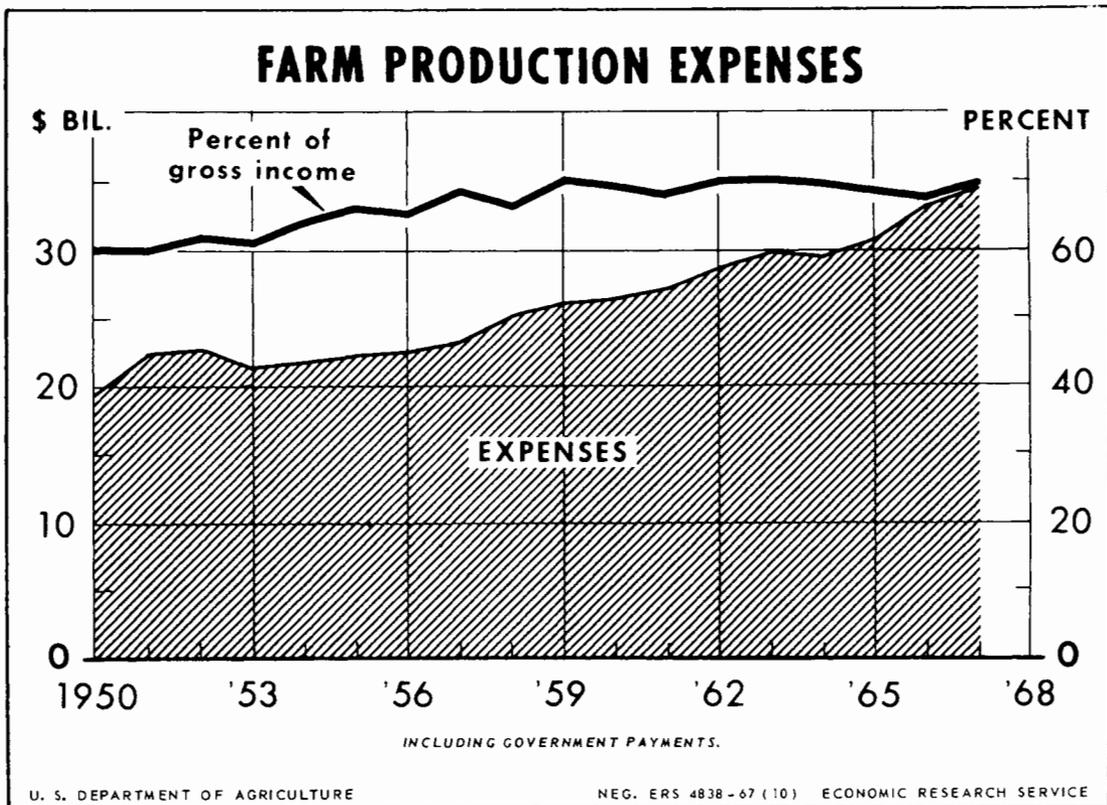


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The FARM COST SITUATION



Production expenses have risen because of expanding farm output and generally rising prices for the increased quantity of nonfarm goods and services used in farming. These factors, plus specialization in farm production and lower prices of farm products, have caused an upward trend since the end of World War II in production expenses per dollar of gross farm income. However, the trend has leveled off during the 1960's as gross income has generally kept pace with expenses.

Commodities and services used in production: Index numbers of cost rates and prices paid by farmers, United States, 1950-67

(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	114	88
1954-----	95	97	113	85	94	86	87	100	90	102	107	88
1955-----	94	96	106	83	95	87	87	99	92	101	112	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	100	99	107	100	100	100	100	99	100	101	99
1959-----	102	102	100	107	100	104	104	100	102	100	96	105
1960-----	103	101	98	100	101	102	107	100	102	100	100	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-----	116	108	109	107	102	117	124	104	103	100	110	135
Sept.-----	118	110	113	109	103	117	126	104	104	100	111	135
Oct.-----	118	109	112	105	---	119	---	---	---	---	---	140
Nov.-----	118	109	111	102	---	118	---	---	---	---	---	140
Dec.-----	118	109	113	101	103	118	126	104	104	100	111	140
1967:												
Jan.-----	119	110	113	105	---	---	---	---	---	---	---	137
Feb.-----	119	110	112	102	---	---	---	---	---	---	115	137
Mar.-----	119	110	112	103	104	119	127	104	104	100	114	137
Apr.-----	120	110	112	104	---	---	---	---	---	101	113	146
May-----	120	110	110	106	---	121	---	---	---	---	111	146
June-----	120	111	110	106	105	121	130	104	105	101	111	146
July-----	121	111	109	108	---	---	---	---	---	---	---	148
Aug.-----	120	110	107	107	---	---	---	---	---	---	---	148
Sept.-----	120	110	107	105	105	122	132	104	106	100	112	148
Oct.-----	121	110	106	104	---	124	---	---	---	---	---	152

Source: Statistical Reporting Service.

THE FARM COST SITUATION

Approved by the Outlook and Situation Board, November 9, 1967

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GENERAL SITUATION

Farm Costs Continue Upward Trend

The costs of farming, in terms of overall farm production expenses, are continuing their upward trend in 1967 and are estimated about 4 percent, or just over a billion dollars, higher than in 1966 (table 1). This increase in expenses is associated with an increase in production of over 4 percent. Expenses in 1967 for inputs of nonfarm origin are almost 5 percent above 1966, while outlays for farm-produced items--feed, seed, and livestock--are nearly 3 percent higher. Overhead costs have continued a persistent rise. These higher expenses in 1967 are not being offset by increased receipts from farming, and realized net farm income for the year will probably be around \$14-3/4 billion--10 percent below the near-record \$16.4 billion of 1966.

The increase in expenses in 1967 results in part from higher prices for many production inputs. Prices paid by farmers moved up only slightly or were essentially unchanged for several categories such as feed, livestock, motor supplies, building and fencing materials, and fertilizer. However, other items such as wages and property taxes per acre were substantially higher. Considering all farm inputs, the index of prices paid for production items, interest, taxes, and wage rates was 3 percent higher in 1967 than in 1966. Then too, more purchased inputs were used in total in 1967, contributing to the increase in farm expenses.

Farm production expenses are likely to rise another billion dollars in 1968, probably by about the same amount in sight for 1967. Continuing increases are highly probable for taxes, interest, and insurance. Larger expenditures due to greater use are likely for several important production inputs, including feed, fertilizer, and pesticides. However, expenses for hired labor may continue about level as higher wages are largely offset by a declining number of workers.

Table 1.--Gross farm income, production expenses, net income, and related indexes, specified years, 1950 to 1967 ^{1/}

Item	1950-54 average	1960-64 average	1966	1967 ^{2/}			
				First quarter	Second quarter	Third quarter	Average ^{3/}
	Bil. dols.	Bil. dols.	Bil. dols.	Bil. dols.	Bil. dols.	Bil. dols.	Bil. dols.
Cash receipts from farm marketings-----	31.0	35.9	43.2	42.6	42.4	42.9	42.6
Nonmoney income and Government payments--	4.2	4.7	6.5	6.7	6.7	6.3	6.6
Realized gross farm income-----	35.2	40.6	49.7	49.3	49.1	49.2	49.2
Farm production expenses-----	21.4	28.1	33.3	34.3	34.5	34.4	34.4
Farmers' realized net income-----	13.8	12.5	16.4	15.0	14.6	14.8	14.8
Net change in farm inventories-----	.5	.2	-.2	-.2	-.1	.4	0
Farmers' total net income-----	14.3	12.7	16.2	14.8	14.5	15.2	14.8

Index numbers (1957-59=100)

Volume of farm marketings:							
Livestock and livestock products-----	86	111	120	118	122	125	124
Crops-----	87	114	121	96	69	133	124
All farm products-----	86	112	121	109	99	128	124
Volume of purchased inputs-----	94	108	117	---	---	---	123
Productivity, or output per unit of total input-----	88	107	108	---	---	---	110
Prices received by farmers:							
Livestock and livestock products-----	112	96	113	107	106	110	108
Crops-----	112	104	105	100	100	99	100
All farm products-----	112	99	110	104	103	105	104
Prices paid by farmers for commodities used in production, interest, taxes, and wage rates-----	95	106	116	119	120	120	120
Ratio of prices received to prices paid for production items (including inter- est, taxes, and wage rates) ^{4/} -----	118	93	95	87	86	88	87

^{1/} 48-State data.

^{2/} Dollar figures are seasonally adjusted at annual rates.

^{3/} Preliminary. Averages of first three quarters for dollar figures and price indexes.

^{4/} Not to be confused with Parity Ratio, which includes prices paid for items used in family living, and has a 1910-14 base.

Farm production expenses have generally been rising since 1940, but the rate of increase has been quite different for some inputs than for others. Most striking perhaps has been a leveling off since 1950 in the outlay for hired labor and a decline in the percentage that hired labor is of total expenses (table 2). Rising wage rates have been essentially offset by a decline in number of hired workers. All other categories of expenses have increased substantially since 1950-54 in terms of dollars, particularly on a per farm basis, but most of them have changed only slightly in their percentage of total expenses. Notable exceptions are pesticides and interest on farm debts, which have expanded very materially, both in dollars and in percentage of total. These shifts in expenditures reflect the efforts of farmers to increase net income by increasing output and by substituting for labor such inputs as machinery, fertilizer, and pesticides. Further shifts of this type can be expected.

HIGHLIGHTS

Farm Labor

Farm wage rates and other unit labor costs increased in 1967 and are expected to continue upward in 1968. Higher minimum wages, more supplementary benefits, a tight supply of competent labor and increased wages in nonfarm industries--the factors which have created the greater-than-usual increases in the past 2 years--will be present in 1968. The hourly equivalent of all types of farm wage rates is expected to average \$1.11 nationally for 1967, up nearly 8 percent from 1966. Wage rates will rise further in 1968 and farmers will continue to substitute other inputs for labor.

Farm Power and Machinery

Farmers spent \$4.8 billion for purchases of machinery and motor vehicles in 1966, a record high and 13 percent above the 1965 level. Prices of these items continued to increase over the past year at a rate of 3 to 4 percent. This trend is likely to continue for several years because of increasing machinery manufacturing costs and quality improvements. Efficient machine use can help to minimize costs of power and machinery which now represent 22 percent of total farm production costs.

Fertilizer

Prices paid by farmers for many types and grades of fertilizer were higher in mid-April 1967 than a year earlier, with the index of prices paid for all fertilizer 1-1/2 percent higher. Prices of mixed fertilizers and phosphates averaged higher while potash and some nitrogenous materials were lower. Gains in output of basic raw materials, especially anhydrous ammonia and potash, will tend to keep prices of these materials at 1967 levels or lower in 1968. A severe shortage of sulfur, essential to production of phosphate fertilizers, may limit output of such fertilizers and thereby push their prices higher. Fertilizer use in the United States and Puerto Rico during the year ended June 30, 1966, was 34.5 million tons containing 9.7 million tons of primary plant nutrients. In the year ended June 30, 1967, fertilizer use increased by about 8 percent. In the 12-month period ending in mid-1968, further gains are in prospect.

Table 2.--Farm production expenses, total and per farm, United States, specified years, 1950-66 1/

Item	Total expenses			Expenses per farm			Percentage of total		
	Average 1950-54	Average 1960-64	1966	Average 1950-54	Average 1960-64	1966	1950-54	1960-64	1966
	Million dollars	Million dollars	Million dollars	Dollars	Dollars	Dollars	Percent	Percent	Percent
Hired labor, total wages-----	2,784	2,892	2,802	534	782	862	13.0	10.3	8.4
<u>Expenses chiefly of nonfarm origin:</u>									
Power & machinery repairs & operation---	1,364	1,762	1,968	262	476	605	6.4	6.2	5.9
Petroleum fuel and oil-----	1,287	1,478	1,562	247	400	480	6.0	5.3	4.7
Fertilizer and lime-----	1,122	1,476	1,901	215	399	585	5.2	5.2	5.7
Pesticides-----	177	389	619	34	105	190	.8	1.4	1.9
Buildings, repairs, and operation-----	711	680	655	136	184	201	3.3	2.4	2.0
Other-----	2,586	2,847	3,309	496	770	1,018	12.1	10.1	9.9
Total-----	7,247	8,632	10,014	1,390	2,334	3,079	33.8	30.6	30.1
<u>Expenses chiefly of farm origin:</u>									
Feed purchased-----	3,887	5,479	6,345	746	1,481	1,951	18.1	19.5	19.0
Seed purchased-----	548	533	621	105	144	191	2.6	1.9	1.9
Livestock purchased-----	1,848	2,733	3,514	355	739	1,081	8.6	9.7	10.6
Total-----	6,283	8,745	10,480	1,206	2,364	3,223	29.3	31.1	31.5
<u>Overhead expenses:</u>									
Depreciation of farm capital items-----	3,235	4,389	5,266	621	1,187	1,619	15.1	15.6	15.8
Taxes on farm property-----	1,016	1,673	2,078	195	452	639	4.8	5.9	6.2
Interest on farm debts-----	726	1,629	2,457	139	440	756	3.4	5.8	7.4
Insurance <u>2/</u> -----	138	180	194	26	49	60	.6	.6	.6
Total-----	5,115	7,871	9,995	981	2,128	3,074	23.9	28.0	30.0
Total production expenses-----	21,429	28,140	33,291	4,111	7,608	10,238	100.0	100.0	100.0

1/ Farm Income Situation, FIS 207, Economic Research Service, USDA, July 1967. Plus unpublished estimates for pesticides and insurance.

2/ Includes net premiums (premiums minus payments for losses) for crop, fire, and wind insurance only.

Pesticides

Farm use of pesticides in 1967 appears to be reaching an all time high, and it is likely that more of these chemicals will be used next year. Supplies of most pesticides were adequate in 1967 and prices have generally been stable. The overall outlook is for this situation to continue. Supplies of 2,4,5-T have been short and most likely will continue to be short in 1968. An increasing demand for pesticides--especially for weed control chemicals--seems certain, at least in the immediate future. In the long run, other methods of pest control may eventually supplant some of the heavy current reliance on chemicals.

Feed

The feed concentrate supply for the 1967/68 feeding year is estimated at 248 million tons, some 13 million tons more than in the preceding year. With grain-consuming animal units expected to be up less than 1 percent, the supply of feed concentrates per animal unit will be about 4 percent higher than a year earlier. Feed grain prices will be somewhat lower during the 1967/68 feeding year, but this is not expected to be fully reflected in formula feed prices.

Seed

Prices for seed in 1968 are expected to be about the same generally as in 1967. Stable price levels will result from adequate supplies due to a 10-percent higher carryover of seed stocks and a 1967 harvest only slightly reduced from 1966.

Feeder and Replacement Livestock

Prices paid by farmers for feeder and replacement livestock have remained unusually stable during the 12 months ended in October 1967. Little change is expected in the next few months. But, with a strong demand for meat products and lower feed prices this fall, farmers likely will bid actively for feeder livestock, and prices likely will remain firm.

Taxes

Farm real estate tax levies in 1966 increased about 7 percent from 1965 to a total of over \$1,750 million. Total farm personal property taxes also increased, reaching about \$319 million, up from \$295 million in 1965. Revenue needs of State and local governments have been steadily rising due to increased demands for public services. Unless new sources of revenue for local governments are found, it is likely that farm real estate taxes will continue to increase in the future.

Interest

Interest on debt will cost farmers a record \$2.7 billion in 1967. This is 11 percent more than in 1966 and twice the cost in 1960. Interest rates on both operating and farm mortgage loans in 1967 averaged higher than in 1966. Farm debt (excluding Commodity Credit Corporation loans) increased from \$44.5 billion at the beginning of 1967 to about \$48.6 billion by the end of the year. Non-real-estate debt accounted for \$2.4 billion, and real estate debt for \$1.7 billion, of the increase. The supply of mortgage loan funds, which had been curtailed in the second

half of 1966, improved in 1967. The supply of funds for farm loans in 1968 is expected to be adequate; interest rates are not likely to be greatly different from those in effect in 1967, and the use of credit by farmers probably will continue to grow.

Insurance

Insurance costs (including social security taxes) continue to rise and will total about \$2.5 billion in 1967 for both farm and family purposes. This is about 6 percent above 1966; a smaller increase of about 3 percent is projected for 1968. Social security tax rates will be the same as in 1967 unless increased by pending legislation. The amount of life insurance purchased is mainly determined by farmers' incomes. Property and liability insurance premiums generally will show further increases because of higher investment values and rising premium rates.

Farm Real Estate

Market values of farm real estate increased 6 percent during the year ended March 1, 1967, with the largest advances occurring in the Lake States and Corn Belt. Real estate market values per farm have increased about 10 percent annually in recent years, to the present level of \$63,200 per farm--a reflection of price increases and expansion in farm size. Rental rates of farm real estate have increased but have not kept up with real estate prices of recent years. Consequently, gross rent-to-value ratios have declined slightly. Modest increases in land prices and rental rates are likely in 1968.

Farm Service Buildings

The value of farm service buildings reached \$16.0 billion in 1967, representing 8.8 percent of the value of farm real estate. Since 1962, depreciation and accidental damage to service buildings has exceeded capital expenditures. Such net disinvestment in farm service buildings will also occur in the years ahead as farm consolidation and the resulting obsolescence of buildings continues.

Costs by Type of Farm

Preliminary estimates of costs and returns for 1967 on each of 7 types of farms and ranches analyzed indicate that the upward trend is continuing in operating expenses and in prices paid for items and services used in farm production generally. Prices paid were higher on all 7 types, and operating expenses were higher on all except Intermountain cattle ranches, where an unusually good production year in 1967 permitted ranchers to reduce hay purchases.

Enterprise Input Costs

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

Expenditures by Economic Class of Farm

The marked shift in farm production toward the larger farms in recent years has been accompanied by similar shifts in the pattern of expenditures for various farm inputs. Market demand for purchased inputs has become increasingly concentrated in a relatively small--but increasing--number of farms that utilize larger quantities of such inputs as feed, fertilizer, and petroleum products as their size of business increases. These trends are likely to continue in 1968.

FARM LABOR

The number of workers (including operators) on farms declined sharply each year from 1964 to 1966 and is continuing to decline but at a somewhat lower rate in 1967. Number of hired laborers continues to decline more rapidly than the number of family workers--7.4 percent compared to 4.2 percent.

Farm wage rates and other unit labor costs continue to rise as the interrelated factors which created greater-than-average wage-rate increases in 1965 and 1966 have persisted so far in 1967. The composite farm wage rate increased faster from January, April, and July 1966 to the same months of 1967 than for any other year-to-year change of this decade (table 3). The estimated annual average of \$1.11 per hour is nearly 8 percent above the 1966 annual rate.

Chief among the factors tending to increase farm wage rates was first-time coverage of certain hired farmworkers under the minimum wage provisions of the amended Fair Labor Standards Act. Beginning February 1, 1967, the minimum for covered farmworkers was \$1.00 per hour with a reasonable value included for perquisites. On February 1, 1968, the minimum will be \$1.15 per hour.

The impact of the amended law on farm wage rates varies greatly between regions and States. About 43 percent of the covered farms are in the South. In 1966, cash farm rates in 9 States, all in the South, averaged less than \$1.00 an hour (without board or room) and in 4 other States were less than \$1.15. Cash wage rates reported in April and July of 1967 show that farmers in 6 southern States still were paying an average of less than \$1.00 per hour and in 8 additional States, mostly in the South, farmers were paying less than \$1.15. Farmers in over half the States were paying about \$1.30 an hour. In the first 2 years, the burden of complying with the minimum wage law will be felt more keenly in the South.

Other factors tending to increase unit labor costs include: (1) Increased social security withholding taxes. Under present legislation, social security tax rates remain the same as in 1967 but, due to increased wages, more workers will be earning the \$150 (calendar year) minimum required. Thus, the aggregate social security taxes will be increased. (2) Higher workmen's compensation insurance rates in some States, and inclusion of farmworkers in other States under this program for the first time. (3) Greater skills required to operate complicated farm machinery. (4) Increased nonfarm competition for workers.

In a temporary halt of the long-time trend, total man-hours of farmwork are estimated to increase by nearly 1 percent in 1967 (table 4).

Table 3.--Farm wage rates: United States, 1950-67 ^{1/}

Period	Per month		Per week,	Per day,	Per hour		Composite rate per hour ^{3/}
	With house	With board and room	without board or room ^{2/}	without board or room ^{2/}	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	.83
1963-----	206	159	48.50	7.10	.94	1.05	.88
1964-----	212	162	49.50	7.30	.97	1.08	.90
1965-----	223	171	51.50	7.60	1.03	1.14	.95
1966-----	243	185	55.75	8.20	1.10	1.23	1.03
Jan.-----	228	178	51.25	7.70	.97	1.24	1.06
April-----	237	180	55.25	8.00	1.01	1.28	.94
July-----	253	184	59.25	8.10	1.15	1.26	1.01
Oct.-----	242	187	55.25	8.80	1.25	1.18	1.07
1967-----	---	---	---	---	---	^{4/} 1.34	^{4/} 1.11
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	201	65.00	9.00	1.23	1.36	1.10
Oct.-----	261	203	60.50	9.50	1.32	1.29	1.16

^{1/} Data from Statistical Reporting Service, USDA. Annual data are weighted average of five quarters.

^{2/} Other rates with house or board and room are omitted but are included in computing composite rates.

^{3/} Hourly equivalent of all types of rates.

^{4/} Estimated.

During the period 1950 to 1966, the number of man-hours required on U.S. farms had declined by 50 percent. However, due to significant increases in crop acreage and yields per acre in 1967, the downtrend was stopped. This year, corn, wheat, soybeans, tobacco, sorghums, and vegetables showed increases in harvested acreage or yield per acre, or both. Poultry production may be up 7 percent over 1966 levels. These increases were partially offset by an 11-percent decrease in cotton acreage and an expected 7 percent decrease in cotton yield per acre.

Farm output reached a new record this year and output per man-hour continued its upward climb. In combination with land, fertilizer, machinery, and other inputs, an hour of labor was able to produce 3 percent more in 1967 than in 1966.

Table 4.--Labor used on farms, wage rates, and related data, United States, 1940-67 ^{1/}

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
1951-----	9,546	7,310	2,236	15,222	89	62	.62	1.56
1952-----	9,149	7,005	2,144	14,504	92	68	.66	1.65
1953-----	8,864	6,775	2,089	13,966	93	71	.67	1.74
1954-----	8,651	6,570	2,081	13,310	93	74	.66	1.78
1955-----	8,381	6,345	2,036	12,808	96	80	.68	1.86
1956-----	7,852	5,900	1,952	12,028	97	86	.70	1.95
1957-----	7,600	5,660	1,940	11,059	95	91	.73	2.05
1958-----	7,503	5,521	1,982	10,548	102	103	.76	2.11
1959-----	7,342	5,390	1,952	10,301	103	106	.80	2.19
1960-----	7,057	5,172	1,885	9,825	106	115	.82	2.26
1961-----	6,919	5,029	1,890	9,473	107	120	.83	2.32
1962-----	6,700	4,873	1,827	9,060	108	127	.86	2.39
1963-----	6,518	4,738	1,780	8,820	112	135	.88	2.46
1964-----	6,110	4,506	1,604	8,441	112	142	.90	2.53
1965-----	5,610	4,128	1,482	7,904	115	155	.95	2.61
1966-----	5,214	3,854	1,360	7,497	113	161	1.03	2.71
1967 ^{6/} -----	4,953	3,693	1,260	7,548	118	166	1.11	2.80

^{1/} Data on farm employment and farm wage rates are from the Statistical Reporting Service, USDA.

^{2/} Includes farm operators and members of their families.

^{3/} Net calendar-year production for eventual human use.

^{4/} Composite or hourly equivalent of all types of rates, excluding perquisites.

^{5/} Average hourly earnings of production workers in manufacturing. From the Bureau of Labor Statistics, U.S. Dept. of Labor. Figure for 1967 is average of first 8 months.

^{6/} Preliminary. Estimates on farm output and man-hours based on October 1967 Crop Production report and other releases of the Statistical Reporting Service, USDA.

During the first week of October there were 12,531 foreign nationals employed as seasonal labor on U.S. farms. These workers were allowed entry to the United States under Public Law 82-414. The Secretary of Labor certified the need in 1967 for 1,315 foreign workers in the Winchester, Va./Martinsburg, W. Va. apple-growing area, and 8,100 workers from September to the last of October for the California tomato harvest. Also, there were 3,547 Canadians and 1,220 British West Indians harvesting apples and potatoes in the New England area. Over 600 British West Indians were working in Florida sugarcane fields.

Farm wage rates (per hour without board and room) increased 78 percent between 1950 and 1966, but were still only 45 percent of the cash wage rates of production workers in manufacturing in 1966. In 1967, manufacturing wage rates will probably increase by 10 cents to \$2.81 per hour while farm wages will increase an average of about 11 cents to \$1.34 per hour (without room and board).

Nonfarm competition for labor has been particularly keen in the last 2 years. The overall unemployment rate during the first 8 months of 1967 was 3.8 percent. However, for prime-working-age males (those 20 years and over) the rate was lower in July 1967 than in July for the 2 previous years: 2.2 percent in 1967 compared with 2.3 percent in 1966 and 2.8 percent in 1965.

While not all farmworkers have the necessary skills to enter the non-farm labor market nor the desire to shift occupations, the differential between farm and nonfarm wage rates has had the effect of drawing labor out of agriculture. Although no attempt is made here to indicate an acceptable ratio between farm and nonfarm industrial wage rates, the data suggest that farm wages as late as 1966 were not competitive. In 1966, 38 States had cash farm wage rates less than half as high as rates for production workers in manufacturing. The 10 States with the highest ratio of farm wage to manufacturing wage included the 6 New England States.

There is some indication that pay for regular hired farmworkers is increasing at a faster pace than wages for seasonal workers. Workers paid by the hour (mostly seasonal laborers) have had a slower increase in wage rates in 1967 than in 1966. Also, rates for these hourly workers did not increase as fast during either year as those of regular workers paid by the month or week. Another indication of this trend is that persons who have averaged over 75 days of farmwork annually have had sizeable increases in daily earnings during the last 3 years. In contrast, wages of workers having a casual attachment (less than 25 days work a year) to the farm labor force stayed about the same.

Under the Sugar Act, administered by the Department of Agriculture, fieldworkers employed in producing sugarcane and sugarbeets must be paid a "fair and reasonable" minimum wage, as specified in the wage determination as amended. Hourly and piecework minimum rates have increased steadily since 1960. The minimum rates for sugarbeet workers increased by 5 cents to \$1.40 per hour in 1967. This year's rates for sugarcane workers ranged in Louisiana from \$1.00 to \$1.20 per hour, and in Florida from \$1.35 to \$1.55 per hour.

Farmworkers organized for collective bargaining on wages and working conditions have had some impact on labor costs in certain California vineyards. This activity may become more prevalent in the near future as worker groups in other States try to gain grower recognition.

With increased capital investments in laborsaving devices, the aggregate cost of hired labor on U.S. farms has continued to decline as a percentage of total expenses. In 1950, hired labor represented 14.5 cents of every dollar of production expenses compared to 20.2 cents in 1920. Each year since 1953 has seen a further decline, and hired labor was only 8.4 percent of total farm production expenses in 1966. If this trend continues, by 1970 such items as farm taxes and fertilizer could each make up a greater proportion of production expenses than hired labor. Although total farm production expenses have increased by 385 percent since 1940, aggregate hired labor costs have increased only 172 percent. Everyone of the other major inputs increased at a faster rate than the cost of labor.

Because of an expected continuing tight labor supply and rising wages, farmers in 1968 will continue to substitute laborsaving methods, machines, and other inputs for labor.

NONFARM INPUTS

Farm Power and Machinery

Purchase of farm machinery and motor vehicles by farmers reached a record \$4.8 billion in 1966--13 percent above the 1965 level (table 5). This increase was due in part to higher prices. Prices paid by farmers, as well as wholesale prices of farm machinery and motor vehicles, rose between 3 and 4 percent during this period, continuing a long trend.

The volume of machinery purchases (expressed in constant 1957-59 dollars) increased 9 percent in 1966 and 13 percent in 1965. Of importance to these rising purchases were increases in total gross farm income of 10 and 8 percent, respectively, for those years. Another factor may have been anticipation of higher farm wages in the years to come.

The cost of operating and maintaining the \$28-billion inventory of motor vehicles, farm machinery, and equipment in 1966, was about \$7.2 billion--22 percent of total farm production expenses. This percentage has been fairly constant since 1960 and at a lower level than that prevailing during the 1950's. In 1956 and 1957, 26 percent of the production expenses went to operate and maintain power and machinery (table 5). Since then, expenditures for items such as interest on farm debts, livestock purchases, and property taxes have increased at a faster rate than expenses for the operation of machinery.

Despite relatively high prices for new machines, farmers have alternatives to help minimize machinery costs. Depending on the circumstances, this may be accomplished in one or more of the following ways:

1. Hire machine jobs where volume is small.
2. Rent or lease machines.
3. Contract all machine work.
4. Joint or cooperative ownership.
5. Do custom work with an expensive machine.
6. Reduce some jobs, such as tillage.
7. Two-family farms (pooling capital, management, and labor).
8. Buy used equipment.

Helpful information is available to aid in mechanization decisions. An example of such information is in North Dakota Agricultural Experiment

Table 5.--Factors related to costs of farm power and equipment, United States, selected years, 1940-66 ^{1/}

Year	Index of wholesale prices of machinery and equipment ^{2/} (1957-59=100)	Total gross farm income, including Government payments ^{3/}	Gross capital expenditures for motor vehicles and other farm machinery ^{3/}	Farm production expenses	Repairs, operation, and depreciation of motor vehicles and other machinery ^{3/}	Percentage of farm production expenses
	Index	Million dollars	Million dollars	Million dollars	Million dollars	Percent
1940-----	49.7	11,340	625	6,858	1,173	17
1945-----	52.6	25,374	1,198	13,062	2,135	16
1950-----	79.8	33,083	3,152	19,410	4,218	22
1951-----	86.6	38,239	3,321	22,252	4,780	21
1952-----	87.7	37,681	2,966	22,630	5,181	23
1953-----	88.2	34,363	3,201	21,275	5,318	25
1954-----	88.1	34,080	2,739	21,577	5,357	25
1955-----	88.8	33,353	2,760	21,889	5,486	25
1956-----	92.0	33,818	2,406	22,374	5,752	26
1957-----	96.3	34,619	2,512	23,294	5,988	26
1958-----	100.3	38,736	3,150	25,236	6,125	24
1959-----	103.4	37,560	3,184	26,106	6,420	25
1960-----	105.3	38,257	2,707	26,242	6,342	24
1961-----	107.4	39,927	2,928	27,013	6,207	23
1962-----	109.5	41,664	3,054	28,526	6,347	22
1963-----	111.1	42,683	3,609	29,568	6,381	22
1964-----	112.9	41,542	3,695	29,353	6,520	22
1965-----	115.1	45,775	4,267	30,866	6,754	22
1966-----	118.5	49,511	4,805	33,291	7,245	22
1967-----	121.8	---	---	---	---	---

^{1/} Alaska and Hawaii not included.

^{2/} Bureau of Labor Statistics, U.S. Dept. of Labor. 1967 is average of first 6 months.

^{3/} Farm Income Situation, FIS 207. Economic Research Service, U.S. Dept. of Agriculture, July 1967.

Station Bulletin 436, Owning and operating costs for farm machinery.
 Data in this bulletin illustrate the effect of machine size and speed on
 time required for doing certain jobs as follows:

<u>Machine</u>	<u>Speed</u> MPH	<u>Acres per hour</u>
PLOW--2-bottom	3.6	0.9
5-bottom	4.2	2.7
Tandem disk--8 feet	3.6	3.2
14 feet	4.2	6.6
Drill--7 feet	3.6	2.6
21 feet	4.2	8.9
Combine--6 feet	3.0	1.8
12 feet	3.0	3.6

Larger machines save time and under certain conditions may offer sizable reductions in cost per acre. For instance, the Iowa Farm Work Cost Guide, 1966 shows that tractor, fuel, and machine cost per acre of plowing with a 6-bottom plow is \$1.65 compared with \$1.95 with a 3-bottom plow, or 15 percent less. These costs do not include labor, and are based on tractor use of 600 hours per year.

Wheel tractors shipped for farm use in 1967 averaged nearly 70 hp. (maximum belt) compared with an average of 45 hp. 10 years earlier. The large row-crop type now is about 135 hp. compared with less than 75 hp. 10 years earlier. Some people foresee 170 hp. wheel tractors in the 1970's.

On the demand side the number of farms with \$20,000 or more of sales increased 89,000 between 1959 and 1964. With this type of change continuing, the market for new machinery is expanding. Along with this, the smaller and part-time farms provide an outlet for used machinery and for some new items.

The machines now on farms likely average more than 10 years old. However, the age of machines on the larger commercial farms is probably much lower than the average. It is principally these machines which are heavily used and which will be replaced by new ones after 5 or 6 years of operation. This, coupled with changing technology, continuing increases in gross farm income, and a desire for larger equipment with more comfort features, seems to assure a continuing strong demand for power and machinery, particularly for the larger sizes. However, the future market for large-size used machines is not too clearly envisioned. Another favorable element in the demand outlook for new machinery is the January 1968 reinstatement of the 7-percent investment tax credit. While there is no precise way to assess the impact of this, some purchases were likely deferred during the suspension.

Increases in machinery manufacturing costs, along with quality improvements and general economic trends, are likely to result in moderate increases in prices of machinery over the next 4 or 5 years, similar to those of the recent past.

Fertilizer

Fertilizer prices paid by farmers generally inched upward early in 1967. By planting time, however, prices had eased somewhat since demand for fertilizer failed to increase as much as manufacturers had expected. Early forecasts predicted a 15- to 20-percent increase in fertilizer use in 1967. But a cold, wet spring in many parts of the country dampened demand during a period when the industry was in the middle of a vast expansion program. If demand had jumped as much in a single season as some estimates indicated it might, distribution channels would have been sorely strained. Even though purchases of fertilizer were up substantially, marketing was orderly due to advance industry planning based on expectations for a big selling season.

At mid-April, retail prices of many mixed fertilizers were higher than a year earlier but were below the 1957-59 average. Typical advances from April 1966 to April 1967 were less than a dollar a ton for the five most popular mixed fertilizers. For example, 5-10-10 fertilizer was \$50.90 per ton on April 15, 1966, but averaged \$51.60 a year later, and 6-24-24 was up 60 cents a ton to \$85.70. These two grades of fertilizer alone accounted for one-eighth of all mixed fertilizer sold in the 12 months ended June 30, 1966.

Continuing a long-term trend, farmers paid less per ton of anhydrous ammonia in 1967 than a year earlier (table 6). The 5-percent decline from \$119 per ton reported paid by farmers as of April 15, 1966, to \$113 per ton April 15, 1967, compares with a 2-percent dip during the preceding 12 months. Since 1957-59, the average farm price of a pound of nitrogen contained in anhydrous ammonia has declined 26 percent from 9.1 cents to 6.7 cents (excluding costs of application). This decline in price was accompanied by a boom in the application of anhydrous ammonia directly to the soil. Use of this material averaged 572,000 tons a year at a total annual cost of \$85.2 million during the 1957-59 period. Comparable 1966 figures, using the April 15 price, were 1,960,000 tons with a \$233.2 million price tag. Anhydrous ammonia use rose 243 percent but the total value at retail rose considerably less--174 percent.

Supplies of nitrogenous fertilizers--ammonium nitrate, ammonium sulfate, nitrogen solutions, urea, and others--all using synthetic anhydrous ammonia as a basic raw material--will be ample in 1968. At the beginning of 1968, U.S. plant capacity for producing anhydrous ammonia may reach 17 million tons, nearly double the 8.7-million-ton capacity available January 1, 1965. Despite moderately strong increases in consumption of nitrogen fertilizers in the coming year, potential supplies will more than equal demand, with the result that price averages of high nitrogen content fertilizers will tend to level off or even decline.

Soaring North American capacity to produce potash is far outdistancing domestic use. Potash prices quoted by major producers to mixed fertilizer manufacturers and other wholesale buyers reportedly dropped to record lows beginning with off-season purchases for the 1967/68 crop production cycle. The published price for June to September 1967 purchases of standard grade potash was equivalent to \$15.60 per ton (60 percent K_2O , f.o.b. Carlsbad). This is about 25 percent below the 1966 price for the same material and compares with prices that ranged as high as \$24.00 per ton during the past 10 years. Whether or not a price reduction of this magnitude will be passed on to farmers depends upon competitive forces. Rising distribution costs may tend to offset some potential price weakness.

Table 6.--Average prices per ton paid by farmers for selected fertilizers, United States, April 15 prices, 1962-1967

Year	Anhydrous ammonia	Superphosphate		Ammonium phosphate 16-20-0	Muriate of potash, 55 percent and over K ₂ O
		45 percent P ₂ O ₅	20 percent P ₂ O ₅		
	Dollars	Dollars	Dollars	Dollars	Dollars
1962-----	134.00	80.00	38.40	86.40	53.30
1963-----	128.00	81.20	40.50	82.70	53.90
1964-----	126.00	80.90	40.30	82.30	53.90
1965-----	122.00	80.90	40.70	80.70	53.60
1966-----	119.00	82.80	41.40	81.10	54.90
1967-----	113.00	83.90	42.10	80.70	53.60

Source: Agricultural Prices, Pr 1 (4-67) Statistical Reporting Service, USDA, April 28, 1967, and earlier issues.

Downward pressure on potash prices comes from continuing massive increases in Canadian productive capacity. To illustrate the magnitude of the current expansion of productive capacity, a single firm operating in Canada now can produce 60 percent as much potash--2.1 million tons K₂O equivalent--as all nine domestic firms could produce in the United States in 1965. Total current capacity in Canada is over 3 million tons K₂O equivalent from three firms. By 1970, Canadian output may exceed 5 million tons per year. Such rapid expansion can only serve to keep continuing downward pressure on potash price levels and thus encourage its use.

Prices of phosphatic fertilizers are likely to stiffen in 1968 as they did in 1967. Most phosphates require the use of sulfur, in the form of sulfuric acid, in their manufacture; and sulfur is in short supply. At the end of summer 1967, sulfur was being traded in a multi-price market. Prices ranged from a published \$32.50 per long ton, f.o.b. shipping point, to more than \$60.00 at Tampa. A further indication of the short sulfur supply is the fact that major U.S. producers have been allocating sulfur for some time.

The scarcity of sulfur may have a far-reaching impact on the fertilizer industry that goes beyond increasing prices for phosphatic fertilizers. Plans for expansion or erection of plants capable of producing such fertilizers have been delayed, shelved, or discarded. Perhaps more important is the intensified search now underway for substitute materials. Receiving increased attention are processes for producing nitric phosphates. Fertilizers of this type, widely used in Europe, are not well known in this country. Made by mixing nitric acid directly with phosphate rock, the final product contains both nitrogen and phosphorus. If nitric phosphates become popular in the United States, sulfur requirements may be eased. However, in the immediate future, perhaps beyond

1970, prices of many phosphate fertilizers are likely to remain firm or go higher. In the phosphatic group, prices of ammonium phosphate fertilizers are likely to change the least during 1968. Any downward movement in ammonia prices may be offset by higher phosphoric acid prices.

Continued strong demand pushed total fertilizer use to 34.5 million tons in the 50 States and Puerto Rico in the year ended June 30, 1966. This was 8 percent above the 31.8 million tons of a year earlier. Strong increases were reported for the Corn Belt and Plains States. Farm use accounts for about 90 to 93 percent of all fertilizer.

Plant nutrient use moved to record highs in 1965/66 as farmers used not only a greater total tonnage of fertilizer but also more highly concentrated materials. On a plant nutrient element basis, consumption of nitrogen, phosphorus, and potassium rose 14 percent in 1965/66 compared with 1964/65. Of the total used in 1965/66, 5.3 million tons were nitrogen (N), 1.7 million tons phosphorus (P), and 2.7 million tons potassium (K).

More fertilizer was used in the 12 months ended June 30, 1967, than the record quantity a year earlier. Preliminary reports indicate that primary nutrient element use was 13 percent greater than the 9.7 million tons used during the 1965/66 fertilizer year. Further gains are in prospect for 1967/68.

Fertilizers are important commodities in world trade. On balance, the United States is a net importer of nitrogenous and potassic fertilizers and a net exporter of phosphatic materials. Sizable volumes of ammonium sulfate, ammonium phosphate, concentrated superphosphate, and potash were exported in the year ended June 30, 1966. Principal imports, in terms of tonnage, during the same year were potash, nitrate of soda, and anhydrous ammonia. Chilean nitrate of soda, once one of the largest sources of chemical fertilizer nitrogen in the United States has declined to the point where it now accounts for less than 1 percent of domestic supplies.

Pesticides

It appears that farmers will use a record amount of pesticides in 1967, thus continuing a general upward trend which has existed since World War II. Herbicides continue to out-pace the growth rate for other pesticide chemicals.

While statistics on farm use for 1966 and 1967 are not available, a good indication of farm use of pesticides is manufacturers' production and sales, which for 1967 may be from 5 to 12 percent over 1966. Total pesticide sales were up 37 percent between 1964 and 1966. During this 2-year period, herbicide sales rose 58 percent, compared with 26 percent for insecticides and 20 percent for fungicides. Herbicides now account for nearly 44 percent of the pesticide market, compared with 38 percent in 1964.

A smaller cotton acreage in 1967 reduced the farm demand for some insecticides. However, larger wheat and feed grain acreages boosted the demand for herbicides. The use of both insecticides and herbicides was adversely affected by wet weather over large areas during the early part of 1967. Demand for pre-emergence herbicides, especially, was reduced since growers had only a short period for application. The use of post-emergence herbicides is reported to have picked up later.

Severe shortages of 2,4,5-T were reported because of the needs for jungle defoliation in Vietnam. These needs may increase in 1968.

Average farm prices of DDT, malathion, and 2,4-D reported on April 15, 1967, were about the same as for the same date in 1966. DDT was up about 1 percent, malathion was down about 2 percent, and 2,4-D was up about 1 percent.

Quoted wholesale (manufacturers) prices of certain selected agricultural pesticides were also relatively unchanged. In fact, average January to June prices for ethylene dibromide, methoxychlor, TDE, toxaphene, and malathion have remained exactly the same for the last 4 years. Manufacturers realized prices may, however, have varied considerably from these quoted prices.

Limited supplies of 2,4,5-T and of arsenic compounds may exert an upward pressure on the prices of these products in the coming year. Supplies of most other pesticide chemicals will probably be adequate, with prices likely to remain steady.

Additional data are becoming available on farm use of pesticides. A nationwide USDA-ERS survey obtained detailed information for 1964 on farmers' expenditures for pesticides and use of technical chemicals on selected crops. The 1964 Agriculture Census obtained information on acres of selected crops treated for weed control and treated for insect and disease control.

The USDA-ERS survey showed that farmers spent about \$514 million on pesticides in 1964; averaging about \$250 per farm, and that over 90 percent of the farmers used some pesticides. Insecticides, the major pesticides used, accounted for about 50 percent of the total in terms of weight. Applications on cotton accounted for over half of the insecticides used by farmers. Herbicides were used primarily on corn--33 percent, wheat--12 percent, and other grains--15 percent. While 2,4-D was the leading herbicidal chemical in 1964 in terms of acres treated, atrazine and other chemicals are taking over a larger share of the herbicide market. Fruit crops accounted for about 50 percent of the fungicides used by farmers in 1964.

The census reports showed that about 40 million acres of agricultural land were treated to control insects and disease in 1964 and about 65 million acres were treated to control weeds.

The use of pesticide chemicals, especially herbicides, is likely to continue to increase for several years. Domestic use of pesticides may be up 15 percent in 1968, with a 25-percent increase in herbicide use and 5 percent increase in insecticide use. The export market also appears to be expanding rapidly. Developing nations are recognizing more and more that pesticide chemicals are as essential as fertilizer to increased production.

It may be that much of the future growth in the use of certain pesticides will be on crops where they have not been used extensively in the past. For example, use of insecticides on corn, alfalfa, soybeans, etc., is expected to increase.

The use of pesticide chemicals has caused increasing public concern over the possible hazards associated with them. This has prompted

increased research efforts to develop less persistent chemicals and also nonchemical methods of controlling agricultural pests. If this research, which is difficult and time consuming, bears fruit, the use of some chemicals may even decline. However, it is likely that further substantial increases in the use of these products will continue for some time.

FARM PRODUCED INPUTS

Feed

Feed expenditures continue to be the largest single farm operating expense. Farmers' expenditures for purchased feed in 1966 were \$6.3 billion, nearly 20 percent of total production expenses for the year. Moreover, this does not include the value of home-grown feeds. If home-grown grains and roughages were added to the purchased feed account, the total value of feeds used by farmers might be doubled.

Farm use of commercial formula feed for 1966 increased about 11 percent from the preceding year. Dairy feed tonnage showed a significant increase as did beef and sheep feed supplements. Broiler and turkey formula feed use also continued to increase. Most of the tonnage for broilers and turkeys is supplied through contract and integrated feed operations and does not necessarily reflect farmers' decisions alone. Laying feed tonnage in 1966 was slightly above the level of a year earlier.

Prices of formula feeds for dairy, beef, and sheep production have been eased and consumption encouraged by feed manufacturers' use of cost-cutting ingredients, particularly urea. During 1966, feed manufacturers reduced their ingredient costs by an estimated \$12 million through the substitution of urea for soybean meal or other protein feeds. In addition, most feed supply firms offer services which can often reduce farm chore time or increase productivity. These factors have encouraged use of formula feeds by many dairymen and cattle feeders who formerly used a custom grind and mixing program without formula feed supplements. "Package-deals" for livestock feeders may induce other farmers to shift to formula feeds. Such programs would be reflected in increased expenditures for feed.

Formula feed prices are likely to be higher in the feeding year 1967/68 than in 1966/67 in relation to prices received by farmers for feed grains. Manufacturing and distributing costs will be higher, with the result that lower prices of feed grains and protein feeds are not expected to be fully reflected in formula feed prices. Cost-reducing bulk feed innovations, such as better inventory controls both on and off the farm, may slow down rising prices.

The quantity of concentrates available for 1967/68 (feeding year beginning October 1, 1967) is estimated at about 248 million tons, some 6 percent above a year earlier and 2 percent above the 1962-66 average (table 7). The number of grain-consuming animal units for 1967/68 is estimated at about the same as the preceding year. Feeding rates per animal may be higher, as livestock and livestock product feed price ratios improve.

The larger production of feed grains for 1967, along with larger privately held carryover stocks, are expected to result in lower prices this fall and winter than in the same period of 1966/67 (table 8).

Table 7.--Supply and utilization of feed concentrates, and livestock fed, United States, 1937-67 ^{1/}

Year beginning Oct. 1	Supply				Utilization			Stocks of feed of grains, end of year ^{4/}	Number of grain-consuming animal units	Per grain-consuming animal unit		
	Stocks of feed grains beginning of year	Production of feed grains ^{2/}	Other feed concentrates ^{3/}	Total supply	Seed, human food, industry, and export	Concentrates fed to live-stock ^{2/}	of feed grains, end of year ^{4/}			Production of feed grains	Supply of concentrates	Concentrates 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	36.2	153.1	53.5	172.7	.86	1.41	.89	
1952-----	20.1	111.0	27.9	159.0	16.9	114.0	27.0	158.9	.70	1.00	.72	
1953-----	27.0	108.3	27.8	163.1	16.0	116.6	31.7	156.9	.69	1.04	.74	
1954-----	31.7	114.1	26.0	171.8	18.5	116.2	39.1	161.6	.71	1.06	.72	
1955-----	39.1	120.8	26.9	186.8	20.6	121.9	43.2	165.3	.73	1.13	.74	
1956-----	43.2	119.3	27.0	189.5	19.9	119.7	48.8	160.9	.74	1.18	.74	
1957-----	48.8	132.4	28.4	209.6	22.9	129.0	59.0	159.9	.83	1.31	.81	
1958-----	59.0	144.1	29.2	232.3	25.8	139.5	67.5	167.7	.86	1.39	.83	
1959-----	67.5	149.6	29.4	246.5	25.2	144.7	74.6	165.7	.90	1.49	.87	
1960-----	74.6	155.6	30.2	260.4	25.4	150.3	84.7	167.5	.93	1.55	.90	
1961-----	84.7	140.6	31.1	256.4	31.1	152.9	72.2	169.4	.83	1.51	.90	
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 ^{5/} -----	54.8	157.4	35.0	247.2	44.1	161.0	42.1	170.2	.92	1.45	.95	
1966 ^{5/} -----	42.1	157.2	35.5	234.8	36.6	160.4	37.0	177.9	.88	1.32	.90	
1967 ^{6/} -----	37.0	174.5	36.1	247.6	38.3	167.6	43.0	179.0	.97	1.38	.94	

^{1/} Grain and Feed Statistics, U.S. Department of Agriculture, Economic Research Service, 1960 through 1964 revised.

^{2/} Includes corn for grain. Omits seeds and corn for silage and other forage purposes.

^{3/} Includes byproduct feeds, imported grains, and domestic wheat and rye fed.

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

^{5/} Preliminary.

^{6/} Preliminary estimates based on indications in October 1967.

Table 8.--Average prices of selected feeds, United States, Oct. 15, 1965-67

Item	Unit	1965	1966	1967 <u>1/</u>	Percentage change from 1966 to 1967
		Dollars	Dollars	Dollars	Percent
Prices received by farmers:					
Corn-----	Bushel	1.06	1.29	1.04	-19
Oats-----	do.	.62	.66	.65	-2
Barley-----	do.	.99	1.06	.98	-8
Sorghum grain-----	Cwt.	1.74	1.77	1.68	-5
Hay, baled-----	Ton	22.80	24.10	22.60	-6
Prices paid by farmers:					
Mixed dairy feed, 16 percent protein-----	Cwt.	3.71	3.96	3.86	-3
Laying feed-----	do.	4.40	4.70	4.56	-3
Broiler grower feed-----	do.	4.83	5.16	4.91	-5
Cottonseed meal, 41 percent protein-----	do.	4.41	5.31	5.31	0
Soybean meal, 44 percent protein-----	do.	5.01	5.73	5.32	-7
Bran-----	do.	3.19	3.51	3.50	0
Middlings-----	do.	3.27	3.66	3.64	-1
Alfalfa hay, baled-----	Ton	31.80	34.00	32.60	-4
Average value of concentrate ration fed to poultry and milk cows: <u>2/</u>					
Fed to poultry-----	Cwt.	3.39	3.68	3.47	-6
Fed to milk cows, in milk-selling areas-----	do.	3.02	3.24	3.07	-5
Fed to milk cows, cream-selling areas-----	do.	2.57	2.80	2.61	-7

1/ Preliminary.

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

Source: Statistical Reporting Service, USDA.

Lower feed grain prices should improve livestock feed price ratios for most of the 1967/68 feed year. It may also result in somewhat heavier feeding per animal unit. Total utilization of feed concentrates will exceed 1966/67 levels by an estimated 4 percent on both an aggregate and animal unit basis.

The supply of feed concentrates for 1967/68 is dominated by feed grains, which makeup 82 percent of the total and account for most of the increase in concentrates expected for the year. Included also are relatively small quantities of wheat, rye, and byproduct feeds (table 7).

Average gross returns from livestock enterprises for each feed dollar show that poultry and egg returns during October 1967 declined from October 1966 levels (table 9). However, gross returns from milk, hogs, sheep raising, and beef raising showed improvement. Since these returns are based on national averages, many farmers may have realized more--or less--than the ratios cited. Other input costs, which have generally increased, are also important in determining the best combinations of resources in any feeding operation.

The 1968 outlook is for some improvement in farmers' gross returns over feed costs from most livestock enterprises. This reflects the prospects for lower feed prices and for some strengthening in livestock product prices. Improvement in gross returns over feed costs could taper off in the second half of the year, with increasing costs of other inputs more than offsetting improved feed livestock returns as compared to the corresponding period of a year earlier.

Seed

Farmers spent an estimated total of \$621 million for seed in 1966. This represents approximately 2 percent of total farm production expenditures for that year. While expenditures for seeds were down fractionally from 1965, total farm expenses increased 8 percent.

During the spring of 1967, prices of most nonleguminous field crop and grass seeds were higher than average except for timothy and orchard grass. Of the legumes, clover prices, except for white clover, were less than year-earlier levels but prices of lespedeza and alfalfa were higher.

Changes from year-earlier levels in prospective 1968 seed supplies are summarized below: (Crops with no change are not included.)

Prospective 1968 domestic supply of seed relative to 1967

Up 15 percent or more	Up less than 15 percent	Down less than 15 percent	Down 15 percent or more
Bush green pod	Timothy, chewings	Hairy vetch, tall	Crimson clover,
beans, eggplant,	fescue, red fescue,	fescue, sweetclover,	orchard grass, white
leek, romaine,	and many of the	bentgrass, alfalfa,	clover, ladino
cantaloup, onion	vegetable seeds.	bush wax beans, pole-	clover, red clover,
seed, smooth peas,		beans, endive,	pole limas, broccoli,
pepper, Marion		heading lettuce,	celery, okra,
Kentucky bluegrass,		parsley, parsnip,	rutabagas, salsify,
other Kentucky		pumpkin.	spinach.
bluegrass.			

Table 9.--Gross returns from livestock enterprises per \$1.00 of feed costs, United States, based on Oct. 15 prices, 1957-59 average and 1965-67 1/

Livestock enterprise or product	Gross return per \$1.00 of feed cost				Percentage change from 1966 to 1967
	Average 1957-59	1965	1966	1967	
	Dollars	Dollars	Dollars	Dollars	Percent
Eggs-----	1.64	1.56	1.60	1.18	-26
Broilers-----	1.18	1.17	1.02	.99	-3
Turkeys-----	1.43	1.39	1.37	1.24	-9
Milk-----	2.34	2.08	2.31	2.42	5
Butterfat-----	1.55	1.25	1.48	1.40	-5
Hogs-----	1.87	2.56	1.96	2.02	3
Sheep raising-----	1.54	1.45	1.33	1.39	5
Beef raising-----	2.33	2.01	1.97	2.25	14

Index numbers (1957-59=100)

Eggs-----	100	95	98	72	---
Broilers-----	100	99	86	84	---
Turkeys-----	100	97	96	87	---
Milk-----	100	89	99	103	---
Butterfat-----	100	81	95	90	---
Hogs-----	100	137	105	108	---
Sheep raising-----	100	94	86	90	---
Beef raising-----	100	86	85	97	---

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

Eggs (per dozen)-----	7 lbs. poultry ration
Broilers (per lb.)-----	2.5 lbs. broiler mash
Turkeys (per lb.)-----	4.5 lbs. poultry ration
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 costs 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 1957-67, the quantities of broiler mash used to calculate the broiler feed costs were: 1957-60, 2.8 pounds; 1961, 2.6 pounds; 1962-67, 2.5 pounds. During the same period, the quantities of poultry ration used to calculate turkey feed costs were: 1957-60, 4.75 pounds; 1961-67, 4.5 pounds.

The 1967 June 30 seed inventory found total carryover stocks 10 percent above the level of a year earlier and about 10 percent above the 1959-63 average. Stocks of winter cover crop seeds were 1 percent above 1966, while those of grass seed were 24 percent larger. The field seed inventory carryover this year was reduced for 20 crops and increased for 21 crops. The largest gains in seed carryovers were reported for hairy vetch and lupine. Increases of 20 percent or more were also reported for alsike clover, sweetclover, striate-kobe lespedeza, timothy, Austrian winter peas, wild winter peas, Marion Kentucky bluegrass, meadow and tall fescues, tall wheatgrass, sudangrass, mixed ryegrass, bush pod beans, garden beets, cabbage, swiss chard, eggplant, kohlrabi, leek, onion seed, and smooth peas. Declines in carryover stocks exceeding 30 percent are reported for southern alfalfa, crimson clover, common vetch, other vetch, crested wheatgrass, pubescent wheatgrass, perennial ryegrass, Korean and other lespedezas, Dallisgrass, and several vegetables, particularly wrinkled peas.

While carryover stocks are above last year for many seeds, production of most seeds in 1967 may be less than last year's. Thus, except for Marion bluegrass, available domestic supplies for 1968 will be close to or below those of 1967, and the general level of seed prices will be about the same as in 1967. However, seed of a few crops, including recently developed improved varieties, may be in short supply, with corresponding higher prices.

Feeder and Replacement Livestock

In the 12 months through October 1967, prices paid by farmers for feeder and replacement livestock have remained unusually stable. The index of prices declined about 4 percent from 375 in October 1966 to 359 in December, but by October 1967 the index had risen to within 5 points of the year-earlier level. Prices paid for cattle and calves which comprise a large part of the index, followed a similar pattern. They declined from \$24.70 per cwt. in October 1966 to \$23.50 in December and this increased to \$24.70 in October 1967 (table 10). During the same period, prices paid for feeder lambs varied from a low of \$19.20 per cwt. in April to a high of \$22.80 in May. Prices paid for feeder pigs have changed little in the last 12 months; in October this year they averaged \$33.60 per cwt. Prices paid for milk cows have continued to rise but the increase in the last 12 months was only about a third as large as that in the previous 12-month period.

With improved pasture in much of the range area, higher prices for fed cattle, large supplies of feed grains, and little change in the number of cattle available for feeding, prices of feeder cattle are expected to remain firm this fall and winter.

For the 12 months ending in October 1967, monthly average prices paid for all weights and grades of feeder steers in Kansas City remained within the relatively narrow range of \$24.04 to \$25.61 per cwt. Through July 1967, these prices remained within \$1.00 of prices for choice fed steers in Chicago. Since August, the spread has risen from \$2.00 to \$3.00, as prices of fed steers rose while prices of feeders declined.

A better measure of profits from cattle feeding is a comparison of the price received for fed cattle with the prices paid for feeders 7 months earlier (fig. 1). On this basis, and comparing fed cattle prices in Chicago with feeder steer prices in Kansas City, the margin has been

Table 10.--Feeder and replacement livestock: Prices paid by farmers, United States, high and low months in year ending October 1967, with comparisons

Commodity and unit	October 1966	High month		Low month		October 1967
		Month	Price	Month	Price	
	<u>Dollars</u>		<u>Dollars</u>		<u>Dollars</u>	<u>Dollars</u>
Cattle and calves, per cwt.-----	24.70	July '67	26.00	December '66	23.50	24.70
Lambs, per cwt.-----	21.80	May '67	22.80	April '67	19.20	21.20
Feeder pigs, per cwt.-----	36.30	October '66	36.30	January '67	33.10	33.60
Baby chicks, per 100-----	11.90	April '67	12.90	Aug.-Oct. '67	10.80	10.80
Turkey poults, per 100-----	52.00	June '67	58.70	October '67	51.40	51.40
Started pullets, each-----	1.67	Jan.-June '67	1.68	September '67	1.65	1.67
Milk cows, per head-----	260.00	October '67	265.00	November '66 <u>1/</u>	256.00	265.00
All livestock, Index (1910-14=100)---	375.00	July '67	387.00	December '66	359.00	370.00

1/ Also January and March 1967.

Source: Agricultural Prices, Statistical Reporting Service, USDA.

Feeder pig prices have moved within a narrow range for several months; they are still somewhat below prices of a year ago, but slightly higher prices may be expected. The hog corn price ratio at 17.2 on October 15, 1967, was a little higher than a year earlier and above the previous 5-year average for October. Corn prices this fall are lower than a year earlier. Thus, the favorable hog corn price ratio and cheaper feed are likely to strengthen the demand for feeder pigs.

Lamb feeders are likely to bid cautiously for feeder lambs this fall. Prices of feeder lambs in October were slightly lower than a year earlier. Even with feed prices lower than last year, profits will be only slightly better than a year earlier unless a stronger demand for lamb develops.

OVERHEAD COSTS

Taxes

State and local farm real estate tax levies increased by a record \$100 million in 1965 to \$1,648 million. This was an increase of 6.6 percent from the 1964 total of \$1,546 million. Preliminary estimates for 1966 indicate an increase of 7 percent, with total farm real estate tax levies greater than \$1,750 million. This would be another record increase and would mark the 24th consecutive yearly increase.

Total farm personal property taxes for 1966 are estimated at \$319 million. This figure is up 8.1 percent from the 1965 total of \$295 million. Farm personal property taxes have now reached a level higher than they were prior to their decline in 1964. In 1967, further increases in the value of livestock, poultry, farm machinery, and motor vehicles will again be likely to increase the total personal property tax bill.

Preliminary estimates show that taxes per acre increased from \$1.61 per acre in 1965 to an estimated \$1.72 per acre in 1966. Taxes per acre vary considerably among States. The average tax per acre was above \$2 in 1965 for 19 States, between \$1 and \$2 in 12 States and under \$1 in 19 States. New Jersey continues to have the highest tax per acre, while New Mexico has the lowest. Variations among States reflect differences in the relative value of farmland and differences in the relative value of improvements, as well as the relative role of the property tax in State-local tax systems. Thus, those States that have relatively high-valued farmland, or that rely proportionately more heavily on the property tax, tend to have higher average taxes per acre.

Although taxes per acre are steadily increasing, this trend is not reflected by two other measures of the impact of farm real estate taxes. Farm real estate taxes per \$100 of full value showed only a slight increase in 1966, at \$1.03 (preliminary estimate) per \$100 of full value, less than 1 percent higher than the 1965 level of \$1.02. In addition, farm real estate taxes were 3.5 percent of gross income in 1966, continuing the downward trend indicated by a decline from 3.7 percent in 1964 to 3.6 percent in 1965.

Revenue needs of State and local governments have been steadily increasing due to increased demands for public services. Unless new sources of revenue for local governments are found, it is likely that farm real estate taxes will continue to increase.

Interest

The cost of credit to farmers in 1967 will be about \$2.7 billion (table 11). This is 11 percent more than in 1966 and double the cost of farm credit in 1960. The increase in 1967 over 1966 resulted primarily from an increase in debt of about 9 percent. Except for 1966, when the increase was 13 percent, the increase in interest charges over the last several years has been about 11 percent a year. The increase in 1967 interest charges will be about equally split between long-term farm mortgage loans and the shorter-term non-real-estate loans.

Total farm debt (excluding CCC loans) will reach about \$48.6 billion by the end of 1967. This is about 9 percent more than at the beginning of the year, and nearly 5 times the level of 1950 (fig. 2). The increase during 1967 in debt not secured by farm real estate will be about \$2.4 billion, or 12 percent, while the increase in farm mortgage debt is expected to be somewhat less--\$1.7 billion, or 7 percent.

Total farm debt rose slightly less in 1967 than in 1966. The demand for farm credit in 1966 was strong. Livestock and machinery purchases were up sharply from 1965, as were many other expenses. Farmers increased their use of operating credit accordingly. Farm lenders were able to supply record amounts of credit, even during a year when credit demands throughout the Nation were exceptionally strong. In 1967, livestock and farm machinery purchases have not risen much further. Likewise, total farm operating expenses are higher, but not by the wide margin of 1966 over 1965.

Farm mortgage indebtedness is increasing in 1967 but the amount of new money borrowed is expected to be less than in 1966. The amount of new money loaned on farm mortgages by life insurance companies and the Federal land banks, the major institutional farm mortgage lenders, dropped sharply during the second half of 1966. The decline continued through the first half of 1967 and then leveled out. Farm mortgage credit provided by individuals as they sell their farms may have increased in 1966 and 1967.

Much of the reduction in farm mortgage lending by the conventional lenders in 1966 was a result of the tight money situation--high demand relative to the supply of loan funds--that existed through much of the latter half of 1966 and early 1967. Life insurance companies found more profitable uses for their funds in nonfarm investments. In the latter half of 1966, Federal land banks restricted lending to the more productive and essential loan purposes. In 1967, however, the reduced level of new farm mortgage loans stems at least in part from the borrower's side. Demand for long-term farm loans during 1966 was relatively high, but it appears to have declined in 1967. The continuation of relatively high interest rates may be one factor. Farmers may be using short- or intermediate-term credit to finance purchase of capital items with the thought of refinancing them into long-term contracts if interest rates ease.

Most of the rise in farm loan interest rates occurred in the second and third quarters of 1966. Rates of interest were higher on operating loans and considerably higher on farm mortgage loans at the end of 1966 than at the beginning of the year. By early 1967, interest rates began edging downward. But the rates on loans in December 1966 through April 1967, during the time when most farmers usually arrange for credit for the coming crop year, averaged higher than they did a year earlier.

Table 11.--Annual interest charges on the farm debt, United States, selected years, 1950-1967

Year	Charges on short-term debt owed to <u>1/--</u>						
	Total	Charges on mortgage debt	All lenders	Commercial banks	Production credit associations <u>2/</u>	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-----	2,431	1,204	1,277	519	215	40	453
1967 <u>3/</u> -----	2,690	1,321	1,369	567	253	40	509

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.

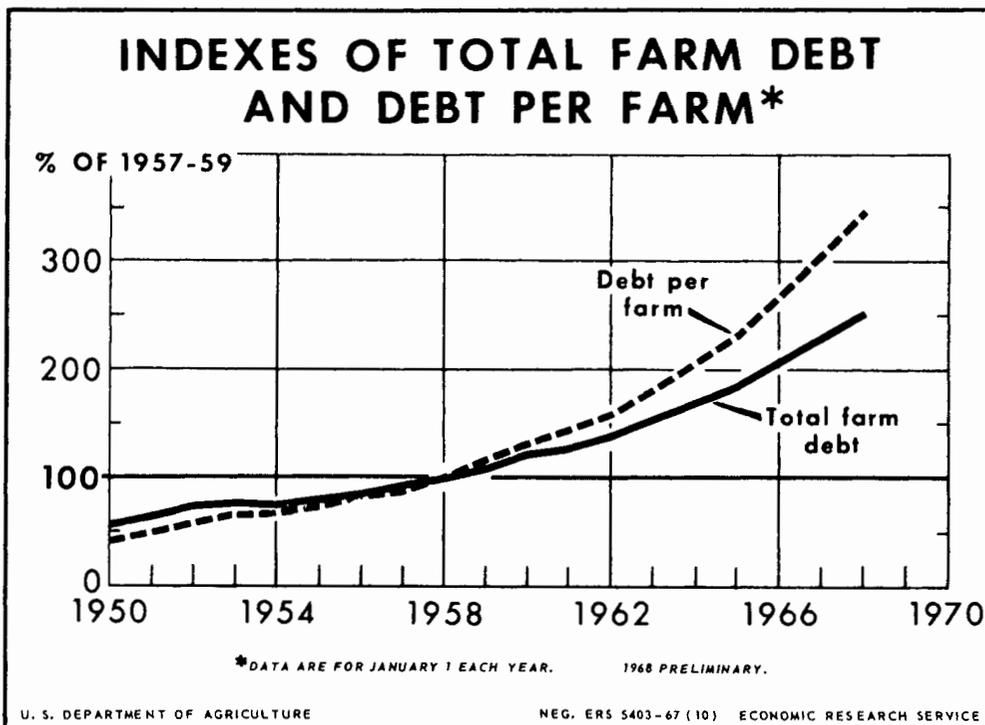


Figure 2

Therefore, many of the operating loans for the 1967 farm year carried a higher rate of interest than those for 1966.

Interest rates on non-real-estate loans did not change significantly in 1967 although there was some slight general lowering of rates from the high at the beginning of the year. Scattered reports from commercial banks indicate that interest rates on their non-real-estate loans in 1967 were slightly lower than a year earlier, and were expected to remain stable for the remainder of 1967. Rates on loans from production credit associations (PCA's) have lowered generally since the first of the year, as is indicated by the following tabulation. As of January 1, 1967, almost three-fourths of the PCA's were charging 7 percent or more on loans. In October 1967, 61 percent of the associations were charging 7 percent or more.

Interest rate charged 1/	Percentage of associations charging specified rates as of--										
	1963		1964		1965		1966		1967		
	Jan.	July	Jan.	July	Jan.	July	Jan.	July	Jan.	July	Oct.
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Less than 6 percent-----	13	14	8	7	6	5	3	2	0	1	1
6 percent-----	59	60	54	46	43	42	37	25	19	18	18
6-1/8 to 6-7/8 percent-----	23	23	34	40	42	43	45	36	7	16	20
7 percent and over-----	5	3	4	7	9	10	15	37	74	65	61
All rates-----	100	100	100	100	100	100	100	100	100	100	100

1/ Rates shown exclude loan fees, which in 1966 averaged 0.44 percent.

The rate charged by the PCA's depends largely on rates in the open money market. Most PCA loan funds are obtained by discounting borrowers' promissory notes with the Federal intermediate credit banks (FICB's). The FICB's, in turn, sell short-term debentures in the open money market, usually monthly. At the beginning of 1966, new FICB debentures had a rate of 5.60 percent. In October 1966, the debentures carried a record high 6.20 percent rate of interest. Their rates dropped gradually to 4.40 percent on May 1, 1967. Since then, however, the rate carried by the FICB debentures has been going up and in November 1967 reached 5.75 percent.

Rates charged on life insurance company farm mortgage loans tend to follow the rate of return the companies can get from alternative uses of their investment funds in other sectors of the economy. Rates of interest on their farm mortgage loan commitments moved up from an average of 5.7 percent in the second quarter of 1965, to 6.2 percent in the second quarter of 1966, to 6.6 percent in the second quarter of 1967.

In 1966, the Federal land banks increased their rates of interest, mostly by one-half percentage point, to the maximum allowed by Federal law, 6.0 percent, where they remain at present. Most of the funds for loans of the Federal land banks (FLB's) are obtained through the sale of bonds in the open money markets. Federal land bank bonds sold in September 1966 carried a rate of 6.05 percent; in October 1967 they carried rates of 5-3/4 and 5-7/8 percent. In the interim, new FLB bonds carried a rate as low as 4.75 percent. In October 1967, the average rate of interest on the nearly \$5 billion in outstanding FLB bonds was 4.99 percent.

In addition to the institutional lenders, merchants, dealers, and individuals extend billion of dollars of credit--both short-term and long-term--to farmers each year. Sizable portions of fertilizer, insecticides, fuel, machinery, and equipment are sold on credit. Terms and cost of such credit vary widely. Many sales of farmland are accompanied by total or partial credit extended by the sellers or other individuals. Such transactions became particularly evident during the recent tight money experience when farm mortgage lending activities of the life insurance companies and the Federal land banks were reduced.

While modern farmers are heavily dependent on credit and can expect interest charges to be a substantial annual expense, there are things they can do to reduce interest costs. Careful planning at least a year ahead for operating type credit, and longer for mortgage loans, will allow for more efficient use of credit. By shopping around for credit, farmers are better able to find the arrangement most suited to their particular operations. The amount of credit needed, the length of time it is to be used, rates of interest, additional fees and repayment terms are vital elements in arranging credit. Close attention to such details can often save a substantial part of the cost of borrowed money.

Farmers will continue to use borrowed money to supplement their own funds and all indications point to even greater use of credit in the future. As farms become larger and continue to use larger amounts of purchased inputs, liquid capital becomes increasingly important. Barring unforeseen circumstances, the use of farm credit will continue to grow in 1968. It appears now that the supply of credit from the usual sources should be adequate and rates of interest will probably not be greatly different from those charged in 1967.

Insurance

Insurance premiums and social security taxes paid by farmers will amount to nearly \$2.5 billion in 1967, about 6 percent more than in 1966. This expenditure is for both farm and family purposes. The rise projected for next year may be slightly smaller than that of 1967.

Increased insurance expenditures in recent years have been related to higher premium rates, increased social security tax rates, and greater investments that are subject to loss or damage. Improved ability to buy insurance protection and increased awareness of the need for additional forms of insurance, such as personal liability coverage, have also been factors.

About \$777 million, or nearly a third of total insurance expenditures can be allocated as a business expense. The actual net cost for agriculture as a whole is smaller because of the payments that some farmers receive for losses. Individual farmers, however, usually view insurance premiums as a cost because of the small probability of any one farmer receiving an insurance payment.

The cost of insurance on automobiles and trucks in 1967--mainly liability, collision, and comprehensive coverage--is estimated at \$440 million, the largest expenditure for any one line of property insurance. More accidents and higher automobile repair and medical costs have resulted in increased premium rates in many States. Further premium increases are in prospect for the next several years.

Insurance expenditures on farm property--buildings, machinery, livestock, and other personal property--are expected to continue rising at an annual rate of about 5 percent, reaching \$268 million in 1967 and \$282 million in 1968. Factors causing larger property insurance expenditures are increased premium rates, rising property values, more insurance relative to value, and an expansion in types of property insured and in types of coverage.

The farmowners policy--which includes fire, extended coverage, liability, theft, and other coverages in one package--is being used increasingly by commercial farmers. The cost of the farmowners policy per dollar of protection is usually lower than when separate policies are written but the total cost is frequently higher because farmers tend to get larger and broader coverages. However, the requirement of at least \$8,000 insurance on the dwelling will limit the number of farmers who can qualify for this policy. The smaller or more risky properties are not eligible for the premium discounts available with the farmowners policy.

Insurance to protect growing crops against damage from hail, drought, and other hazards is an important expense to many farmers, especially growers of wheat, corn, soybeans, and tobacco. Total premiums paid to crop-hail insurance companies and the Federal Crop Insurance Corporation are expected to total about \$160 million for 1967. Crop insurance costs have been increasing in recent years, primarily because of more coverage. Premium rates are relatively stable.

Expenditures on insurance for hired farm labor, mainly by larger farmers, have been rising slowly in recent years. Workmen's compensation payments will amount to only about \$49 million in 1967. Although a smaller proportion of farmworkers compared to other workers is covered, several

States have liberalized their compensation programs during the past year so as to include more farmworkers or to provide more benefits. As a result, the farm employer costs will rise to an estimated \$52 million for 1968. Employer social security payments for farm labor will increase from \$108 million in 1966 to \$119 million in 1967 because of an increase in the rate on taxable earnings from 4.2 percent to 4.4 percent. The rate will remain at 4.4 percent in 1968 unless increased by pending legislation.

Social security taxes paid by operators on their own incomes are expected to be about \$282 million in 1967, up \$12 million from 1966. This mainly reflects a rise in the tax rate from 6.15 percent to 6.40 percent of taxable earnings. The rate will remain the same in 1968 unless increased by legislation.

Premiums paid by farmers for life and health insurance are estimated at \$1,070 million for 1967. The bulk of this is life insurance expenditures, which are fundamentally related to net incomes of farmers. Life insurance premium rates have not changed much in recent years. Health insurance premium rates have been rising because of higher costs for hospital and medical services. Premiums paid by elderly farmers to social security for medical plan benefits will amount to about \$50 million in 1967.

FARM REAL ESTATE

The market value of farm real estate continues to increase. It rose 6 percent during the year ended March 1, 1967, to a new total of \$182.0 billion. Largest advances--9 percent--occurred in the Lake States and Corn Belt regions, while in the Pacific States market values rose only slightly. Nationally, the value per acre rose to \$167, an increase of \$10 from the previous year.

The national average value of land and buildings per farm in March 1967 was up nearly 10 percent, \$63,200, reflecting both increasing land values and expanding farm size. Per farm values have been increasing at about this same rate for several years. Average farm values ranged from \$28,000 in the Appalachian Region to \$165,800 in the Pacific States.

Voluntary transfers of farm real estate were at the rate of 31.1 per thousand farms in March 1967--the same level as a year earlier. The rate of total transfers per thousand farms, however, decreased from 46.4 to 44.8. This drop along with the decline in farm numbers, caused a 6-percent decrease in total transfers to 129,200 in the year ended March 1, 1967.

Farm operators continue to be the major buyer group in the farm real estate market, representing nearly two-thirds of the total buyers. Over half of all voluntary transfers are purchases for farm enlargement.

Competition for rental land appears to be growing keener in many areas as land values appreciate. Evidence of this is the 5-percent increase in the number of commercial cash tenants from 1959 to 1964. Nationally, gross cash rents averaged \$9.55 per acre in 1966, 29 percent higher than the 1960 U.S. average (table 12). Wide variation in gross rents exists among regions, reflecting the value differences. Rental rates in the Appalachian region are relatively high since most cash rental arrangements involve land used for tobacco production. Pasture rental rates currently average \$10 to \$12 per acre in the Corn Belt and \$3 to \$5 in the

Table 12.--Gross rent per acre for commercial cash tenant farms,
by farm production region, 1960-66 1/

Region	Gross rent per acre						
	1960	1961	1962	1963	1964	1965	1966
Northeast-----	15.90	16.60	17.45	18.15	19.00	19.85	19.95
Lake States-----	13.70	13.75	14.50	14.95	15.50	16.25	17.20
Corn Belt-----	17.95	17.05	18.00	18.85	19.55	20.55	22.70
Northern Plains-	3.70	3.85	4.25	4.50	4.90	4.85	5.05
Appalachian-----	15.60	16.90	18.90	19.55	21.10	22.35	23.00
Southeast-----	10.50	10.60	11.15	11.55	12.70	13.80	14.25
Delta States-----	14.80	15.00	15.80	17.00	18.25	19.10	20.00
Southern Plains-	3.05	3.20	3.35	3.50	3.65	4.10	4.35
Mountain-----	2.25	2.35	2.45	2.60	2.75	2.85	2.85
Pacific-----	16.55	15.95	15.85	14.05	15.00	14.90	16.25
United States-	7.40	7.50	7.90	8.00	8.60	9.00	9.55

1/ Estimates are based on a 3-year moving average of gross rents obtained from crop reporters, Statistical Reporting Service, USDA.

Plains States. Range rental rates based on carrying capacity are about \$3.50 per head per month in the Western regions.

Rental rates tend to increase at approximately the same rate as land values, resulting in a constant gross rent-to-value ratio. However, this ratio has declined slightly in recent years, as adjustments in rental rates have not kept up with value increases. An average of the 48 States shows the gross rent-to-value ratio dropping from 6.6 percent in 1959 to 5.9 percent in 1966.

The tight credit situation which has continued into 1967 has dampened real estate price rises slightly and injected greater uncertainty into future price expectations. Demand for land is likely to remain strong in 1968, with modest increases in land prices and in rental rates.

Farm Service Buildings

Total market value of farm service buildings was about \$16 billion on March 1, 1967, representing 8.8 percent of the value of all farm real estate. The market value of buildings was a new high but, in proportion to the total value of all farm real estate, it continues to decline gradually.

Total capital expenditures for farm service buildings have decreased in recent years, as have also expenditures for repairs (fig. 3). This has been due chiefly to the declining number of farms. Depreciation, however, has increased sharply in the last 5 years. As a result, the sum of depreciation and accidental damage on farm service buildings has exceeded the capital expenditures since 1962. This difference represented a net reduction in 1966 of \$253 million in the book value of structures.

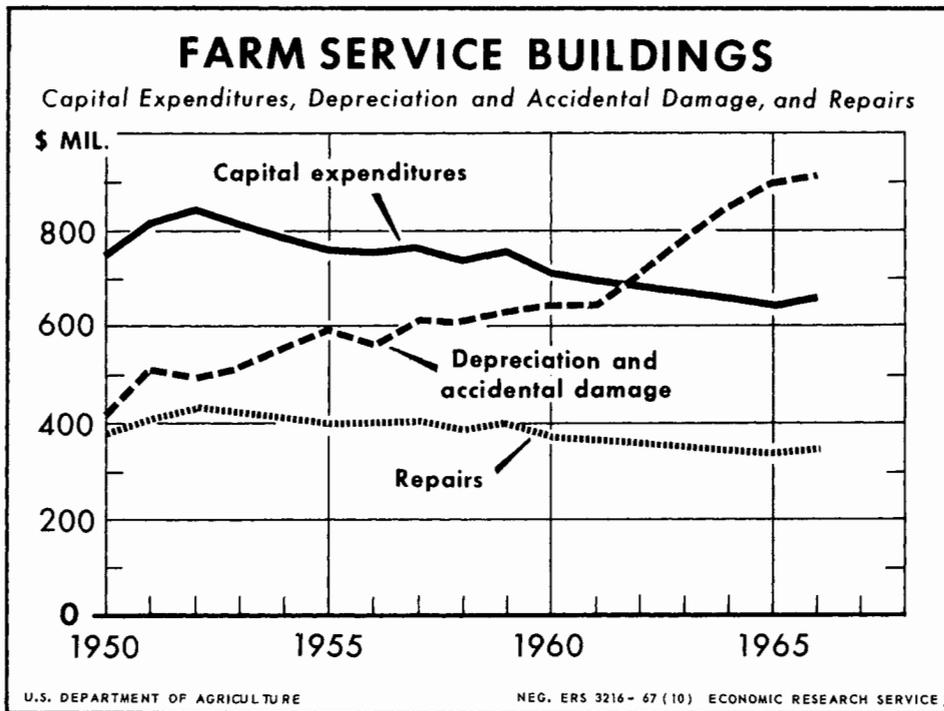


Figure 3

Consolidation of farms is the primary factor affecting the current situation. Buildings being incorporated into a larger operation frequently lose value because of functional obsolescence or physical location. An excess of buildings in an operating unit--another possible consequence of consolidation--also reduces the use value of buildings to the new owner.

Capital expenditures per farm for service buildings have steadily increased, reaching \$202 in 1966. In the same year, depreciation and accidental damage to farm service buildings totaled \$280 per farm.

Prices paid by farmers for building and fencing materials rose 1 percent during a 4-week period ended in mid-September 1967, resulting in a 3-percent increase over a year earlier. Prices of building materials provide only a partial indication of the costs of new buildings because of innovations in building design and construction methods. With the continued shift away from conventional frame construction to lower cost and more functional designs, construction costs may increase little, if any, in 1968.

Capital expenditures on farm service buildings are likely to continue to fall short of depreciation in the next few years. Although capital expenditures for more functional structures may be fairly stable, rapid depreciation of older, obsolete buildings will result in a continued decline in the book value of this production resource.

Table 13.--Operating expense and input per unit of production, specified types of commercial farms, averages, 1950-59 and 1962-66

Type of farm and location	(1957-59=100)			
	Operating expense per unit of production ^{1/}		Input per unit of production ^{2/}	
	1950-59	1962-66	1950-59	1962-66
Dairy farms:				
Central Northeast-----	96	111	102	97
Eastern Wisconsin:				
Grade A-----	101	111	109	94
Grade B-----	102	106	109	94
Western Wisconsin, Grade B-----	103	106	111	92
Dairy-hog farms, Southeastern Minnesota-----	100	115	110	95
Egg-producing farms, New Jersey-----	110	88	104	93
Broiler farms:				
Maine-----	103	108	128	94
Delmarva:				
Broilers-----	3/	94	3/	89
Broiler-crop-----	105	104	117	91
Georgia-----	90	107	112	89
Corn Belt farms:				
Hog-dairy-----	102	121	115	97
Hog fattening--beef raising-----	101	120	109	93
Hog-beef fattening-----	104	115	107	96
Cash grain-----	104	103	116	84
Cotton farms:				
Southern Piedmont-----	102	102	110	89
Mississippi Delta:				
Small-----	94	101	102	85
Large-scale-----	104	85	103	79
Texas:				
Black Prairie-----	107	96	113	86
High Plains (nonirrigated)-----	130	120	150	115
High Plains (irrigated)-----	108	105	108	96
San Joaquin Valley, Calif. (irrigated):				
Cotton-specialty crop-----	95	117	105	106
Cotton-general crop (medium-sized)-----	98	114	109	105
Cotton-general crop (large)-----	100	119	111	108
Peanut-cotton farms, Southern Coastal Plains-----	95	91	109	80
Tobacco farms:				
North Carolina Coastal Plain:				
Tobacco-----	92	101	102	86
Tobacco-cotton-----	93	102	103	87
Kentucky Bluegrass:				
Tobacco-livestock, Inner area-----	92	103	100	92
Tobacco-dairy, Intermediate area-----	90	103	103	88
Tobacco-dairy, Outer area-----	94	107	104	91
Pennyroyal area, Kentucky-Tennessee:				
Tobacco-beef-----	3/	109	3/	93
Tobacco-dairy-----	3/	114	3/	89
Spring wheat farms:				
Northern Plains:				
Wheat-small grain-livestock-----	97	71	106	66
Wheat-corn-livestock-----	114	93	123	82
Wheat-fallow-----	88	60	94	56
Winter wheat farms:				
Southern Plains:				
Wheat-----	104	110	107	95
Wheat-grain sorghum-----	117	112	129	95
Pacific Northwest:				
Wheat-pea-----	102	99	106	88
Wheat-fallow-----	115	111	121	105
Cattle ranches:				
Northern Plains-----	97	98	101	93
Intermountain Region-----	106	124	116	105
Southwest-----	123	117	114	100
Sheep ranches:				
Northern Plains-----	112	100	116	94
Utah-Nevada-----	100	114	105	99
Southwest-----	131	109	119	99

1/ Exclusive of charges for capital and unpaid labor.

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

3/ Not available.

through 1966 are available) shows that operating expense per unit of production in the 5-year period 1962-66 was higher than in the period 1950-59 on 23 types, lower on 17 types, and unchanged on 1 farm type.

There was considerable variation in each major group of farms, with some farm types showing substantial increases and others showing decreases or relatively little or no change. The dairy and tobacco groups were the only groups in which the changes for all types were in the same direction. For both groups, operating costs per unit of production were higher in 1962-66 than in 1950-59. The changes here were relatively smaller than on most other farm types, and ranged within 3 to 15 index points. In contrast, the changes on livestock ranches ranged from a decrease of 22 index points on Southwest sheep ranches to an increase of 18 points on cattle ranches in the Intermountain area. Cotton and wheat farms showed almost as much variation.

Changes in operating expense per unit of production are the result of changes in prices paid for goods and services used in production, changes in quantity of these inputs used, and/or changes in production.

Change in production efficiency has much to do with change in operating expense per unit and total cost per unit of production over the long term. Production efficiency, as measured by output per unit of input, increased from 1950-59 to 1962-66 on all but one of the 41 types of farms. The increase ranged from 3 index points on cotton-general crop farms in the San Joaquin Valley of California to 73 points on wheat-fallow farms in the spring wheat area. There was less variation among the dairy and tobacco farms than within the other major groups of farms.

The index of input per unit of production--a summary measure of total physical cost per unit, or cost in constant dollars of production per unit--was lower in 1962-66 than 10 to 15 years earlier (1950-59) on 40 of the 41 types of farms and only slightly higher on the cotton-specialty crop farms in California where potato production was off in recent years (table 13). The variation was lowest within the groups of farms where production was more stable. The decrease from 1950-59 to 1962-66 ranged from 5 to 19 index points on dairy farms, from 8 to 16 index points on tobacco farms, and from 12 to 41 points on wheat farms. The latter group showed the greatest variation of any of the major groups. Here, production is more variable and Government programs have had considerable influence on the internal operations of the farms.

Preliminary estimates of costs and returns for 1967 on 7 selected types of farms and ranches indicate that the upward trend in farm operating expenses and prices paid for items and services used in production is continuing. Operating expenses in 1967 averaged higher than a year ago on 6 of the 7 farm types, and prices paid averaged higher on all of the farms (table 14). The increase in prices from a year ago ranged from 3 to 6 percent. They were 14 to 25 percent higher in 1967 than in the 1957-61 period.

Prices received for products sold averaged higher in 1967 than in 1966 on only 2 of the 7 farm types. They averaged lower on farms where crop sales were important.

Farm production in 1967 is higher than a year earlier on 5 of the 7 farm types. It is lower on the Mississippi Delta cotton farms, where acreage cuts were significant and yields are lower, and on spring wheat farms, where wheat yields are down in 1967.

Table 14.--Costs and returns, selected types of farms, average 1957-61, 1966,
1967 preliminary

Type of farm	Unit	Average 1957-61	1966	1967
Tobacco farms, Coastal Plain, North Carolina:				
Gross farm income-----	Dollar	10,442	12,792	13,838
Operating expenses-----	do.	5,463	6,629	7,287
Net farm income-----	do.	4,979	6,163	6,551
Tobacco harvested-----				
Tobacco harvested-----	Acre	7.9	7.7	7.8
Yield per acre-----	Pound	1,742	1,892	2,010
Total farm capital, Jan. 1-----				
Total farm capital, Jan. 1-----	Dollar	34,130	44,450	48,290
Index numbers (1957-59=100):				
Net farm production-----	---	111	114	130
Prices paid-----	---	102	122	127
Prices received-----	---	104	120	114
Cotton farms (large-scale), Mississippi Delta:				
Gross farm income-----	Dollar	65,922	78,726	80,614
Operating expenses-----	do.	42,815	40,478	43,253
Net farm income-----	do.	23,107	38,248	37,361
Cotton harvested-----				
Cotton harvested-----	Acre	235	174	161
Yield per acre-----	Pound	514	595	575
Total farm capital, Jan. 1-----				
Total farm capital, Jan. 1-----	Dollar	202,100	367,080	383,690
Index numbers (1957-59=100):				
Net farm production-----	---	106	103	101
Prices paid-----	---	100	114	121
Prices received-----	---	100	98	97
Wheat-small grain-livestock farms, Northern Plains:				
Gross farm income-----	Dollar	9,583	16,901	14,808
Operating expenses-----	do.	5,875	6,401	6,633
Net farm income-----	do.	3,708	10,500	8,175
Wheat harvested-----				
Wheat harvested-----	Acre	140.2	153.4	184.0
Yield per acre-----	Bushel	16.7	24.5	22.2
Total farm capital, Jan. 1-----				
Total farm capital, Jan. 1-----	Dollar	48,590	70,890	78,470
Index numbers (1957-59=100):				
Net farm production-----	---	94	143	137
Prices paid-----	---	101	112	116
Prices received-----	---	101	100	92
Winter wheat farms, Southern Plains:				
Gross farm income-----	Dollar	15,532	19,529	20,681
Operating expenses-----	do.	5,732	7,983	8,383
Net farm income-----	do.	9,800	11,546	12,298
Wheat harvested-----				
Wheat harvested-----	Acre	209.2	241.0	273.0
Yield per acre-----	Bushel	22.3	19.2	19.7
Total farm capital, Jan. 1-----				
Total farm capital, Jan. 1-----	Dollar	88,280	137,070	138,285
Index numbers (1957-59=100):				
Net farm production-----	---	110	106	129
Prices paid-----	---	102	115	120
Prices received-----	---	99	95	88

Table 14.--Costs and returns, selected types of farms, average 1957-61, 1966,
1967 preliminary--Continued

Type of farm	Unit	Average 1957-61	1966	1967
Dairy farms (grade A), Eastern Wisconsin:				
Gross farm income-----	Dollar	13,723	21,093	22,782
Operating expenses-----	do.	7,974	11,443	12,255
Net farm income-----	do.	5,749	9,650	10,527
Cows, 2 years old and over-----	Number	28.2	33.3	32.7
Milk production per cow-----	Pound	9,610	10,800	11,340
Total farm capital, Jan. 1-----	Dollar	56,030	81,640	89,270
Index numbers (1957-59=100):				
Net farm production-----	---	105	128	134
Prices paid-----	---	102	116	121
Prices received-----	---	101	124	130
Hog-beef fattening farms, Corn Belt:				
Gross farm income-----	Dollar	26,351	45,341	45,880
Operating expenses-----	do.	17,584	30,819	33,623
Net farm income-----	do.	8,767	14,522	12,257
Fat cattle sold-----	Cwt.	611	1,092	1,138
Hogs sold-----	do.	519	610	646
Total farm capital, Jan. 1-----	Dollar	96,970	152,980	166,420
Index numbers (1957-59=100):				
Net farm production-----	---	102	144	152
Prices paid-----	---	102	113	116
Prices received-----	---	98	107	103
Cattle ranches, Intermountain region:				
Gross ranch income-----	Dollar	17,170	18,895	19,823
Operating expenses-----	do.	6,582	8,913	8,694
Net ranch income-----	do.	10,588	9,982	11,129
Cows, 2 years old and over-----	Number	131.5	155.7	153.1
Total ranch capital, Jan. 1-----	Dollar	77,790	100,630	106,980
Index numbers (1957-59=100):				
Net ranch production-----	---	99	98	103
Prices paid-----	---	103	119	124
Prices received-----	---	98	105	109

Net farm income in 1967 (net returns to operator and unpaid family members for their labor and management and return to capital) is estimated to be higher on 4 of the 7 groups of farms. It is lower on the cotton and spring wheat farms where production is lower and on the Corn Belt farms where prices received for products sold are lower in 1967.

Tobacco Farms, Coastal Plain, North Carolina

Operating expenses in 1967 are about 10 percent greater than in 1966 on tobacco farms in the Coastal Plain of North Carolina. Higher expenses are expected because slightly larger crop acreages and greater production per farm required more inputs, and prices paid for inputs probably will average 4 percent above a year earlier. Hired labor is the largest expense item on these farms. In 1967, it accounted for 37 percent of the total operating expenses and was approximately \$360 higher than in 1966. About two-thirds of the increase was due to 10 percent higher wage rates.

Net farm income in 1967 is about 6 percent above the 1966 return. Increased production of tobacco, corn, and soybeans more than offset a 5-percent decline in average prices received. Chiefly because of higher crop yields per acre, net farm production in 1967 was 14 percent above a year earlier.

Large-Scale Cotton Farms, Mississippi Delta

Total operating expenses in 1967 on Mississippi large-scale cotton farms are 7 percent above 1966--due almost entirely to higher unit costs for most production inputs. Farm wage rates have averaged about 16 percent above 1966, resulting in further substitution of machinery for labor.

Total outlays per farm for hired labor and items related to machinery use increased substantially in 1967. The 1967 quantity index of production inputs is slightly above that of 1966.

Net farm income for large-scale Delta cotton farms will probably average about 2 percent less than in 1966 but gross farm income is 2 percent more. This reflects larger Government farm program payments, mostly earned by participation in the Upland Cotton Program. Prices received for cotton lint are considerably above 1966 when quality was poor, but prices for other crops and livestock are generally lower. Net production per farm is 2 percent lower due to less cotton acreage and lower yields, which more than offset increased production of soybeans and wheat. Farmers experienced a difficult planting season in 1967 and unusually large acreages of cotton were replanted or abandoned.

Wheat-Small Grain-Livestock Farms, Northern Plains

Prices paid for goods and services used in production on wheat-small grain-livestock farms are about 4 percent higher in 1967 than in 1966 and about 16 percent higher than in 1957-59. Production in 1967 is about 4 percent smaller than in 1966 but 35 to 40 percent larger than in 1957-59.

Prices received for products sold average about 8 percent lower in 1967 than in 1966, and Government payments are about 20 percent lower. Despite the indicated reduction in Government payments for 1967, they are about 5 times as large as they were in 1957-59. With the reductions in prices received and in Government payments, combined with higher prices paid and a reduction in production, net farm income is about 22 percent lower in 1967 than in 1966.

Winter Wheat Farms, Southern Plains

Farm operating expenses in 1967 on wheat farms in the Southern Plains are about 5 percent higher than in 1966. This will come largely because of an increase in prices paid for production items. The index of prices paid is estimated at 120 (1957-59=100) for 1967 compared with 115 for 1966.

Prices received for items sold are about 7 percent lower in 1967 than in 1966 and 12 percent lower than in 1957-59. Government payments are about 5 percent lower than in 1966 but 5 times as large as they were in 1957-59.

Farm production is 22 percent larger in 1967 than in 1966. The increase in production is largely the result of a 13-percent increase in acreage of wheat harvested and a small increase in crop yields. Yields of all crops, with the exception of grain sorghum, are larger in 1967 than in 1966. The increase in farm production will more than offset the unfavorable prices for crops sold and the expected decrease in Government payments. Net farm incomes on these farms averages around 7 percent higher in 1967 than in 1966.

Grade A Dairy Farms, Eastern Wisconsin

Operating expenses of grade A dairy farms in eastern Wisconsin are about 7 percent higher in 1967 than in 1966. Prices of production items increased about 4 percent, with quantities used increasing at a lower rate.

Crop production and pasture conditions were as good in 1967 as they had been the preceding year. The quantity of milk sold per farm is 5 percent greater and the price of milk about 8 percent higher. But prices of hogs declined about 18 percent and prices of other products have either remained the same or declined. Net farm income in 1967 is 9 percent higher than in 1966.

Hog-Beef Fattening Farms, Corn Belt

Total operating expenses on hog-beef fattening farms in the Corn Belt average about 9 percent higher in 1967 than in 1966. The increase in expenses results mainly from larger outlays for feed and feeder cattle bought, for labor hired, and for power and machinery operation. Taxes and expenditures for fertilizer and seed also will exceed those of 1966.

Prices paid for all items used in production average about 3 percent higher than in 1966. Significant among the input items for which prices have been higher in 1967 are corn for feed (up 10.5 percent), hired labor (up 6 percent), machinery repairs (up 4 percent), and gasoline (up 2.3 percent). Prices paid for feeder cattle have averaged about the same as last year, but more feeder cattle and more feed have been bought this year. Soybean meal prices have averaged about 3 percent lower than in 1966 but, to the feeder, these have been more than offset by the higher prices paid for corn. More fertilizer and more hired labor have been used in 1967.

Net farm incomes in 1967 average lower than in 1966 by about 15 percent, but are 40 percent above the 1957-61 average. Gross incomes are only slightly larger than in 1966.

The slight increase in gross farm income results from the larger cash receipts from fat cattle sold. Receipts from cattle sales in 1967 are about 8 percent larger than in 1966, but they are almost entirely offset by the smaller receipts from hogs, soybeans, and the Feed Grain Program. The quantities marketed of hogs, soybeans, and fat cattle are larger than in 1966.

Cattle Ranches, Intermountain Area

Total operating expenses in 1967 on cattle ranches in the Intermountain area probably will average around 3 percent below those in 1966. The chief reason for this decrease is a substantial reduction in expenditures for hay in 1967. Crop and range conditions in 1967 were unusually good. Early rains in 1967 were beneficial to forage growth and permitted ranchers to harvest a record acreage of wild or native hay, with the highest yields in nearly a decade.

Prices paid for hay in the early part of 1967 were higher than a year ago, and prices paid for other products and services throughout the year continued to inch upward. As a result, prices paid by these ranchers in 1967 averaged about 4 percent higher than a year earlier and nearly a fourth higher than in 1957-61 (table 14).

Calving rates on western livestock ranches have slowly improved in recent years, but the early spring storms in 1967 plagued ranchers at calving time. However, although problems were reported by many, the percentage calf crop remained near a year earlier. A good calf crop, coupled with a large inventory of livestock to go on the unusually good range in 1967, brought total production on these ranches to the highest level since 1963. Net production of beef was slightly below 1966, but crop production was substantially higher in 1967.

Total volume of beef sold from these ranches in 1967 is down from a year ago by less than 2 percent, but prices received probably will average around 5 percent higher. In the early fall, buyers in some localities were contracting to purchase calves at around \$27 to \$30 per hundredweight, about 5 percent higher than a year earlier. Net ranch income on Intermountain cattle ranches in 1967 probably will average around 10 percent above a year ago and 5 percent above the 1957-61 average.

ENTERPRISE INPUT COSTS

The combination of production inputs--labor, seed, fertilizer, etc.--that farmers use varies greatly among the crop enterprises. Crops differ of course in nutritive requirements, in susceptibility to weeds and other pests, and in product volume to be handled by machine or man. Thus, farmers tailor their input mixes to suit the quality and yield of crop they believe to be most feasible and profitable for them. They also change their "input specifications" over time as new technology and its potential becomes known to them.

Tables 15, 16, and 17 show examples of the input mixes used by leading farmers in 1960 and 1966-67 for producing corn, cotton, and wheat on full-scale, well-equipped, and efficiently operated farms having excellent soils in well-known producing areas. The data include only the direct

costs. They do not include a charge for land or overhead; hence, in no sense can they be construed as the full costs of production. Neither are they average costs.

With all three crops, the leading farmers in recent years have raised their expected crop yields per acre. To obtain these larger yields, they have generally increased the use of fertilizer and other yield-increasing inputs.

Corn

In central Illinois, for example, leading farmers have raised their yield expectations of corn from 100 bushels per acre in 1960 to 130 bushels in 1966 and 1967. A few growers are aiming at even higher yields. Leading farmers are now using less labor per acre, as they have shifted from 4-row to 6-row powered equipment. They have increased the corn-plant population per acre by narrowing the space between rows and using more seed (table 15). They have also increased the application of fertilizer and the use of herbicides. Some farmers are growing corn without any cultivation, or no more than one, whereas not long ago they would cultivate 3 to 5 times to control weeds. Now they get the same effect with chemical herbicides. Leading farmers are now spending about \$7 an acre more for variable inputs than they did in 1960. This is due in part to higher prices of some inputs but more to increased quantity of purchased inputs. The higher cost is more than offset by the increased returns.

Cotton

Leading cotton farmers in the Yazoo-Mississippi Delta have upped their expected yields of cotton lint from 750 pounds per acre in 1960 to 850 pounds in 1966-67 (table 16). These yields are for excellent cotton soils with the cotton planted "solid"--not skip-rowed. The 1966-67 expected yield was about 1,100 pounds for skip-row planted cotton of a 4 X 4 pattern. Farmers have greatly reduced their labor input by eliminating hand chopping and by completing the conversion from hand picking to machine harvesting. This trend found new stimulus as minimum wage legislation was extended to farmworkers this year. Hand-chopping wages rose to \$1.00 an hour in 1967 compared with \$0.45 in 1966. Chemical weed control and burning has replaced hand chopping. The total input of chemicals has increased. Farmers are using less nitrogen fertilizer; studies show they had been using too much on the good soils. On balance, the leading cotton growers in the Delta are now able to get increased yields while spending about \$16 an acre less for variable inputs on cotton than they did in 1960. Their per-acre yields of lint are 100 pounds higher. This obviously has been a profitable course of action.

Wheat

The leading wheat growers in south-central Kansas have increased their expected yield of wheat from 28 bushels an acre in 1960 to 35 bushels (table 17). To achieve this increase they have increased the application of fertilizer. They now apply 50 pounds of nitrogen per seeded acre compared with 25 pounds in 1960. Although leading farmers have increased their per-acre expenditures for variable inputs, these have been more than offset by the increase in gross returns.

Table 15.--Variable inputs per acre used by leading farmers in producing corn for grain, east-central Illinois, 1960 and 1966-67 1/

Input or cost	Quantity per acre			Cost per acre			
	Unit	1960	1966	1967	1960	1966	1967
					Dollars	Dollars	Dollars
Labor <u>2/</u> -----	Hour	5.5	4.0	4.0	5.95	5.40	5.60
Power and machinery services <u>3/</u> ---	---	---	---	---	12.40	13.25	13.90
Seed-----	Pound	12	14	14	2.45	4.25	4.25
Fertilizer:							
Nitrogen-----	Pound	112	150	150	9.85	10.50	10.00
P ₂ O ₅ -----	do.	37	46	46	3.35	4.25	4.35
K ₂ O-----	do.	24	30	30	1.15	1.50	1.50
Pesticides-----	---	---	---	---	1.00	2.85	3.00
Corn drying-----	---	---	---	---	2.50	3.15	3.15
Other-----	---	---	---	---	1.50	1.50	1.50
Total-----	---	---	---	---	40.15	46.65	47.25

1/ 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 1966 and 1967.

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

3/ Estimated on basis of 4-row power and equipment in 1960; 6-row in 1966 and 1967.

Table 16.--Variable inputs per acre used by leading farmers in producing cotton, Yazoo-Mississippi Delta, 1960-67 1/

Input or cost	Quantity per acre			Cost per acre			
	Unit	1960	1966	1967	1960	1966	1967
					<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Labor <u>2/</u> -----	Hour	82.0	20.5	13.5	46.80	12.90	13.50
Power and machine services-----	---	---	---	---	25.00	29.00	29.00
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	22.00	24.00
Custom application of pesticides:	---	---	---	---	4.00	3.40	3.40
Ginning-----	---	---	---	---	20.25	25.50	25.50
Total -----	---	---	---	---	119.95	100.90	103.50

1/ For cotton planted solid on excellent cotton soils. Expense for power and machine services would be higher for skip-row planted cotton such as 4 rows alternating with 4 skips. Expected yield of lint for solid plantings: 750 pounds in 1960; 850 in 1966-67. Expected yield for skip-row plantings: 1,100 pounds in 1966-67.

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

Table 17.--Variable inputs per planted acre used by leading farmers in producing wheat, south-central Kansas, 1960 and 1966-67 1/

Input	Unit	Quantity per acre			Cost per acre		
		1960	1966	1967	1960	1966	1967
					<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Labor <u>2/</u> -----	Hour	2.0	2.0	2.0	2.10	2.70	2.80
Power and machine services-----	---	---	---	---	3.70	3.90	4.00
Seed-----	Bushel	1.0	1.0	1.0	2.20	1.90	2.30
Fertilizer:							
Nitrogen-----	Pound	25	50	50	2.90	5.50	5.30
P ₂ O ₅ -----	do.	25	35	35	2.65	3.80	3.80
Total-----	---	---	---	---	13.55	17.80	18.20

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 1966-67.

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

EXPENDITURES BY ECONOMIC CLASS OF FARM 1/

The marked shift in farm production toward the larger farms in recent years has been accompanied by similar shifts in the pattern of expenditures for various farm inputs. Market demand for purchased inputs has become increasingly concentrated in a relatively small, but increasing number of farms that utilize larger quantities of such inputs as feed, fertilizer, and petroleum products as the size of their business increases. Conversely, as numbers of farms having relatively small gross sales have declined, both the dollar volume and proportion of total purchases made by these farms also has declined. These shifts have important implications with respect to the distribution system required to serve a rapidly changing market for inputs, as well as with respect to distribution costs and pricing practices of the suppliers of various farm inputs.

The most highly concentrated market for farm production items is found in the group of about 31,000 farms that had gross sales of \$100,000 or more in 1964 (tables 18 and 19). Their expenditures in 1964 averaged about \$50,000 per farm for feed, \$8,500 for fertilizer, \$6,075 for petroleum products, and \$7,250 for machine hire. Total expenditures for the seven items reported in the census amounted to \$160,000 per farm in 1964, about \$10,000 more than for the farms with comparable sales in 1959. Farms in this group represented only 1 percent of all farms in 1964, but accounted for 24 percent of total gross sales and 29 percent of the total expenditures for the seven selected items.

The close association between gross sales and expenditures is found throughout the range of economic classes. The smaller commercial farms with sales of \$2,500 to \$10,000 represented about 30 percent of all farms in 1964 but had only 15 percent of all sales and 13 percent of the reported expenses. Expenditures for farms falling in this class averaged about \$2,400 per farm in both 1959 and 1964. The 1.3 million farms with sales of less than \$2,500 in 1964 accounted for only 5 percent of total expenditures.

The pattern of expenditures varies considerably among economic classes, reflecting differences in farm enterprises and specialization. Thus, for the largest gross sales class, more than 60 percent of the total reported expenditures was for livestock purchases and feed. More than half of the gross sales of this group of farms came from the sale of livestock and livestock products. Although some of these farms also have substantial crop enterprises, expenditures for petroleum products and fertilizer combined accounted for less than 10 percent of their reported expenditures.

Farms with sales of \$20,000 to \$40,000 tend more often to be engaged in crop production. Feed was still their major purchased input, as it was for nearly all gross sales classes, but fertilizer and petroleum products together accounted for about 23 percent of their expenditures. These items tend to be relatively higher in the smaller gross sales classes.

^{1/} This section is based upon the expenditure items reported in the 1959 and 1964 Censuses of Agriculture. The items included are feed, livestock, seed, fertilizer, petroleum products, machine hire, and hired labor. Fertilizer expenditures were not obtained in the 1959 census but were estimated on the basis of tonnages used.

Table 18.--Number of farms and total selected expenditures, by economic class of farm, 1959 and 1964 Censuses of Agriculture 1/

Gross sales class	Number of farms		Expenses <u>2/</u>					
			Total		Percentage distribution		Average per farm <u>3/</u>	
	1959	1964	1959	1964	1959	1964	1959	1964
	Thousand	Thousand	Million dollars	Million dollars	Percent	Percent	Dollars	Dollars
\$100,000 or more-----	20	31	2,990	5,019	19.5	28.7	150,500	160,500
\$40,000 to \$99,999-----	82	110	2,521	3,289	16.5	18.8	30,800	29,800
\$20,000 to \$39,999-----	210	260	2,800	3,245	18.3	18.6	13,300	12,500
\$10,000 to \$19,999-----	482	467	2,941	2,728	19.2	15.6	6,100	5,800
\$2,500 to \$9,999-----	1,270	947	3,051	2,277	19.9	13.0	2,400	2,400
Total sales of \$2,500 or more-----	2,064	1,815	14,303	16,558	93.4	94.7	6,900	9,100
Farms with sales of less than \$2,500 <u>4/</u> -----	1,637	1,338	1,002	923	6.6	5.3	600	700
Total all farms-----	3,701	3,153	15,305	17,481	100.0	100.0	4,100	5,500

1/ Data for 1964 are preliminary, 48 States.

2/ Expenses included are feed, livestock, seed, fertilizer, petroleum products, machine hire, and hired labor. Fertilizer expenditures were not obtained in the 1959 census but were estimated on the basis of tonnages used.

3/ Computed from unrounded data, rounded to nearest \$100.

4/ Includes class VI commercial farms (sales of \$50 to \$2,499), part-time, part-retirement, and abnormal farms.

Table 19.--Selected expenditures by economic class of farm, 1959 and 1964 Censuses of Agriculture 1/

Gross sales class	TOTAL EXPENDITURES													
	Livestock		Feed		Fertilizer		Seed		Petroleum		Machine hire		Hired labor	
	1959	1964	1959	1964	1959	1964	1959	1964	1959	1964	1959	1964	1959	1964
	-----Million dollars-----													
\$100,000 or more----	1,092	1,613	731	1,566	125	264	73	110	112	190	118	227	739	1,049
\$40,000 to \$99,999--:	785	876	704	1,048	177	310	63	107	165	254	110	104	517	590
\$20,000 to \$39,999--:	756	732	903	1,065	211	387	81	126	247	351	120	138	482	446
\$10,000 to \$19,999--:	595	473	1,051	879	280	356	106	138	372	410	151	156	386	316
\$2,500 to \$9,999----	486	337	1,022	633	355	326	128	131	500	432	227	178	333	240
Total-----	3,714	4,031	4,411	5,191	1,148	1,643	451	612	1,396	1,637	726	803	2,457	2,641
Farms with sales of less than \$2,500 <u>2/</u> :	143	146	333	305	143	121	41	48	153	143	79	63	110	97
Total all farms--:	3,857	4,177	4,744	5,496	1,291	1,764	492	660	1,549	1,780	805	866	2,567	2,738
	-----Dollars-----													
\$100,000 or more----	54,975	51,575	36,800	50,075	6,300	8,450	3,675	3,525	5,650	6,075	5,950	7,250	37,200	33,550
\$40,000 to \$99,999--:	9,575	7,950	8,600	9,500	2,150	2,800	775	975	2,000	2,300	1,350	950	6,300	5,350
\$20,000 to \$39,999--:	3,600	2,825	4,300	4,100	1,000	1,500	385	485	1,175	1,350	575	525	2,300	1,700
\$10,000 to \$19,999--:	1,225	1,025	2,175	1,875	575	775	225	300	775	875	300	325	800	675
\$2,500 to \$9,999----	375	350	800	675	275	350	100	150	400	450	175	200	250	250
Total-----	1,800	2,225	2,150	2,850	550	900	225	350	675	900	800	875	1,200	1,450
Farms with sales of less than \$2,500 <u>2/</u> :	85	110	205	225	85	90	25	35	90	110	50	50	70	70
Total all farms--:	1,040	1,325	1,280	1,740	350	560	135	210	420	565	215	275	695	870

1/ Data for 1964 are preliminary, 48 States. 1959 data are for 50 States.

2/ Includes class VI commercial farms (sales of \$50 to \$2,499), part-time, part-retirement, and abnormal farms.

3/ Computed from unrounded data. Totals may not agree with those in table 18 because of rounding.

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FCS-39 -- Farm Cost Situation

Although reported expense items account for only about 60 percent of total annual production expenses, the relationship of reported expenses to gross sales is of interest.^{2/} For the largest gross sales class, reported expenses amounted to about 60 percent of gross sales. This ratio declines to a low of 41 percent for farms with sales of \$20,000 to \$40,000, and then increases as gross sales decline. For all farms with sales of \$2,500 or more, reported expenses amounted to about 49 percent of gross sales in both 1959 and 1964.

Expenditures for hired labor ranked third among the seven items reported and also tended to be heavily concentrated on the larger farms. About 60 percent of the total expenditure for hired labor occurred on farms with gross sales of \$40,000 or more. Expenditures in 1964 averaged \$33,550 for farms with sales of \$100,000 or more, and \$5,350 for farms with sales of \$40,000 to \$100,000. Average expenditures per farm for hired labor were lower in 1964 than in 1959 for all size classes.

Custom hiring of machinery services can be used as a partial substitute for hired labor and showed a substantial increase between 1959 and 1964 in both total expenditures and expenditures per farm for the largest gross sales class of farms. Average expenditures were \$7,250 per farm in 1964, compared with about \$6,000 in 1959. Other gross sales classes had relatively small expenses for this item and showed only nominal changes between 1959 and 1964.

^{2/} Major expenditure items not included are repair and maintenance of buildings, machinery, and equipment; real estate taxes; and debt servicing costs.