-hour was \$3.62. Allowing for increases in investment due to a higher price level, the investment per man-hour of labor input has likely increased well over tenfold.

This substitution of machinery for labor undoubtedly will continue. Prices of new farm machinery are certain to move along with the rest of the economy, with continuing moderate increases likely in the next 3 to 5 years. Demand will continue strong for large machines as size of farm operations continues to grow, keeping demand for farm machinery and equipment at a generally high level. Further mechanization in harvesting of fruits, nuts, vegetables, and tobacco will have a small but increasing effect on the volume of machinery required for farm production.

### Fertilizer

After a long slide that may have bottomed in 1968, prices of most fertilizers appear to be rebounding. In the closing weeks of 1968 several large producers announced higher wholesale prices for nitrogenous, phosphatic, and potassic fertilizers--a move likely to raise prices during the 1969 planting season from previous low levels.

Price increases published in late 1968 by some firms were as much as 20 percent for synthetic anhydrous ammonia, 5 to 7 percent for coarse and granular potash, and 3 to 5 percent for some phosphates. How long these announced increases will hold is problematical. Perhaps the best that fertilizer suppliers can hope for in 1969 is that prices do not fall below those received in 1968.

From the farmers' viewpoint, fertilizer in 1968 was about the biggest bargain at the farm store. From the manufacturers' viewpoint, 1968 verged on disaster. The 19-percent decline in ammonia prices from 1967 to 1968 is probably the greatest drop ever reported in a single year (table 5). Nearly all fertilizer prices were significantly lower in 1968.

Despite the announced price hikes, a continuation of price weakness into 1969 is likely as supplies of fertilizer, coupled with tremendously expanded production facilities, far exceed likely demand. Capacity to produce synthetic ammonia, the major source of fertilizer nitrogen, will approximate 17.5 million tons in 1969, about 3 million tons over 1968. This increase is in the face of plant closings and shutdowns equivalent to about 2 million tons of ammonia during the past 12 to 18 months. Additional shutdowns of older, inefficient plants are likely in the months ahead.

The joint U.S.-Canadian capacity to produce potash is far in excess of all foreseeable uses, not only in 1969 but also for several years beyond. Attempts to increase potash prices are likely to meet considerable resistance if consumption is less than fertilizer producers anticipate.

Although rarely considered in a discussion of fertilizer, sulfur--its availability and price--has a direct effect on phosphatic fertilizers and ammonium sulfate. The sulfur-equivalent used to manufacture these fertilizers is as follows:

	<u>Pounds of sulfur per ton of product</u>
Normal superphosphate, 20% P <sub>2</sub> O <sub>5</sub>	268
Triple superphosphate, 45% P <sub>2</sub> O <sub>5</sub>	597
Diammonium phosphate, 18-46-0	880
Ammonium sulfate, 21% N	521

For the first time in nearly 4 years the potential supply of sulfur is more than equal to total demand. As a consequence, sulfur prices declined \$2 per ton in January and are likely to trend slowly downward. The easing of sulfur prices should in time have a corresponding effect on the production costs of these widely used fertilizers.

Of interest to farmers is the fact that fertilizer manufacturers have been casting about for ways to cut delivered costs of their output. Freight costs often represent more than half of the retail selling price of fertilizer. Many fertilizer plants now incorporate the latest technological advances, and cuts in costs of production due to further improvements will be slow to develop. In recent years, considerable attention has been focused on means of transporting more fertilizer from producing points to users at lower freight costs.

In 1969, the first interstate shipments of anhydrous ammonia by pipeline are scheduled. The first segment extends from Texas to Iowa, a total of about 850 miles. For some distances and quantities shipped, freight charges per ton of ammonia will tend to be lower than rail freight charges. A second pipeline from the gulf coast to the Midwest is scheduled for mid-1969 completion. How much of the savings in freight ultimately will be passed on to final users will depend upon local competitive situations.

Table 5.--Average prices per ton paid by farmers for selected fertilizers, United States, April 15 prices, 1957-59 average and 1964-68

Year	Anhydrous ammonia	Superphosphate		Ammonium phosphate 16-20-0	Potash 55 percent K <sub>2</sub> O and over	Mixed fertilizer 6-24-24
		46 percent P <sub>2</sub> O <sub>5</sub>	20 percent P <sub>2</sub> O <sub>5</sub>			
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Average:						
1957-59.....	149.00	82.20	37.00	89.60	52.10	91.10
1964.....	126.00	78.90	40.30	82.30	53.90	85.20
1965.....	122.00	79.10	40.70	80.70	53.60	85.60
1966.....	119.00	80.90	41.40	81.10	54.90	85.10
1967.....	113.00	84.10	42.10	80.70	53.60	85.70
1968.....	91.40	78.40	43.20	78.40	<u>1/</u> 49.10	81.80

1/ 60 percent K<sub>2</sub>O.

Source: Agricultural Prices, Pr 1 (4-68), Statistical Reporting Service, USDA, April 29, 1968 and earlier issues.

Fertilizer use rose in the 12 months ended June 30, 1968, but the rate of gain was lower than for the preceding 12 months. In the 50 States and Puerto Rico, total use was estimated at 38.3 million tons by the USDA Crop Reporting Board. This was 3 percent above the preceding 12 months, compared with increases of 7 and 8 percent for the years ended June 30, 1966 and 1967, respectively.

Primary plant nutrient use in fertilizer was 6 percent higher for 1967-68 than a year earlier, compared with increases of 13 and 12 percent for the years ended June 30, 1966 and 1967. During the 1967-68 fertilizer year, nitrogen use was 6.6 million tons, 9 percent higher than during 1966-67; phosphorus at 1.9 million tons was up 1 percent, and potassium at 3.2 million tons was up 5 percent.

These record highs likely will be exceeded during the year ending June 30, 1969. Of the total amount of fertilizer used, about 90 percent goes to agriculture; the rest is used on lawns, highway grass areas, golf courses, cemeteries, airports, and for other similar nonfarm applications. Mixtures were 55 percent of the total in 1968; 20 years earlier, 69 percent of total fertilizer use was in this form.

### Pesticides

Pesticides account for less than 2 percent of the farmer's production expenses. However, they save much production that might otherwise be lost to insects, weeds, fungi, and other pests.

If recent trends continue, farmers will use more pesticides than ever in 1969. The use of herbicides is increasing more than the use of other pesticide chemicals. In the last 10 years the production and sales of weed killers have increased 15 to 25 percent annually. Farmers expenditures for herbicides now exceed those for insecticides--the traditional mainstay of the farm pesticide market.

Industry sources indicate that 1968, for the most part, was a good year for pesticides. Sales generally were up, especially for herbicides. Export markets continued to take a substantial share of the pesticide production, particularly of insecticides.

A tight supply-demand situation of recent years with respect to herbicides 2,4-D and 2,4,5,-T is being eased considerably because many farmers now prefer to use more specialized herbicide chemicals. These specialized products enable narrow-leaved, as well as broad-leaved, weed control in cereal crops, and also permit the use of herbicides on broad-leaved crops such as cotton and soybeans. The trend to using more specialized herbicides is likely to continue.

Prices of 2,4-D and 2,4,5-T were up somewhat in 1968 over 1967 at both the manufacturer and the farm level. Supplies of parathion and methyl parathion were reported to be short, but prices of both went down.

Supplies of most other chemicals were adequate in 1968, and prices at the wholesale level remained relatively unchanged. Of 24 pesticide products commonly used by farmers in 1968, the prices of 7 were the same as in 1967, 9 were up, and 8 were down. Of the products for which prices changed, only 3 differed by more than 10 percent. These were lindane, down 14 percent, and parathion and methyl parathion--both down about 20 percent. Retail prices seem to vary considerably more than those at wholesale.

Prices of pesticides are generally working their way up, mostly because of the use of more specialized products. While the average price per pound of fungicide material at the manufacturers' level remained about the same between 1963 and 1967 at 45 to 50 cents a pound, the average for insecticides went up slightly from about 50 to 60 cents a pound, and the average for herbicides was up from \$1.00 to \$1.50 a pound. Increasing use of the more specialized products will likely continue to raise average costs of pesticide materials.

A significant share of the corn acreage is now being treated for weed control, and increases in the use of herbicides on this crop may start to level off. Because of continuous corn cropping, corn growers are using more insecticides. This practice probably will continue until most of the corn in the major corn-producing regions is routinely treated for insect control.

Among changes in the use of pesticides is the continued increase in demand for granular materials. An indication of this is the use of clay (a material used in granulation) by pesticide formulators. Clay use jumped 60 percent between 1963 and 1967.

A possible extra benefit in the use of herbicides is being studied. Researchers at Michigan State University have shown that under experimental conditions, herbicide materials including certain triazines, substituted ureas, and uracels will boost the protein content of some seed and forage crops. By using small amounts of simazine the protein content of some crops was increased by from 10 to 50 percent.

Conservationists and others are becoming increasingly concerned about possibilities of environmental pollution. They are especially concerned about certain chlorinated hydrocarbon chemicals, particularly DDT. In Wisconsin, for example, the use of DDT in Dutch elm disease control is being legally challenged. The legal decisions rendered may have far-

reaching implications on the use, of not only these chemicals, but also others used in agricultural production.

An encouraging development is an apparent trend to using relatively fewer of the persistent-type chlorinated hydrocarbon chemicals and more of the less persistent organic phosphorous chemicals.

In an effort to minimize possibilities of chemical pollution, Government research is placing considerable emphasis on nonchemical pest control. However, chemicals will be the primary means of pest control for some time.

## FARM PRODUCED INPUTS

### Feed

The 1968/69 feeding year, which began last October 1, features large feed supplies and relative feed costs favorable to livestock men. The supply of feed concentrates is up 4 million tons and the supply per grain consuming animal unit is nearly equal to that of last year (table 6). The U.S. average farm prices in mid-January were substantially lower than a year earlier for oats and barley, were essentially unchanged for grain sorghum, and were four cents a bushel higher for corn.

During the 1967/68 feeding year, livestock-feed price ratios improved as feed prices held relatively steady and livestock product prices increased. The hog-corn price ratio averaged nearly 2 points above the preceding year's average. The beef steer-corn ratio did even better, with the 1967/68 level 5.3 points above 1966/67. Milk-feed ratios, also averaged well above the previous year. However, the egg-feed ratio was slightly below 1966/67 levels, while the broiler-feed ratio stayed nearly unchanged.

For the 1968/69 feeding year, with numbers of grain-consuming animal units up 3 percent, concentrates fed to livestock may reach nearly 170 million tons, an increase of about 4 percent and a record high (table 6). Prices for corn and grain sorghum will probably increase for the rest of the season due to strong demand. The price recovery for feed grains, even with lower prices for oilseed meals, may have a dampening effect on some types of livestock and poultry production during the balance of the year. The major increases in numbers of grain-consuming animal units during the 1968/69 feeding year will probably come from cattle on feed and hogs. Current estimates show increases of about 10 and 4 percent respectively for these two kinds of livestock.

Prospects for slightly lower livestock prices in the first half of 1969, coupled with steady to slightly higher feed cost, should result in lower, yet still above-average, livestock-feed price ratios for the rest of the 1968/69 feeding year. Formula feed prices will remain relatively stable to slightly higher during 1968/69, due primarily to prospects for increased feed grain prices for the latter half of the feeding year.

Prices received by farmers for the 4 feed grains and for baled hay on October 15 and January 15 are given in table 7. October 15 prices for 1968 for the feed grains were about 10 percent below a year earlier. Baled hay was about 4 percent lower. However, by January 1969, feed grain prices were approaching the levels of January 1968. Baled hay was also about the same price as a year earlier.

Table 6.--Supply and utilization of feed concentrates, and livestock feed, United States, 1937-68 <sup>1/</sup>

Year beginning Oct. 1	Supply				Utilization		Stocks of feed grains, end of year <sup>4/</sup>	Number of grain- consuming animal units	Per grain-consuming animal unit		
	Stocks of feed grains beginning of year	Produc- tion of feed grains <sup>2/</sup>	Other feed concen- trates <sup>3/</sup>	Total supply	Food, industry, seed, and exports	Concen- trates fed to livestock <sup>2/</sup>			Produc- tion of feed grains	Supply of concen- trates	Concen- trates fed
	Mil. tons	Mil. tons	Mil. tons	Mil. tons	Mil. tons	Mil. tons	Mil. tons	Millions	Tons	Tons	Tons
Average:											
1937-41.....	16.9	92.2	19.9	129.0	12.1	97.9	19.9	153.1	0.60	0.84	0.64
1942-46.....	14.7	109.2	29.4	153.3	14.8	124.9	13.5	176.9	.62	.89	.71
1947-51.....	22.2	108.8	25.5	156.5	17.1	115.9	23.5	162.2	.67	.96	.71
1952-56.....	32.2	114.7	27.1	174.0	18.4	117.7	38.0	160.7	.71	1.08	.73
1957-61.....	66.9	144.5	29.7	241.1	26.1	143.3	71.6	166.0	.87	1.45	.86
1962-66.....	60.6	148.9	33.6	243.1	36.3	153.2	53.5	172.9	.86	1.40	.89
1962.....	72.2	141.7	31.4	245.3	30.6	150.4	64.4	173.5	.82	1.41	.87
1963.....	64.4	153.8	32.2	250.4	33.2	148.3	69.3	173.0	.89	1.45	.86
1964.....	69.3	134.2	34.1	237.6	36.5	145.3	54.8	169.1	.79	1.40	.86
1965.....	54.8	157.4	35.0	247.2	44.1	161.0	42.1	170.1	.93	1.45	.95
1966.....	42.1	157.6	35.3	235.1	37.0	160.8	37.1	179.0	.88	1.31	.90
1967 <sup>5/</sup> .....	37.1	176.0	35.9	249.0	38.5	162.4	47.9	179.1	.98	1.39	.91
1968 <sup>6/</sup> .....	47.9	168.1	37.3	253.3	38.5	169.5	47.0	184.2	.91	1.38	.92

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<sup>1/</sup> Grain and Feed Statistics, U.S. Department of Agriculture, Economic Research Service.

<sup>2/</sup> Includes corn for grain. Omits seeds and corn for silage and other forage purposes.

<sup>3/</sup> Includes byproduct feeds, imported grains, and domestic wheat and rye fed.

<sup>4/</sup> Stocks do not necessarily equal supply less feed and other utilization because of a difference in the crop year for different feed grains.

<sup>5/</sup> Preliminary.

<sup>6/</sup> Preliminary estimates based on indications in November 1968.

Table 7.--Average prices of selected feeds, United States, Oct. 15 and Jan. 15, 1966-69

Item	Unit	1967		1968		Jan. 15, 1969 1/	Percentage change from--			
		Oct. 15, 1966	Jan. 15	Oct. 15	Jan. 15		Oct. 15	Jan. 15		
		Dollars	Dollars	Dollars	Dollars		Dollars	Dollars	Percent	Percent
Prices received by farmers:										
Corn.....	Bushel	1.29	1.28	1.04	1.04	.96	1.08	-19	-8	4
Oats.....	do.	.66	.68	.65	.67	.58	.62	-2	-11	-6
Barley.....	do.	1.06	1.04	.98	.98	.88	.90	-9	-10	-8
Sorghum grain.....	Cwt.	1.73	1.86	1.68	1.75	1.60	1.74	-3	-5	-1
Hay, baled.....	Ton	24.10	25.50	22.60	24.00	21.80	23.50	-6	-4	-2
Prices paid by farmers:										
Mixed dairy feed, 16 percent protein.....	Cwt.	3.96	3.90	3.65	3.75	3.50	3.60	-8	-4	-4
Laying feed.....	do.	4.70	4.40	4.20	4.10	3.95	4.00	-11	-6	-2
Broiler grower feed.....	do.	5.16	4.80	4.55	4.50	4.40	4.40	-12	-3	-2
Cottonseed meal, 41 percent protein.....	do.	5.31	5.46	5.30	5.27	5.20	5.04	0	-2	-4
Soybean meal, 44 percent protein:	do.	5.73	5.60	5.32	5.20	5.54	5.24	-7	4	1
Bran.....	do.	3.51	3.91	3.50	3.59	3.34	3.59	0	-5	0
Middlings.....	do.	3.66	3.99	3.64	3.68	3.44	3.69	-1	-5	0
Alfalfa hay, baled.....	Ton	34.00	36.30	32.60	34.50	32.20	34.30	-4	-1	-1
Average value of concentrate ration feed fed to milk cows: 2/										
Milk-selling areas.....	Cwt.	3.24	3.30	3.15	3.10	3.04	3/	-3	-3	3/
Cream-selling areas.....	do.	2.80	2.81	2.60	2.56	2.58	3/	-7	-1	3/

1/ Preliminary.

2/ Value of corn, oats, oilmeal, mill feed, commercial mixed feed, and so on, which makes up 100 pounds of "grain" ration.

3/ Not available.

Source: Statistical Reporting Service, USDA.

Gross returns per dollar of feed cost, based on October 15 prices for the major types of livestock production for the past few years are given in table 8. These data reflect the price problems of the poultry industry 2 years ago and the recovery during 1968. In 1967, the gross return per dollar of feed cost dropped to less than \$1.00 for eggs, broilers, and turkeys. However, in 1968 returns from eggs were about the same as in 1966, while for broilers returns were considerably higher.

Gross returns above feed costs in 1968 were favorable for milk, hogs, sheep, and beef raising. Returns per dollar of feed costs during 1969 will probably be below 1968 levels for eggs, turkeys, and hogs. Returns on broilers may remain relatively unchanged. Those for milk, sheep, and beef may show further improvement. Returns over feed costs for butterfat will remain relatively unchanged.

### Feeder and Replacement Livestock and Poultry

Prices paid by farmers for feeder cattle, calves, and lambs increased 9 to 10 percent during 1968, indicating a strong demand for these inputs (table 9). In contrast, prices paid for feeder pigs remained essentially unchanged. In poultry, the prices paid for baby chicks increased 6 percent, for turkey poultts decreased 6 percent, and for started pullets remained unchanged.

Feedlot operators probably will continue their strong demand for feeder cattle in 1969. Prospects for only minor and occasional price weaknesses for fed cattle in the first half of 1969, coupled with increased cattle slaughter and a large feed grain supply, should produce steady to strong feeder cattle prices through midyear.

The price of feeder cattle is interrelated with the price of fed cattle and the cost of cattle feeding. Monthly average prices paid for all weights and grades of feeder steers in Kansas City during 1968 advanced irregularly from the January low of \$23.89 per 100 pounds to \$26.01 in December (fig. 1). Prices declined from the year's high of \$26.80 in May, then steadily advanced after September. The price spread between all feeder steers at Kansas City and choice steers at Chicago reached a high of \$2.98 per 100 pounds in January then declined to 36 cents in May, and has remained about \$2.00 since August.

The feeding margin (difference between the price received for fed cattle and the price paid for feeders 5 months earlier) has remained positive since March 1967. Feeding margins in 1968, comparing choice fed steer prices in Chicago with feeder steer prices in Kansas City, increased to a high in April of \$3.59 per 100 pounds and decreased to \$1.41 in October, with the December margin at \$1.95.

The number of feeder cattle available for feeding in 1968 remained about the same as in 1967. Although more cattle were slaughtered in 1968, the number of potential feeder cattle in the inventory January 1, 1968, the number of calves born during the year, and feeder cattle imports also were larger than in 1967. However, due to increased placements on feed during 1968 the potential number of feeder cattle available January 1, 1969 was reduced from 1968.

The number of cattle and calves on feed January 1, 1969 was 10 percent larger in the 32 major feeding States--8 percent larger in the North Central States, 15 percent larger in the 11 Western States, and Oklahoma

Table 8.--Gross returns from livestock enterprises per \$1.00 of feed costs, United States, based on Oct. 15 prices, 1957-59 average and 1966-68 <sup>1/</sup>

Livestock enterprise or product	Gross return per \$1.00 of feed cost				Percentage change from 1967 to 1968
	Average 1957-59	1966	1967	1968	
	Dollars	Dollars	Dollars	Dollars	Percent
Eggs.....	1.64	1.60	0.98	1.59	62
Broilers.....	1.18	1.02	.99	1.16	17
Turkeys.....	1.43	1.37	.95	1.08	14
Milk.....	2.34	2.31	2.39	2.58	8
Butterfat.....	1.55	1.48	1.44	1.47	2
Hogs.....	1.87	1.96	2.03	2.15	6
Sheep raising.....	1.54	1.33	1.39	1.57	13
Beef raising.....	2.33	1.97	2.25	2.45	9

Index numbers (1957-59 = 100)					
Eggs.....	100	98	60	97	---
Broilers.....	100	86	84	98	---
Turkeys.....	100	96	66	76	---
Milk.....	100	99	102	110	---
Butterfat.....	100	95	93	95	---
Hogs.....	100	105	109	115	---
Sheep raising.....	100	86	90	102	---
Beef raising.....	100	85	97	105	---

<sup>1/</sup> The following quantities of feed were used to calculate the cost of feed:

- Eggs (per doz.)..... 6 lbs. laying feed "complete feed"
- Broilers (per lb.)..... 2.5 lbs. broiler grower feed
- Turkeys (per lb.)..... 4.5 lbs. turkey grower, "complete feed"
- Milk (per cwt.)..... 31 lbs. concentrates and 110 lbs. hay
- Butterfat (per lb.)..... 7.75 lbs. concentrates and 27 lbs. hay
- Hogs (per cwt.)..... 7.5 bu. corn and 20 lbs. soybean meal
- Sheep raising (per cwt.).... 2 bu. corn and 1,500 lbs. hay
- Beef raising (per cwt.)..... 3 bu. corn and 600 lbs. hay

To estimate cost of all harvested forages and pasture in the above quantities of feed, feeds from these sources were converted into hay equivalent and the price received by farmers for "all hay" was applied. Feed nutrients from pasture were assumed to cost one-fourth as much as the nutrients in hay. About one-third of the feed consumed by sheep is used in the production of wool. During the period 1957-68, the quantities of broiler grower feed used to calculate the broiler feed costs were: 1957-60, 2.8 pounds; 1961, 2.6 pounds; 1962-68, 2.5 pounds. During the same period, the quantities of turkey grower "complete feed" used to calculate turkey feed costs were: 1957-60, 4.75 pounds; 1961-68, 4.5 pounds. Beginning in 1968, 6 pounds of laying feed was used to calculate cost of feed for egg production.

Table 9.--Feeder and replacement livestock and poultry: Prices paid by farmers, United States, high and low months for 1968, with comparisons

Commodity and unit	October	January	High month		Low month		December
	1967	1968	Month	Price	Month	Price	1968
	Dollars	Dollars		Dollars		Dollars	Dollars
Cattle and calves, per cwt.....	24.70	24.20	July	26.60	January	24.20	26.40
Lambs, per cwt.....	21.20	22.30	June	26.80	February	21.70	24.60
Feeder pigs, per cwt.....	32.90	30.50	September	35.00	December	30.00	30.00
Baby chicks, per 100.....	10.80	10.90	April <u>1/</u>	12.30	January	10.90	11.50
Turkey poults, per 100.....	51.40	56.30	May	57.70	October	50.30	52.70
Started pullets, each.....	1.67	1.67	October <u>2/</u>	1.69	March <u>3/</u>	1.66	1.69
Milk cows, per head.....	265.00	264.00	December	283.00	January	264.00	283.00
All livestock, Index (1910-14 = 100).....	370.00	365.00	January	365.00	April <u>4/</u>	398.00	395.00

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1/ Also May 1968.

2/ Also December 1968.

3/ Also April, June, and July 1968.

4/ Also July 1968.

Source: Agricultural Prices, Statistical Reporting Service, USDA.

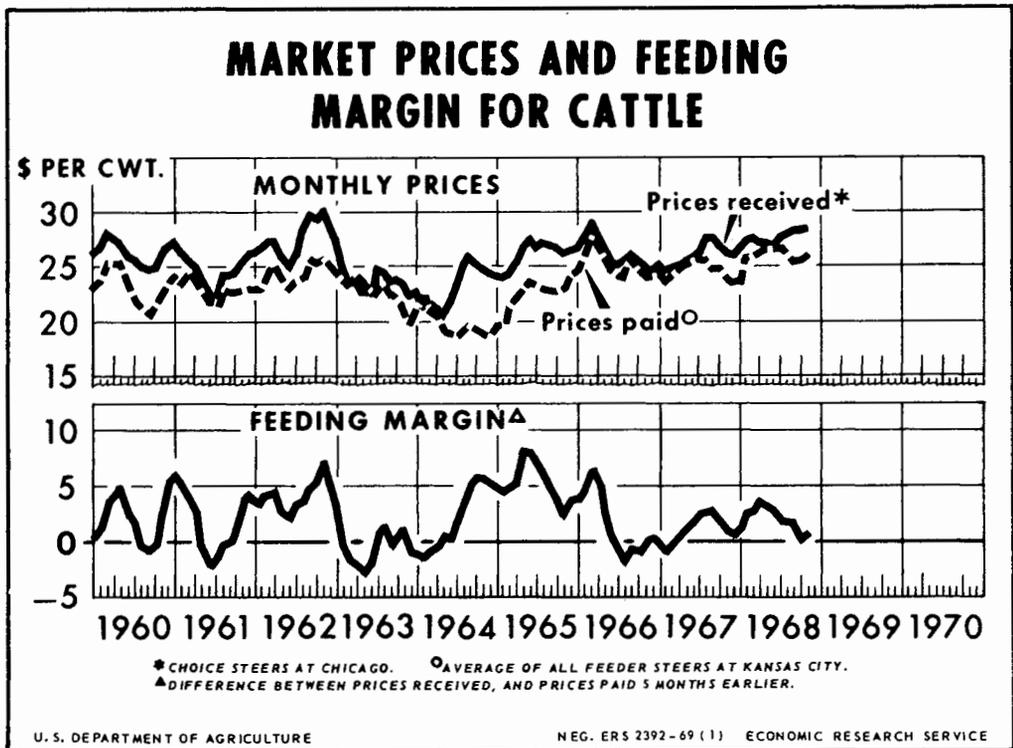


Figure 1

and Texas, but 19 percent less in the 6 Southeastern States--than on January 1 a year earlier. Moreover, the number of cattle and calves placed on feed in the 32 major feeding States during October-December 1968 was 7 percent above the same period in 1967. Placements were up in the North Central, the Southern Plains and the Western feeding areas.

Western range pasture conditions for 1968 were slightly above average and 1967 conditions. Since November 1968, California has shown marked improvement in pasture conditions while conditions in Washington and North Dakota have declined. Winter wheat is providing good grazing in Texas, Oklahoma, and parts of western Kansas.

Feeder lamb prices in 1968 remained well above 1967 prices. Feeder lamb supply probably will continue to decline. Prices of feeder lambs should remain strong in 1969 due to higher expected slaughter lamb prices and large feed grain production.

Feeder pig prices moved lower from the September 1968 high of \$35 per 100 pounds to \$30 in December. The December 1968-May 1969 pig crop is expected to be 5 percent above last year's. The October-December favorable hog-corn price ratio, at 18 to 1, was 1 point above the same period in 1967. The ratio will likely be somewhat reduced in 1969, due to lower hog prices and stronger corn prices. Demand for feeder pigs should remain good due to the large feed grain production and the generally favorable demand situation in prospect for red meat in 1969. However, feeder pig prices will likely weaken due to lower hog prices.

## Seed

Seeds remain a fairly minor expense item for most farmers, accounting for less than 2 percent of total farm expenditures. Yet they are being recognized as a major potential contributor in the worldwide struggle to keep food production equal to increasing requirements for food. Some new varieties of seeds are now being developed and tested which promise to dramatically improve the efficiency of U.S. farming and the quality of its products.

Farmers will find reduced supplies of field seeds available in 1969 (table 10). This is due both to low yields and reduced acreages of most seed crops in 1968 and is likely to mean generally higher seed prices in 1969. Very significant supply reductions will occur in the clovers, except for ladino and crimson clovers. Reductions from last year's supply of seed may be as much as 45 percent for white clover and 34 percent for sweet clover.

Supplies of most of the grass seeds are reduced from last year by 10 to 28 percent, with only rye grass and the blue grasses available in quantities at least equivalent to 1968.

Supplies of alfalfa seed appear to be similar to 1968 levels but substantially below the 5-year average.

Foreign trade in seeds, generally of minor significance, is not expected to alter the supply prospects greatly. Imports of seeds into the United States are controlled and limited by the Federal Seed Act.

Research developments in corn are leading to varieties with multi-eared stalks and increased kernel length, both of which will result in higher yields. Breeders are now testing corn varieties with improved protein content. Hogs fed high-lysine corn have grown significantly faster than those fed normal corn. This new type of corn may reduce the level of high-protein concentrates needed in animal rations. It may also contribute to improved diets in countries where corn is a major food.

Short-strawed wheat varieties, similar to those now being used extensively in other countries, promise much higher yields--up to 200 bushels per acre in some areas with irrigation and heavy fertilization. These wheats may give farmers able to provide ample moisture some competitive advantage over dryland farmers. Higher yielding hybrid wheats are also in the offing.

Hybrid barleys will be offered for sale in some areas in 1969. These give yields up to 35 percent greater than present varieties.

Earlier maturing varieties of sorghum are forthcoming. Improved protein varieties also are likely to be developed. Bird-resistant varieties, high in tannic acid during immature stages, offer promise in areas where birds are important damagers of crops.

A hybrid millet forage grass which is very drought resistant has been released. As a result, yields of this crop are expected to increase eventually by 50 percent in the Southeast. Moisture-deficient foreign countries may use it to provide human food. Hybrid sudans are giving very high yields of forage.

Table 10.--Production and carryover of selected field seeds, United States, 1967 and 1968 1/

Item	Production plus June 30 carryover	
	1967	1968 <u>2/</u>
	-----Million pounds of clean seed-----	
Red clover.....	78.0	61.3
Sweet clover.....	25.9	17.0
White clover.....	5.8	3.2
Ladino clover.....	5.5	5.4
Crimson clover.....	8.5	9.1
Lespedeza.....	46.1	41.2
Timothy.....	47.4	39.6
Orchard grass.....	13.3	11.7
Marion Kentucky bluegrass.....	9.1	9.5
Other Kentucky bluegrass.....	44.4	44.4
Chewings fescue.....	10.4	8.2
Red fescue.....	15.5	13.8
Tall (Alta & Kentucky 31) fescue...	75.9	68.3
Bentgrass.....	10.7	7.9
Hairy vetch.....	20.8	14.7
All rye grass.....	180.6	182.6
Alfalfa.....	147.7	149.2
All above seeds.....	745.6	687.1

1/ Seed Crops Annual Summary. Statistical Reporting Service, USDA, December 1968. Production plus carryover does not constitute supply precisely since relatively small quantities of seeds are exported or imported.

2/ Preliminary.

Fruit rootstocks which often permit quadrupled yields per acre are now available for planting. High-yielding vegetable varieties adaptable to machine harvesting are being developed. These new varieties will tend to replace vegetable crops requiring larger amounts of labor.

## OVERHEAD COSTS

### Property Taxes

Property taxes levied on U.S. farms totaled \$2.3 billion in 1967, 8 percent more than the amount levied in 1966. This was the sharpest increase in the past 25 years. Preliminary estimates indicate a further increase of about 7 percent in 1968.

Taxes levied on farm personal property increased 5-1/2 percent from 1966 to 1967. They totaled \$337 million in 1967. Preliminary estimates for 1968 indicate a further increase of about 6 percent. The 1968 increase reflects higher assessed values of farm machinery and motor vehicles.

Taxes levied on farm real estate in 1967 totaled \$1,940 million, up 8.4 percent from 1966. This was the 25th consecutive increase and the \$151 million jump was a record. In the past 25 years, taxes on farm real estate have increased almost fivefold.

Most taxes on farm real estate are imposed by local governments and are used to support local schools. The amount of taxes levied per acre varies among States, depending upon the value of farmland and the role of the property tax in the State-local tax system. In 1967, taxes per acre on farm real estate averaged highest in New Jersey, \$15.70 per acre, and lowest in New Mexico, 17 cents. The average tax was more than \$5 per acre in 6 States, between \$2 and \$5 in 16 States, between \$1 and \$2 in 10 States, and less than \$1 in 18 States.

Many States showed a large increase in farm real estate tax levies from 1966 to 1967. Nineteen States showed increases of more than 10 percent and 3 States had increases of more than 20 percent. The largest percentage gain was Delaware, 31.4 percent.

One measure of the impact of farm real estate taxes is the proportion of gross farm income that is used to pay them. In 1967, the proportion was 3.9 percent, the highest since 1934.

Another measure of the impact of farm real estate taxes is the tax per \$100 of full value. In 1967, it was \$1.05 as compared to \$1.02 in 1966. This marked the first time in 7 years that this figure changed significantly. Taxes rose more rapidly in 1967 than did the market value of farm real estate.

The increase in property tax levies in the past 25 years may be attributed to the same basic causes. Higher prices for things the local governments buy, increased salaries and wages, and in some instances new undertakings, have contributed materially to higher costs of operations. A need for additional facilities to accommodate a growing population is reflected in larger budgets. Additional activities, associated with education, health, and welfare, impose heavier burdens on local governments. These activities are expected to expand in the future.

## Interest

Interest on money borrowed by farmers cost a record \$3 billion in 1968 and is expected to be over \$3.2 billion in 1969 (table 11). Interest payments by farmers during 1968 increased 9.6 percent over 1967 to a level almost 3 times that of 1958. About half the 1968 charges went for long-term real estate debt and half for short- and intermediate-term debt.

The record expenditures for interest on borrowed funds reflect not only an increase in the interest rates paid, but an increase in the amount of funds borrowed. More funds are borrowed because the total bill for purchased production inputs is increasing and because farmers are increasingly willing to use borrowed funds. Interest rates were higher because the demand for loanable funds exceeded the supply in the overall U.S. economy. Demand for farm loans is expected to continue strong in 1969.

Interest rates on farm loans averaged higher in 1968 than in 1967. Rates on non-real estate loans averaged 0.3 to 0.4 percentage point higher in 1968 than a year earlier. Interest rates on new farm real estate loans were 1/2 to 3/4 percentage point higher. There is little reason to believe interest rates on farm loans will ease during the first half of 1969. Because of recent activities in the money markets, interest rates could increase further.

Except for a few isolated instances, farm lenders were able to secure sufficient funds to meet farmers' requests for loans in 1968. Farmers who could show the management ability and repayment capacity to handle loans received adequate credit in 1968. However, some beginning farmers and marginal operators may not have been served with what they considered to be adequate loans. Funds for farm loans for productive purposes are expected to be generally adequate in 1969.

Farm debt outstanding at yearend is a good indication of the use of borrowed funds. Total farm debt increased slightly less in 1968 than in any year since 1964. The buildup of farm real estate loans, however, equaled the largest dollar increase of any year within the last decade, but, non-real estate loan growth was the smallest since 1965. As shown in figure 2, the margin between the index of debt per farm and the index of total farm debt continued to widen.

Farm real estate debt outstanding reached a record \$27.8 billion on December 31, 1968. This concluded a year that saw interest rates climb to record levels.

Although growth of short- and intermediate-term borrowing slowed in 1968, it reached a record \$25.3 billion outstanding by the end of the year, showing a 7.6 percent growth for the year. This compares with an average annual growth rate of 11 percent for the previous 3 years. A slowdown in expenditures for farm vehicles and machinery in 1968 probably kept the volume of non-real estate debt from increasing further.

Interest rates on farm non-real estate loans were considered relatively high at the beginning of 1968 and went even higher during the year. A survey of country banks by the American Bankers Association in midyear 1968 showed that interest rates charged by banks on farm operating and feeder cattle loans ranged on average from 6.94 percent in the Corn Belt

Table 11.--Annual interest charges on the farm debt, United States, selected years, 1950-1969

Year	Charges on short-term debt owed to--1/						
	Total	Charges on mortgage debt	All lenders	Commercial banks	Production credit associations 2/	Farmers Home Administration	Merchants, dealers, and miscellaneous creditors
	Million dollars	Million dollars	Million dollars	Million dollars	Million dollars	Million dollars	Million dollars
1950.....	585	264	321	134	32	17	138
1955.....	838	402	436	186	47	21	182
1959.....	1,217	572	645	277	98	21	249
1960.....	1,342	627	715	307	120	20	268
1961.....	1,431	685	746	324	117	24	281
1962.....	1,582	758	824	363	125	27	309
1963.....	1,771	845	926	407	142	31	346
1964.....	1,955	951	1,004	434	161	33	376
1965.....	2,154	1,075	1,079	457	179	36	407
1966.....	2,441	1,214	1,227	519	215	40	453
1967.....	2,721	1,334	1,387	576	265	40	506
1968 3/..	2,983	1,478	1,505	615	299	42	549
1969 4/..	3,255	1,645	1,610	---	---	---	---

1/ Includes service fees. Excludes interest charges on Commodity Credit Corporation price support loans and interest charges on debt for family living purposes.

2/ In addition to production credit associations, includes Federal intermediate credit bank loans to, and discounts for, livestock loan companies and agricultural credit corporations.

3/ Preliminary.

4/ Estimated.

to 7.61 percent in the West. These rates were from 0.26 to 0.41 percentage point above those reported in a similar survey taken in midyear 1967. Interest rates charged by production credit associations also increased during 1968 as indicated in the following tabulation:

Interest rate charged 1/	Production credit associations charging specified rates									
	1965		1966		1967		1968		1969	
	Jan.	July	Jan.	July	Jan.	July	Jan.	July	Jan.	July
	Percent		Percent		Percent		Percent		Percent	
Less than 6 percent.....	6	5	3	2	0	1	2/	0	2/	
6 percent.....	43	42	37	25	19	18	19	17	13	
6-1/8 to 6-7/8 percent....	42	43	45	36	7	16	16	10	13	
7 percent and over.....	9	10	15	37	74	65	65	73	74	

1/ Rates shown exclude loan fees, which in 1967 averaged 0.52 percent.

2/ Less than 0.50 percent.

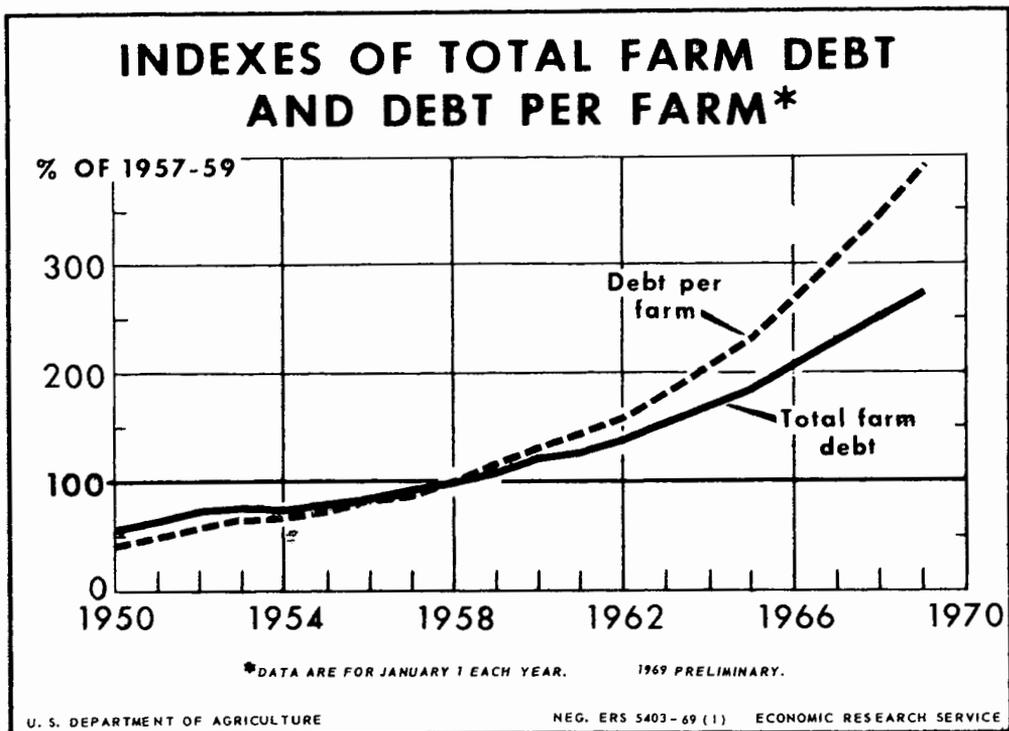


Figure 2

A larger percentage of the associations were charging 7 percent or more on loans in January 1969 than a year earlier. Merchants, dealers, and miscellaneous other lenders were estimated to have increased interest rates on loans by about the same amount as institutional lenders.

Federal land banks and life insurance companies charged higher interest rates on new farm real estate loans in 1968 than in 1967. Congressional action in late 1967 removed the 6 percent interest rate ceiling that Federal land banks could charge on loans. Many of the Federal land banks increased their rates on loans to 6.5 or 7 percent in 1968. Interest rates on farm loans made by life insurance companies averaged about 1/2 percentage point higher at the end of 1968 than at the beginning of the year.

Individuals selling farmland in recent years have financed nearly half of the value of farmland sales. Interest rates charged by these individual sellers are usually about 1/2 percentage point less than those charged by institutional lenders.

The charges Federal land banks make on loans are determined primarily by the cost of bonds they must sell in the open money market to get their loan funds. Life insurance companies are likely to charge farmers rates comparable to those they get on nonfarm loans of equal quality.

The distribution of farm debt provides some indication of who uses borrowed funds. The \$53.1 billion farm debt outstanding January 1, 1969, is the estimate of total debt owed by all farmers. Information on a national scale as to the characteristics of farmers who have debt and how much they have was almost nonexistent until recently. The Bureau of the Census surveys as of 1961 and 1966 shed some light.

The Census surveys show that in 1961 and in 1966 about 65 percent of the commercial farm operators had farm debt. According to the 1965 Sample Survey about one-fourth of landlords of commercial farmers had debt. In 1966, two-thirds of all farm operators managed commercial farms. In the same year 88 percent of all farm landlords were landlords of commercial farms. Operators and landlords of commercial farms owed about 90 percent of the farm debt in 1961 and 1966.

Commercial farm operators paid more interest on non-real estate debt than on real estate debt in 1961, 1966, and 1968 (table 12). The reverse was true for landlords of commercial farms. This reflects the use of more production type loans by operators than by landlords. Ordinarily, landlords contribute mainly farmland to the farming operation.

Operators of noncommercial farms had higher interest charges for real estate debt than for operating debt. Such operators usually have a larger portion of their farm assets invested in farmland and buildings than in farm production items. Landlords of noncommercial farms had more nearly equal interest costs for real estate and operating debts.

### Insurance

Farmers' insurance and social security payments for both farm and family purposes continue to rise because of more protection and higher premium rates. Increased property values, the growing importance of some risks, and a broadened social security program have resulted in greater protection for farmers. More insurance claims and rising costs of building construction, automobile repair, and medical services are factors in higher premium rates. An increase in social security taxes has accompanied the expanded benefits.

Insurance premiums and social security taxes paid by farmers are estimated at \$2.7 billion for 1968, about 4 percent more than in 1967. A further rise of 6 percent is projected for 1969. About a third of the total insurance expenditures of farmers can be allocated as a farm business expense.

Although individual farmers view many types of insurance expenditures as a cost, the actual net cost to farmers as a group is much smaller than the gross expense because of payments they receive for losses. Furthermore, part of the life insurance premium is a form of savings. Social security benefits to farmers as a whole (including survivors and retired and disabled farmers) probably exceed their total social security tax payments, because of the age distribution of farmers and the relatively recent inclusion of the self-employed under social security.

Insurance on automobiles and trucks--mainly liability, collision, and comprehensive coverage--accounts for the largest expenditures of any one line of property insurance. The estimate for 1968 is \$450 million with an increase to about \$470 million for 1969. More accidents and higher repair and medical costs have resulted in premium rate increases in many States. However, rates are usually much lower in rural than in urban areas.

Insurance on other property--buildings, equipment, livestock, and personal property--cost farmers an estimated \$282 million in 1968 and is projected at \$305 million for 1969. Rising property values, more insurance relative to value, and an increased use of package policies protecting against more hazards are some factors causing increased premiums.

Table 12.--Estimated interest charges on farm debt of operators and landlords, by type of debt, United States, 1961, 1966, and 1968 <sup>1/</sup>

Type of farm and borrower	1961		1966		1968	
	Real estate	Non-real estate	Real estate	Non-real estate	Real estate	Non-real estate
	Million dollars					
Commercial farms:						
Operators.....	486	640	813	1,034	990	1,232
Landlords.....	132	52	268	130	326	136
Total.....	618	692	1,081	1,164	1,316	1,368
Noncommercial farms:						
Operators.....	62	46	122	102	148	122
Landlords.....	5	8	11	11	14	15
Total.....	67	54	133	113	162	137
All farms:						
Operators.....	548	686	935	1,136	1,138	1,354
Landlords.....	137	60	279	141	340	151
Total.....	685	746	1,214	1,277	1,478	1,505

<sup>1/</sup> Estimates based partially on data from Bureau of Census, Sample Surveys of Agriculture, 1960 and 1965.

Upward revision in rates on city property insurance because of riot losses has also had some effect on rates in some rural communities.

Insuring growing crops against hail, drought, freeze and other hazards cost farmers about \$175 million in 1968. Private crop-hail insurance companies and the Federal Crop Insurance Corporation provide such insurance, mainly on wheat, corn, soybeans, and tobacco. Premium rates have been relatively stable, but more farmers have been buying crop insurance in recent years.

Payments by farmers for workmen's compensation are relatively small, amounting to about \$52 million in 1968. This protection for hired workers is usually required only for the farms with large numbers of workers. However, accidents on farms are frequent compared with many other industries and workmen's compensation benefits are being broadened by legislation in several States. Premium rates are expected to continue to increase as coverages and medical costs show further rises.

Life and health insurance premiums, mainly for family protection, are estimated at \$1,110 million during 1968. Mostly this represents life insurance in the form of ordinary policies, group insurance, and credit life insurance. Purchases of life insurance are related to net incomes and are expected to increase moderately this year. Farmers who have non-farm jobs often participate in group life insurance plans.

An expanded social security program to provide hospital and medical benefits as well as increases in retirement and disability payments cost farmers an estimated \$631 million in 1968, up from \$596 million in 1967 (revised). Higher reported earnings and an increase from \$6,600 to \$7,800 in maximum earnings subject to social security taxes largely account for the rise in cost. Social security taxes paid by farmers will increase again in 1969, to a projected \$693 million.

Approximately \$401 million of the \$631 million paid by farmers to the Social Security Administration in 1968 was to cover retirement and disability benefits based on their own farm and nonfarm income. They paid another \$95 million for hospital and medical benefits under Medicare. The social security taxes that farmers paid in 1968 on behalf of their hired workers totaled an additional \$135 million.

#### FARM REAL ESTATE

"Less market activity but prices still climb," was a comment made by one reporter in a recent national farm real estate market survey. Nationally, it summarizes the 1968 farmland market. The market value of farm real estate rose 6 percent during the year ended November 1, 1968. Average value per acre on that date was \$184 per acre; total market value of farmland and buildings was \$201 billion. The annual increase equaled that of the preceding year. Regional advances ranged from 2 percent in the Pacific States to 10 percent in the Southeast and Delta regions. Corn Belt farmland values increased 4 percent, a modest advance compared with the previous year.

Voluntary transfers during the year ended March 1, 1968, averaged 30.4 per 1,000 farms, 2 percent below a year earlier. With farm numbers continuing to decline, the volume of voluntary sales decreased 4 percent to 85,000 transfers. Numbers of farm transfers have steadily declined since the early 50's.

The farmland market continues to be largely a market of farmers. Active and retired farmers sell more than half of the transferred properties. In addition a substantial portion of estate settlements are those of farmers. On the demand side, active farmers, buying for farm enlargement, are the major buyer group. In the year ended March 1, 1968, 57 percent of the farmland transfers were purchased for farm enlargement.

Rising land values, together with increasing farm size, have pushed the average value of real estate per farm sharply upward. On March 1, 1968, commercial farms (annual gross sales of \$2,500 or more) had an average value of \$100,000 per farm (fig. 3). These farms, which account for 58 percent of all farms, averaged 550 acres. Largest average per-farm values are in areas where ranching or specialty crop production is prevalent. Hence, the larger operations are more common in the West.

To meet the capital requirements of today's commercial agriculture, many farm operators turn to the rental market. This is true of the beginning operator as well as the established farmer trying to expand his operated acreage. Because of this keen demand for rental property, the cash rental arrangement is often replacing the traditional crop-share arrangement, mainly because cash rental allows active bidding for the property. Active demand for tracts of cropland has pushed per acre cash rents steadily upward. On April 1, 1968 cash rents averaged \$30-\$35 per

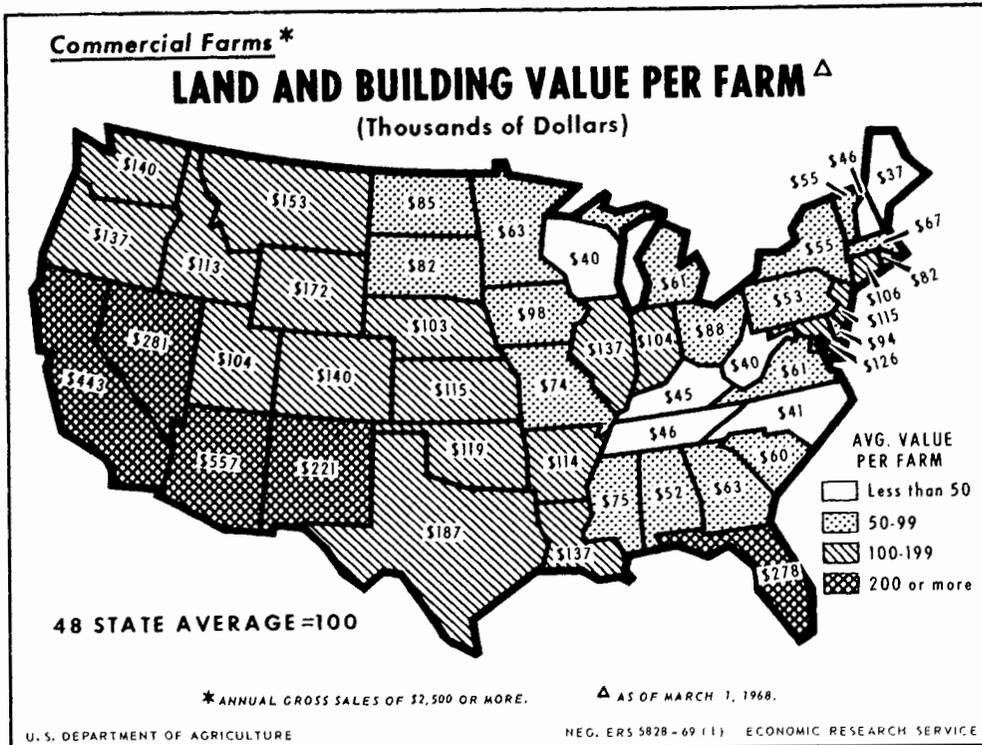


Figure 3

acre in Indiana, Illinois, and Iowa. Elsewhere State average cropland rents ranged downward from these Corn Belt averages, with gross rents for the United States averaging about 7.0 to 7.5 percent of land value.

Outlook for 1969 is for moderate advances in farmland prices. Supply and demand indicators show slower market activity and relatively stable prices may continue into the coming months in portions of the Corn Belt and Western regions. Demand for land in the rental market will remain strong.

### Farm Service Buildings

Total market value of farm service buildings on March 1, 1968, was estimated at \$17.7 billion. The importance of farm service buildings relative to land continues to decline. Currently, service buildings account for about 9 percent of total farm real estate value compared with 12 percent a decade ago.

The decline in the relative importance of farm buildings to land is due primarily to farm consolidation. Expansion buyers, who account for more than half of all buyers in the farmland market, are attempting to expand their land acreage--not their building facilities. Consequently, service buildings on add-on tracts may be of little or no value to this type of buyer.

Recent production specialization and new farming technology also have altered farm building use and construction. Today, the traditional farmstead with a full set of service buildings often is obsolete. For

example, the older frame dairy stall barns are generally not as efficient as milking parlors. Highly specialized livestock and poultry facilities are designed for minimum labor and management inputs. And in grain handling and storage, the older corn crib and granery are being replaced by systems which may include a whole series of storage units plus conveying and drying equipment.

As would be expected, the major share of annual expenditures for building materials and labor for service building construction is made on the larger farms. In the 1965 Sample Survey of Agriculture, which covered 1963-65, nearly 70 percent of these expenditures were made on farms having annual gross farm incomes of \$10,000 or more (table 13). These farms represented 28 percent of all farms in 1964.

The distributions of expenditures varied by type of service building. Shop and machinery storage expenditures were mainly on farms grossing \$5,000 to \$40,000 annually. Corn and grain storage construction was primarily on farms with over \$10,000 gross sales. Expenditures for poultry and turkey housing were heavily concentrated in the largest gross sales groups.

In sharp contrast to service building construction, expenditures for operators' dwellings were most prevalent on smaller farms. Nearly 60 percent of the expenditures for materials and labor for dwelling construction were on farms grossing less than \$10,000 annually. The higher incidence of dwelling construction among these farms suggests they are frequently rural residences with income generated from nonfarm sources.

Not only was the incidence of new service building construction highest on the larger farms but the average per-farm expenditures were also highest (table 14). Per-farm expenditures averaged \$14,500 on farms with gross sales exceeding \$100,000, compared with less than one-tenth this amount on noncommercial farms. Per farm expenditures for dwelling construction showed much less variation among the classes of farms.

Outlook for 1969 is a continuation of present trends. A moderate increase in total building value is expected, along with a further decline in importance relative to farmland. Construction costs will be somewhat higher. After remaining fairly stable for about 8 years, prices paid by farmers for building and fencing materials rose 8 percent between December 1967 and December 1968. Building materials as well as hired labor will be more costly in the near future. However, modern design and construction techniques often will allow the farmer to use materials and labor more efficiently. Expenditures on service buildings will continue to be made primarily by larger commercial farmers, often for highly specialized structures.

#### COSTS BY TYPE OF FARM

Production costs and efficiencies vary greatly among types of farms, by areas, and over time. Annual estimates of production, costs, and returns on several important types of farms representative of major segments of commercial agriculture provide an illustration of some of these differences (fig. 4).

Farm size, output per farm, and prices paid for farm production items have increased substantially in all major farming areas in recent years. As a consequence, total operating expense (total farm expenses,

Table 13.--Total expenditures for new building construction, and percentage distribution of expenditures by gross sales classes of farms, by type of building, United States, 1963-65 <sup>1/</sup>

Type of building	Total expenditures : 1963-65	Gross sales classes of farms							
		\$100,000 or more	\$40,000 to \$99,999	\$20,000 to \$39,999	\$10,000 to \$19,999	\$5,000 to \$9,999	\$2,500 to \$4,999	Other farms	All farms
	Million dollars	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Operators dwelling.....	745.5	3	7	13	18	13	12	34	100
Service buildings:									
Shops and machinery storage.....	172.8	6	11	23	19	18	7	16	100
Corn and grain storage.....	142.9	9	22	24	29	10	4	2	100
Poultry and turkey housing.....	142.2	32	31	16	12	2	3	4	100
Barns for beef and other cattle.....	118.4	4	8	10	21	18	14	25	100
Dairy stall barns.....	111.8	5	7	31	29	19	4	5	100
All other service buildings.....	459.7	11	17	21	20	13	6	12	100
All buildings.....	1,893.3	8	13	17	19	12	8	23	100

<sup>1/</sup> Based on 1965 Sample Survey of Agriculture. Expenditures are for materials and labor used in building construction.

Table 14.--Percentage of farms reporting building expenditures, average expenditures per farm, and percentage distribution of total expenditures, by gross sales classes of farms, United States, 1963-65 <sup>1/</sup>

Gross sales classes of farms	Number of farms in 1964	Percentage of farms reporting expenditures during 1963-65		Average building expenditures per farm of those reporting		Percentage distribution of total building expenditures for--	
		Operator dwelling	Service buildings	Operator dwelling	Service buildings	Operator dwelling	Service buildings
	Number	Percent	Percent	Dollars	Dollars	Percent	Percent
Annual gross sales:							
\$100,000 or more.....	31,273	3	26	19,400	14,500	3	11
\$40,000 to \$99,999.....	110,330	3	26	17,600	6,400	7	17
\$20,000 to \$39,999.....	259,607	2	26	15,400	3,400	13	21
\$10,000 to \$19,999.....	466,646	2	19	16,000	2,500	18	20
\$5,000 to \$9,999.....	503,996	2	12	11,600	2,200	13	13
\$2,500 to \$4,999.....	443,192	1	9	13,900	1,700	12	6
All commercial farms.....	1,815,044	2	16	14,700	3,300	66	88
Other farms.....	1,337,567	2	6	11,500	1,400	34	12
All farms.....	3,152,611	2	12	13,400	2,900	100	100

<sup>1/</sup> Based on 1965 Sample Survey of Agriculture. Expenditures are for materials and labor used in building construction.

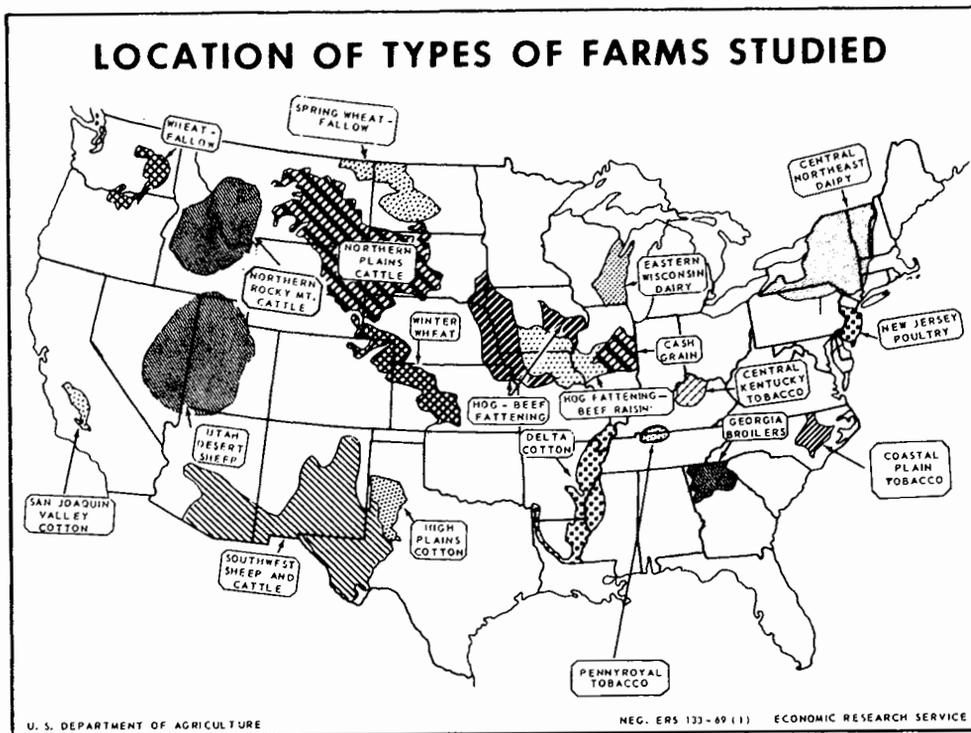


Figure 4

excluding charges for operator and family labor and capital) per farm has generally increased--substantially on some types. In 1967 total operating expenses per farm were the highest on record for 21 of 23 types of farms studied. They were higher in 1967 than in 1957-59 on 22 of the 23 farms.

When these expenses are expressed in terms of expense per unit of output, account is taken of most of the changes in farm size and output. Of the 23 farm types for which data are available, 17 increased operating expense per unit of production from 1959-61 to 1963-67 (table 15). The Corn Belt farms, cotton farms and sheep ranches were among the major groups where operating costs per unit of production increased from the 1959-61 average on each type of farm. For the other groups per-unit costs went up from 1959-61 to 1963-67 for some types and down for others.

A further refinement in measuring performance is to reduce the effects of both price and size changes, to include all capital and labor inputs, and thus to measure the physical production cost. This is expressed here in an index of input per unit of production. A large change in production has considerable effect on this index. A drought or similar catastrophe may occur in a given year, but the probability of a repeat in the the following several years is generally remote. Thus, an average for a few years provides a better measure of change.

From 1959-61 to 1963-67 the index of input per unit of production decreased on 16 of the 23 farm types (table 15). By major groups of farms the index was lower on poultry farms and Corn Belt farms. The decrease was about 4 percent on hog-beef fattening farms and 17 percent on hog-beef raising farms. The largest decrease (52 percent) occurred on

Table 15.--Operating expense and input per unit of production, specified types of commercial farms, averages 1959-61 and 1963-67

(1957-59 = 100)

Type of farm and location	Operating expense per unit of production <u>1/</u>		Input per unit of production <u>2/</u>	
	1959-61	1963-67	1959-61	1963-67
Dairy farms:				
Central Northeast.....	<u>3/</u>	<u>3/</u>	<u>3/</u>	<u>3/</u>
Eastern Wisconsin.....	100	114	94	94
Poultry farms:				
Egg-producing, New Jersey.....	92	86	98	90
Broilers, Georgia.....	104	105	97	85
Corn Belt farms:				
Hog-beef raising.....	109	120	103	86
Hog-beef fattening.....	110	118	100	96
Cash grain.....	96	106	88	83
Cotton farms:				
Nonirrigated:				
Mississippi Delta.....	88	89	86	81
High Plains, Texas.....	94	121	89	113
Irrigated:				
High Plains, Texas.....	97	107	93	98
San Joaquin Valley, California.....	108	122	104	110
Tobacco farms:				
North Carolina Coastal Plain.....	97	104	92	85
Kentucky Bluegrass:				
Tobacco-livestock, Inner area.....	105	104	101	90
Tobacco-dairy, Outer area.....	106	110	100	90
Pennyroyal area, Kentucky-Tennessee:				
Tobacco-beef.....	100	108	95	90
Tobacco-dairy.....	99	114	91	86
Wheat farms:				
Wheat-fallow, Northern Plains.....	125	66	124	60
Wheat, Southern Plains.....	93	115	87	98
Wheat-fallow, Pacific Northwest.....	117	108	112	100
Cattle ranches:				
Northern Plains.....	100	97	101	90
Northern Rocky Mountain <u>4/</u> .....	100	95	100	89
Southwest.....	98	120	91	100
Sheep ranches:				
Utah-Nevada.....	106	109	100	92
Southwest.....	92	115	90	100

1/ Exclusive of charges for capital and unpaid labor.

2/ Constant dollars. Includes charges for capital and unpaid labor.

3/ Not available.

4/ 1959-61 = 100.

wheat-fallow farms in the Northern Plains, due to vastly greater production in 1963-67. However, production in 1959-61 was well below normal; in 1963-67 it was well above normal. Production efficiency has generally increased on these representative farms, thus lowering total per-unit physical costs.

Preliminary estimates for 6 selected types of farms and ranches reflect a continuation of the upward trends in farm operating expenses and prices paid for items and services used in production (table 16).

Operating expenses in 1968 were higher than a year earlier on 4 of the 6 farm types. They were lower on cattle ranches because of reduced outlays for feed. A bumper hay crop was obtained in 1967 with a resulting large carryover to the January-April 1968 feeding season. Operating expenses were slightly lower in 1968 on the tobacco farms because of a reduction in hired labor, reflecting lower production and a further shift to marketing of untied tobacco.

Prices paid for items and services averaged higher in 1968 on all 6 farm types. Prices received for products sold were mixed, averaging higher on 3 of the farm types. Production per farm followed no definite pattern. None of the farm types had a combination of higher net production, higher prices received, and lower average prices paid.

#### Dairy Farms, Central Northeast

Operating expenses of high-producing 40-cow dairy farms in the Central Northeast were about the same in 1968 as in 1967. Lower expenditures for purchased feed, chiefly because of lower prices, offset increased expenditures for other production items.

In 1968, production of corn silage declined, but production of hay and pasture were similar to the year earlier. The production of oats was higher.

#### Hog-Beef Fattening Farms, Corn Belt

Total operating expenses on hog-beef fattening farms in the Corn Belt averaged about 2 percent higher in 1968 than in 1967. The increase in expenses resulted mainly from larger outlays for feeder cattle bought, for labor hired, and for seed bought. Taxes and expenditures for machinery repairs also exceeded those of 1967. An important item in keeping total expenditures from being larger was the smaller expenditure for feed due to the lower price paid for corn.

Prices paid for all items used in production averaged about the same as in 1967. Prices were higher for seed, pesticides, power equipment, machinery, hired labor and service work, as well as for feeder cattle. On the other hand, lower prices were paid for feed corn and fertilizer. Prices paid for feeder cattle averaged about 3 percent higher than a year earlier and more feeder cattle and more feed were bought. More fertilizer but slightly less hired labor was used in 1968.

#### Large-Scale Cotton Farms, Mississippi Delta

Operating expense in 1968 for Mississippi large-scale cotton farms averaged 17 percent more than in 1967. Most of this additional expense was incurred in expanding cotton acreage about 23 percent, the result of

Table 16.--Costs and returns, selected types of farms, average 1957-61, 1967, 1968 preliminary

Type of farm	Unit	Average 1957-61	1967	1968
<b>Dairy farms, Central Northeast:</b>				
Gross farm income.....	Dollar	<u>1/</u>	27,558	28,985
Operating expenses.....	do.	<u>1/</u>	15,960	16,046
Net farm income.....	do.	<u>1/</u>	11,598	12,939
<b>Cows, 2 years old and over.....</b>				
	Number	<u>1/</u>	40	40
Milk sold per cow.....	Pound	<u>1/</u>	11,800	11,850
<b>Total farm capital, Jan. 1.....</b>				
	Dollar	<u>1/</u>	71,080	74,900
<b>Index numbers (1957-59 = 100):</b>				
Net farm production.....	---	<u>1/</u>	<u>1/</u>	<u>1/</u>
Prices paid.....	---	<u>1/</u>	<u>1/</u>	<u>1/</u>
Prices received.....	---	<u>1/</u>	<u>1/</u>	<u>1/</u>
<b>Hog-beef fattening farms, Corn Belt:</b>				
Gross farm income.....	Dollar	26,351	46,128	48,637
Operating expenses.....	do.	17,584	34,479	35,276
Net farm income.....	do.	8,767	11,649	13,361
<b>Fat cattle sold.....</b>				
	Cwt.	611	1,143	1,168
Hogs sold.....	do.	519	647	638
<b>Total farm capital, Jan. 1.....</b>				
	Dollar	96,970	166,640	175,630
<b>Index numbers (1957-59 = 100):</b>				
Net farm production.....	---	102	151	145
Prices paid.....	---	102	119	120
Prices received.....	---	98	104	108
<b>Cotton farms (large-scale), Mississippi Delta:</b>				
Gross farm income.....	Dollar	65,922	78,601	85,710
Operating expenses.....	do.	42,815	40,840	47,739
Net farm income.....	do.	23,107	37,761	37,971
<b>Cotton harvested.....</b>				
	Acre	235	151	198
Yield per acre.....	Pound	514	520	635
<b>Total farm capital, Jan. 1.....</b>				
	Dollar	202,100	382,430	439,900
<b>Index numbers (1957-59 = 100):</b>				
Net farm production.....	---	106	89	117
Prices paid.....	---	100	122	126
Prices received.....	---	100	106	96

Table 16.--Costs and returns, selected types of farms, average 1957-61, 1967,  
1968 preliminary--Continued

Type of farm	Unit	Average 1957-61	1967	1968
<b>Tobacco farms, Coastal Plain, North Carolina:</b>				
Gross farm income.....	Dollar	10,442	13,310	11,720
Operating expenses.....	do.	5,463	6,889	6,548
Net farm income.....	do.	4,979	6,421	5,172
Tobacco harvested.....	Acre	7.9	7.6	7.0
Yield per acre.....	Pound	1,742	2,015	1,805
Total farm capital, Jan. 1.....	Dollar	34,130	48,330	50,420
Index numbers (1957-59 = 100):				
Net farm production.....	---	111	128	106
Prices paid.....	---	102	127	133
Prices received.....	---	104	111	121
<b>Winter wheat farms, Southern Plains:</b>				
Gross farm income.....	Dollar	15,532	18,626	20,207
Operating expenses.....	do.	5,732	7,931	8,964
Net farm income.....	do.	9,800	10,695	11,243
Wheat harvested.....	Acre	209.2	265.0	228.0
Yield per acre.....	Bushel	22.3	20.5	21.9
Total farm capital, Jan. 1.....	Dollar	88,280	139,240	142,130
Index numbers (1957-59 = 100):				
Net farm production.....	---	110	121	130
Prices paid.....	---	102	122	123
Prices received.....	---	99	89	84
<b>Cattle ranches, Northern Rocky Mountain:</b>				
Gross ranch income.....	Dollar	<u>1/</u>	41,438	40,402
Operating expenses.....	do.	<u>1/</u>	22,373	19,829
Net ranch income.....	do.	<u>1/</u>	19,065	20,573
Cows and heifers of breeding age.....	Number	<u>1/</u>	303	307
Total ranch capital, Jan. 1.....	Dollar	<u>1/</u>	292,690	299,000
Index numbers (1959-61 = 100):				
Net ranch production.....	---	<u>1/</u>	128	129
Prices paid.....	---	<u>1/</u>	115	118
Prices received.....	---	<u>1/</u>	111	115

1/ Not available.

much lower payment rates for most acreage eligible for diversion through the upland cotton program. The index of prices paid for production inputs increased 3 percent from 1967 and inputs were used more intensively. The cost of labor rose significantly due to a higher minimum wage requirement.

#### Tobacco Farms, Coastal Plain, North Carolina

Total operating expenses on tobacco farms in the Coastal Plain of North Carolina averaged about 5 percent less in 1968 than in 1967. Most of the reduction was in expenditures for hired labor. Wage rates rose about 12 percent above the 1967 level, but the quantity of labor hired declined 23 percent. Prices paid for most of the production goods and services used by these farmers were higher in 1968.

Less labor was hired in 1968 chiefly because of a further shift to selling tobacco in untied form. Preparing tobacco for market in tied form requires about 4 hours more labor per 100 pounds than does preparation in untied form. About 99 percent of flue-cured marketings in this area in 1968 were untied, compared with 64 percent in 1967.

#### Winter Wheat Farms, Southern Plains

Farm operating expenses in 1968 on wheat farms in the Southern Plains were about 13 percent higher than in 1967. Part of the increase was attributed to greater quantities of fertilizer used and increased purchases of feeder livestock. The index of prices paid was estimated at 123 (1957-59 = 100) for 1968, one point higher than in 1967.

#### Cattle Ranches, Northern Rocky Mountain Area

Total operating expenses in 1968 on cattle ranches in the Northern Rocky Mountain area averaged around 11 percent below those in 1967. This occurred despite somewhat higher prices paid for production inputs (table 16). The chief factor in lowering operating expenses in 1968 was a reduced purchase of hay (a record low) because of a bumper hay crop on these ranches in 1967 and a large carryover to the January-April 1968 feeding season. Prices paid for hay were lower in 1968 but prices of other inputs averaged slightly higher.

Cattle ranchers in this area have generally improved their management practices in recent years. With relatively high calf crops, record-high numbers of breeding animals and above-normal range conditions, output from the cattle enterprise has been maintained at high levels. Record production of cattle was obtained in 1968, much more than offsetting reduced production of hay and grain (a minor enterprise). As a consequence, net ranch production was a record high, nearly 5 percent above production in 1967 and almost 30 percent above 1959-61 levels.

### ENTERPRISE INPUT COSTS

This topic appeared for the first time in the preceding issue of THE FARM COST SITUATION (November 22, 1967).

We noted then that the combination of direct production inputs varies among the crops, and it varies over time as new technology emerges and its potential effect on yields becomes known to farmers. Farmers tailor their

input mixes to suit the yield and quality of crop they believe to be feasible and profitable for them. We showed examples of the direct inputs that leading farmers planned to use in producing corn, cotton, and wheat on full-scale, well-equipped, and efficiently operated farms having excellent soils in specified producing areas.

In this issue we have slightly revised the corn, cotton, and wheat budgets, have updated them to 1968, and have added direct input budget plans for soybeans (east-central Illinois), rice (Grand Prairie, Arkansas) and grain sorghum (south-central Kansas). We have not attempted strict comparability between the corn and soybean budgets, or the wheat and grain sorghum, even though the data are for the same general areas, respectively

The leading farmers in recent years have raised their expected crop yields per acre for all six crops. To obtain larger yields, they have generally increased the use of fertilizer, seed, and other yield-increasing inputs. While the unit prices of labor and machinery services were higher in 1967-68 than in 1960, the unit prices of fertilizers and some pesticides were lower.

### Corn

Yield expectations of leading corn farmers in east-central Illinois rose from about 100 bushels in 1960 to 130 bushels and above in 1967 and 1968. A shift from 4-row to 6-row powered equipment has reduced the labor input per acre (table 17). Leading growers have increased the application of seed (increased plant population), fertilizer, and herbicides. Leading farmers now plan to spend about \$10 an acre more for direct inputs than they did in 1960.

### Soybeans

In east-central Illinois, leading farmers have raised their yield expectations of soybeans from 35 bushels per acre in 1960 to 40 bushels in 1967 and 1968. There has not been a yield "breakthrough" in soybeans comparable to that in corn and other leading crops. The decrease in labor input since 1960 is due to a shift from 4-row to 6-row powered equipment--as in corn (table 18). Leading farmers now plan to use higher plant populations, apply more fertilizer (no nitrogen on soybeans, a legume), and use herbicides to control weeds. Leading farmers are now spending about \$8-\$9 more an acre for direct inputs than they did in 1960. This is due in part to higher prices of labor, machinery services, and seed. Also increased quantity of purchased inputs has been important. For example, fertilizer use was up sharply.

### Cotton

Expected yields in the Yazoo-Mississippi Delta of 700 pounds (lint) per acre in 1960 and 850 pounds in 1967-68 are based on excellent cotton soils with the cotton planted "solid"--not skip-rowed. The 1967-68 expected yield was about 1,100 pounds for skip-row-planted cotton of a 2 X 2 pattern. Leading cotton farmers have greatly reduced their labor input by eliminating hand chopping through the use of chemicals for weed control, by substituting machinery having greater capacity, and by more completely mechanizing the harvest (table 19). The change was further stimulated by the extension of minimum wage legislation to farmers in 1967. On balance the leading cotton growers in the Delta were able to get increased yields while spending about \$6-\$7 an acre less in 1968 than in 1960, an obviously profitable course of action.

## Rice

Leading rice farmers have upped their expected yields of rice from 4,200 pounds an acre in 1960 to 5,200 pounds an acre in 1967 and 1968. These yields are on excellent soils for rice grown under full irrigation. To achieve these yields, the leading farmers apply more seed and nitrogen per acre but they now use less labor (table 20). In 1968, leading farmers were spending about \$22 more per acre for direct inputs than they did in 1960.

## Wheat

Leading wheat growers in south-central Kansas have increased their expected yield of wheat from 28 bushels an acre in 1960 to 35 bushels in 1967 and 1968. To achieve this increase they have increased the planned application of nitrogen and phosphate fertilizer, while the quantity of other inputs has not changed since 1960 (table 21). The increase of about \$1 per acre in direct inputs has been more than offset by the increase in gross returns, including Government payments.

## Grain Sorghum

In south-central Kansas, leading farmers have raised their yield expectations for grain sorghum from 40 bushels per acre in 1960 to 55 bushels in 1967 and 1968. These yields are for excellent soils and the crop is grown without irrigation. Irrigation of grain sorghum is more common in the western Kansas high plains where rainfall is much less. To achieve the 15-bushel increase in dryland yields in the South Central area, leading farmers have increased the application of both nitrogen and phosphate fertilizers (table 22). The increased expenditures for direct inputs have been more than offset by increased gross returns per acre.

Table 17.--Direct inputs per acre used by leading farmers in producing corn for grain, east-central Illinois, 1960 and 1967-68 <sup>1/</sup>

Input or cost	Unit	Quantity per acre			Cost per acre		
		1960	1967	1968	1960	1967	1968
				Dollars	Dollars	Dollars	
Labor <sup>2/</sup> .....	Hour	5.5	4.0	4.0	5.95	6.20	7.00
Power and machinery services <sup>3/</sup> .....	---	---	---	---	11.55	12.40	12.85
Seed.....	Pound	12	14	14	2.45	6.40	6.50
Fertilizer:							
Nitrogen.....	Pound	112	150	150	9.85	9.70	7.45
P <sub>2</sub> O <sub>5</sub> .....	do.	37	46	46	3.35	4.05	3.80
K <sub>2</sub> O.....	do.	24	30	30	1.15	1.25	1.15
Pesticides.....	---	---	---	---	1.00	5.20	5.20
Corn drying.....	---	---	---	---	2.50	3.45	3.45
Other.....	---	---	---	---	1.50	1.50	1.50
Total.....					39.30	50.15	48.90

<sup>1/</sup> Estimated for a large well-managed cash-grain farm having excellent soil. The expected yields were 100 bushels per acre in 1960 and 130 bushels per acre in 1967 and 1968.

<sup>2/</sup> Direct labor only. Does not include general or overhead labor not directly attributable to the crop.

<sup>3/</sup> Estimated on basis of 4-row power and equipment in 1960; 6-row in 1967 and 1968.

Table 18.--Direct inputs used by leading farmers in producing soybeans, east-central Illinois, 1960 and 1967-68 <sup>1/</sup>

Input or cost	Unit	Quantity per acre			Cost per acre		
		1960	1967	1968	1960	1967	1968
				Dollars	Dollars	Dollars	
Labor <sup>2/</sup> .....	Hour	4.5	3.5	3.5	4.85	5.40	6.10
Power and machinery services <sup>3/</sup> .....	---	---	---	---	10.00	10.75	11.15
Seed.....	Pound	60	78	78	2.40	5.20	5.20
Fertilizer:							
P <sub>2</sub> O <sub>5</sub> .....	Pound	28	35	35	2.55	3.10	2.90
K <sub>2</sub> O.....	do.	36	45	45	1.70	1.90	1.70
Pesticides.....	---	---	---	---	0.00	3.50	3.50
Other.....	---	---	---	---	1.50	1.50	1.50
Total.....					23.00	31.35	32.05

<sup>1/</sup> Estimated for a large well-managed cash-grain farm having excellent soil. The expected yields were 35 bushels per acre in 1960 and 40 bushels per acre in 1967 and 1968.

<sup>2/</sup> Direct labor only. Does not include general or overhead labor not directly attributable to the crop.

<sup>3/</sup> Estimated on basis of 4-row power and equipment in 1960; 6-row in 1967 and 1968.

Table 19.--Direct inputs per acre used by leading farmers in producing cotton,  
Yazoo-Mississippi Delta, 1960-68 <sup>1/</sup>

Input or cost	Quantity per acre			Cost per acre			
	Unit	1960	1967	1968	1960	1967	1968
					Dollars	Dollars	Dollars
Labor <sup>2/</sup> .....	Hour	82.0	13.5	13.5	46.80	13.50	15.50
Power and machinery services.....	---	---	---	---	25.00	29.00	32.00
Seed.....	Pound	40	18	18	3.60	2.35	2.35
Fertilizer:							
Nitrogen.....	Pound	100	90	90	6.80	5.75	5.75
Pesticides and chemicals.....	---	---	---	---	13.50	24.00	28.00
Custom application of pesticides..	---	---	---	---	4.00	3.40	3.40
Ginning.....	---	---	---	---	20.25	25.50	26.50
Total.....					119.95	103.50	113.50

<sup>1/</sup> For cotton planted solid on excellent cotton soils. Expense for power and machine services would be higher for skip-row planted cotton such as 2 rows alternating with 2 skips. Expected yield of lint for solid plantings: 750 pounds in 1960; 850 in 1967 and 1968. Expected yield for skip-row plantings: 1,100 pounds in 1967 and 1968.

<sup>2/</sup> Direct labor only. Does not include general or overhead labor not directly attributable to the crop.

Table 20.--Direct inputs per acre used by leading farmers in producing rice,  
Grand Prairie, Arkansas, 1960-68 <sup>1/</sup>

Input or cost	Quantity per acre			Cost per acre			
	Unit	1960	1967	1968	1960	1967	1968
					Dollars	Dollars	Dollars
Labor <sup>2/</sup> .....	Hour	12.0	11.5	11.5	13.30	19.10	19.10
Power and machinery services.....	---	---	---	---	9.40	11.00	11.00
Seed.....	Pound	110	135	135	9.80	13.00	13.00
Fertilizer:							
Nitrogen.....	Pound	90	120	120	11.70	12.00	12.00
Potassium.....	do.	60	60	60	3.00	3.00	3.00
Herbicides.....	---	---	---	---	5.00	11.20	9.10
Custom application:							
Nitrogen.....	---	---	---	---	1.55	2.65	2.65
Herbicides.....	---	---	---	---	1.60	2.40	2.40
Irrigation.....	---	---	---	---	8.30	9.00	9.00
Drying.....	Cwt.	46	57	57	14.90	18.80	18.80
Total.....					78.55	102.15	100.05

<sup>1/</sup> On well-managed large farms having excellent soils. Expected dry weight yields associated with these input-mixes were about 4,200 pounds per acre in 1960 and 5,200 pounds in 1967 and 1968.

<sup>2/</sup> Direct labor only. Does not include general or overhead labor not directly attributable to the crop.

Table 21.--Direct inputs per acre used by leading farmers in producing wheat, south-central Kansas, 1960 and 1967-68 1/

Input or cost	Quantity per acre					Cost per acre		
	Unit	1960	1967	1968	1960	1967	1968	
					Dollars	Dollars	Dollars	
Labor <u>2/</u> .....	Hour	2.0	2.0	2.0	2.10	2.80	2.90	
Power and machinery services....	---	---	---	---	4.40	4.90	5.00	
Seed.....	Bushel	1.0	1.0	1.0	2.20	2.30	2.00	
Fertilizer:								
Nitrogen.....	Pound	50	65	65	5.80	6.20	5.20	
P <sub>2</sub> O <sub>5</sub> .....	do.	25	35	35	2.50	3.15	3.00	
Total.....					17.00	19.35	18.10	

1/ On well-managed large farms having excellent soils. Expected yields associated with these input-mixes were about 28 bushels in 1960, and 35 bushels in 1967 and 1968.

2/ Direct labor only. Does not include general or overhead labor not directly attributable to the crop.

Table 22.--Direct inputs per acre used by leading farmers in producing grain sorghum, south-central Kansas, 1960 and 1967-68 1/

Input or cost	Quantity per acre					Cost per acre		
	Unit	1960	1967	1968	1960	1967	1968	
					Dollars	Dollars	Dollars	
Labor <u>2/</u> .....	Hour	2.2	2.2	2.2	2.30	3.10	3.20	
Power and machinery services....	---	---	---	---	4.90	5.45	5.55	
Seed.....	Pound	4	4	4	.70	.85	.80	
Fertilizer:								
Nitrogen.....	Pound	55	80	80	6.40	7.60	6.40	
P <sub>2</sub> O <sub>5</sub> .....	do.	20	30	30	2.00	2.70	2.55	
Herbicides.....	do.	.4	.4	.4	.50	.50	.50	
Drying the grain <u>3/</u> .....	---	---	---	---	.70	1.20	1.20	
Total <u>3/</u> .....					17.50	21.40	20.20	

1/ On well-managed large farms having excellent soils. Expected yields associated with these input-mixes were about 40 bushels in 1960 and 55 bushels in 1967 and 1968. (56 pounds per bushel.)

2/ Direct labor only. Does not include general or overhead labor not directly attributable to the crop.

3/ Assumes that 30 percent of the harvested grain is custom dried.

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