FCS 41 FEBRUARY 1970

FARM COST Situation

ECONOMIC RESEARCH SERVICE U.S. DEPARTMENT OF AGRICULTURE

Commodities and services used in farm production: Index numbers of cost rates and prices paid by farmers, United States, selected years, 1950-70

(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
1955...	94	96	106	83	95	87	87	99	92	102	114	89
1960...	103	101	98	100	101	102	107	100	102	100	101	109
1961...	104	101	98	100	102	102	110	101	101	100	100	110
1962...	106	103	100	104	101	105	111	101	101	100	103	114
1963...	108	104	104	98	101	109	113	101	101	100	110	116
1964...	108	103	103	87	101	111	116	102	100	99	109	119
1965...	111	105	104	96	102	113	119	103	101	100	113	125
1966...	116	108	109	107	102	117	124	103	103	100	110	135
1967...	120	109	106	104	105	121	129	104	105	100	112	146
1968...	124	111	102	109	107	128	135	106	112	97	118	158
1969...	131	116	103	122	110	133	142	109	120	94	121	174
Jan..	127	113	102	109	---	---	---	---	---	---	---	166
Feb..	128	114	102	113	---	---	---	---	---	---	---	166
Mar..	129	115	102	120	109	132	140	108	121	96	110	166
Apr..	131	116	103	124	---	---	---	---	---	94	110	177
May..	132	117	104	131	---	133	---	---	---	---	---	177
June.	132	117	103	133	111	133	143	109	121	94	110	177
July.	131	116	103	124	---	---	---	---	---	---	---	174
Aug..	131	116	103	122	---	---	---	---	---	---	---	174
Sept.	131	116	103	119	112	133	145	109	119	93	107	174
Oct..	131	116	102	122	---	---	---	---	---	---	---	179
Nov..	132	117	102	124	---	135	---	---	---	---	---	179
Dec..	132	117	104	124	112	135	146	109	120	93	107	179
1970:												
Jan..	134	118	106	126	---	---	---	---	---	---	---	181

Source: Statistical Reporting Service, USDA.

FARM COST SITUATION

Approved by the Outlook and Situation Board, February 12, 1970

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SUMMARY

Less of an increase in farm production expenses is likely in 1970 than in 1969, despite continued inflationary pressure. Increases will mainly reflect higher prices although some gains in use may occur for several important production inputs. Expenses for hired labor may rise less than in 1969--higher wages but fewer workers. Continuing increases are highly probable for insurance and taxes, and little relief from high interest rates is in prospect.

Costs of farming continued upward at an increasing rate in 1969. Production expenses totaled $38.6 billion, about $2.3 billion higher than in 1968 (table 1). Expenses in 1968 rose $1.5 billion, about in line with the 1970 prospective rise. Total farm expenses in 1969 for inputs and services of nonfarm origin advanced almost 5 percent, while outlays for farm-produced items--feed, seed, and livestock--jumped 8.5 percent. Overhead costs continued a persistent rise. The higher total expenses, however, were more than offset by increased receipts from farming. Realized net farm income was around $16.0 billion, up from $14.8 billion in 1968 but slightly below the near-record level of 1966.

The higher expenses in 1969 resulted mostly from higher prices or cost rates farmers paid for feeder livestock, building materials, wages, interest rates, and real estate taxes per acre. Prices declined slightly for fertilizer and rose slightly for purchased feed. Considering all farm inputs, the index of prices paid for production items, interest, taxes, and wage rates rose almost 6 percent in 1969.

A major feature of U.S. farming since 1940 has been the increasing use of purchased inputs (such as fertilizer, pesticides, and machinery) in relation to use of nonpurchased inputs (such as family labor and operator-owned real estate). Of total inputs, purchased inputs came to less than half in 1940 but were three-fourths in 1969. This means, among other things, that the prices farmers pay for production goods are becoming increasingly important in the farm cost picture.

Table 1.--Gross farm income, production expenses, net income, and related indexes, United States, specified years, 1950 to 1969 1/

Item	1950-54 average	1960-64 average	1966	1967	1968	1969 2/
	Billion dollars					
Cash receipts from farm marketings	31.0	35.9	43.3	42.7	44.4	47.4
Nonmoney income and Government payments	4.2	4.7	6.4	6.3	6.7	7.2
Realized gross farm income	35.2	40.6	49.7	49.0	51.1	54.6
Farm production expenses	21.4	28.1	33.4	34.8	36.3	38.6
Farmers' realized net income	13.8	12.5	16.3	14.2	14.8	16.0
Net change in farm inventories	.5	.2	-.1	.5	-.1	.2
Farmers' total net income	14.3	12.7	16.2	14.7	14.7	16.2
	Index numbers (1957-59 = 100)					
Volume of farm marketings:						
Livestock and livestock products	86	111	120	123	124	124
Crops	87	114	121	124	130	131
All farm products	86	112	121	123	126	127
Volume of purchased inputs	94	108	122	128	130	134
Productivity, or output per unit of total input	88	107	106	108	108	108
Prices received by farmers:						
Livestock and livestock products	112	96	113	107	112	125
Crops	112	104	106	101	103	100
All farm products	112	99	110	105	108	114
Prices paid by farmers for commodities used in production, interest, taxes and wage rates	95	106	116	120	124	131
Ratio of prices received to prices paid for production items (including interest, taxes, and wage rates) 3/	118	93	95	88	87	87

1/ 48-State data.
2/ Preliminary.
3/ Not to be confused with Parity Ratio, which includes prices paid for items used in family living, and has a 1910-14 base.

Another major feature of U.S. farming has been the trend toward fewer but larger farms. This has meant a concentration of production expenses among the larger farms. For example in 1960, farms with annual product sales of $40,000 or more accounted for 3 percent of all farms and 36 percent of total expenses. In 1968, such farms represented 6 percent of all farms and 52 percent of expenses.

HIGHLIGHTS

Farm Labor--Farm wage rates increased by 10 percent in 1969. The hourly equivalent of all types of farm wage rates increased from $1.21 to $1.33. Minimum wages increased, competition for skilled workers intensified, and inflation continued. Wage rates will likely rise further in 1970 but probably by a little less than in 1969 since there is now no further legislation to increase minimum wages, and inflationary forces may ease a little.

Farm Power and Machinery--Demand for large machinery remained strong in 1969 although farmers bought fewer units in total. This is likely to continue in 1970 and beyond. Outstanding in 1969 was a 75-percent increase in unit sales of 100 horsepower and larger wheel tractors, while total sales of wheel tractors declined by 8 percent. In 1969, farm wage rates were 74 percent above 1957-59, while wholesale prices of machines and equipment rose 36 percent. Large machines, well managed, are a big factor in holding down costs by replacing labor. An average of 4 tractor horsepower was available per farmworker in 1940, and has increased tenfold since then. In 1975, it may be one-third greater than it is today.

Fertilizer--Scheduled fertilizer price increases collapsed before the 1969 planting season got underway. Most fertilizer prices declined substantially, although not as sharply as in 1968. Anhydrous ammonia dropped 17 percent from April 1968 to $75.60 per ton in April 1969. Potash price levels were down substantially in the face of vast new production capacity in Canada. With production capacities and potential supplies of the primary plant nutrients considerably greater than demand, fertilizer prices are likely to remain sluggish through 1970.

Pesticides--Agricultural usage of pesticides, particularly herbicides (weedkillers), rose in 1969. Total expenditures continue upward, mostly because of the use of more specialized and higher priced herbicide products. Acres of soybeans treated with herbicides will increase again in 1970, while acres of cotton treated may begin to level off.

Feed--Feed concentrate supplies will be sufficient for expanding livestock and poultry production during the 1969-70 feeding year. Prices should remain fairly stable, with only minor increases in line with higher labor and transportation costs. Demand for formula feeds will hold up as farmers push for greater feeding efficiencies via nutritionally balanced cencentrate rations.

Feeder and Replacement Livestock--Farmers are paying substantially higher prices this year for feeder cattle, feeder lambs, and feeder pigs. Higher prices reflect a strong demand due to rising livestock prices, relatively stable feed-grain and feed-concentrate prices, without a commensurate increase in livestock numbers. Our January 1 inventory of cattle and calves has increased very little in the last 5 years.

This year it is up 2 percent from January 1, 1969. Sheep numbers are down, as are hogs. However, the pig crop is headed upward this spring.

Seed--Adequate supplies of most field seeds are available for 1970 planting. Prices are expected to average only slightly above those of the previous year except for some of the turf grasses and legumes which may be higher because of a 3- to 4-percent reduction in supply. Stocks of most vegetable seeds have increased, and generally adequate supplies are expected.

Interest--The bill for interest on farm loans in 1969 totaled $3.2 billion and will be about 8 percent higher in 1970. Farmers continue borrowing substantially, even in the face of high interest rates. Farm debt outstanding reached $55 billion (excluding CCC loans) January 1, 1970. A year earlier the figure was $52 billion. Farm operating and intermediate-term debt climbed more rapidly in 1969 than did real estate debt. Interest rates on farm loans climbed an average of 1-1/4 percentage points in 1969. Little if any rate decline is expected in 1970.

Insurance--Farmers' insurance and social security payments will continue to rise in 1970. The increase will mainly be in property and liability insurance, particularly in motor vehicle insurance. Higher premium rates were recently approved in several States and requests for increases are pending in other States. Insurance claims have been rising because of more costly building replacement, automobile repair, and medical services. Social security tax rates will remain the same in 1970 except for an increase from $4 to $5.30 on July 1 in the monthly cost of the supplemental medical benefits program.

Property Taxes--State and local taxes levied on U.S. farm real estate were $2.1 billion in 1968. This was an increase of 11 percent over 1967; a further rise of nearly 10 percent is estimated for 1969. Taxes levied on farmers' personal property were $382.5 million in 1967, an increase of 4 percent over 1966; the annual gain has been fairly stable at around 5 percent. Farm property taxes principally support local schools and will continue to increase unless substitute revenue sources are found.

Farm Real Estate--Farm real estate prices changed erratically, holding the increase in the average value of farmland to 4 percent for the year ended November 1, 1969. Prices changed only slightly in the Corn Belt and West, but rose sharply in the Northeast and Southeast. Limited funds available for mortgage lending were partially responsible for the lack of market activity in some areas. In 1970, prices are expected to move upward most rapidly in areas where new or additional technology can add substantially to productivity and where farm consolidation is easiest.

Cost by Type of Farm--Preliminary estimates of production, costs, and returns in 1969 for 5 selected types of farms and ranches indicate a continuation of the upward trends in farm operating expenses, due mainly to higher prices paid for items and services used in production. Operating expenses in 1969 advanced 3 to 10 percent on the 5 farm types.

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

FARM LABOR

Farm wage rates continued to increase in 1969. The annual average was $1.33 per hour, 10 percent above that of 1968 (table 2).

Farm wage rates are likely to continue to increase in 1970. Keen competition for farmworkers, particularly skilled workers, will result in wage increases. In addition, the higher educational levels of all segments of the U.S. population and the desire for a better life, further unionization of agricultural workers, and the continued trend toward farm expansion which results in a large number of workers being covered by the Fair Labor Standards Act, are factors which will continue to cause farm wage rates to increase in 1970 and the 1970 decade. Also, possible increases in sugarbeet wage rates and in "adverse-effect" wage rates,1/ will push farm wage rates upward. Anti-inflationary measures probably will have small overall effects on wage levels and the supply of farmworkers.

Major factors contributing to the 1969 increase in farm wage rate were: (1) a continued tight labor market; (2) inflationary forces; and (3) the 1969 increase from $1.15 to $1.30 per hour in the minimum wage of farmworkers covered under the Fair Labor Standards Act. The minimum wage, however, is well below the average wage in many States. Most States in which the minimum is above the average wage are in the South. No further increase in the minimum wage of farmworkers is in the offing for 1970.

Labor costs to employers also increased in 1969 as a result of increased Social Security withholding taxes. The rate for farmworkers was 4.4 percent in 1967 and 1968. On January 1, 1969, it was increased to 4.8 percent. Also there were increased adverse-effect wage rates in the 10 States using foreign nationals. In these 10 States, adverse-effect wage rates were 6 percent higher than in 1968. Rates ranged from $1.55 per hour in Virginia and West Virginia to $1.76 per hour in New Hampshire.

Farm wage rates increased more in percentage in 1969 than those of production workers in manufacturing. In 1969, farm wage rates increased by about 10 percent, from $1.44 to $1.58 (per hour without room and board). Industrial wage rates increased by about 6 percent from $3.01 to $3.19 per hour. However, in terms of actual increases, farm wage rates rose by 14 cents and those of production workers in manufacturing by 18 cents per hour.

The number of workers on American farms continued to decline in 1969. The total work force declined more than 3 percent, about the same as in 1968. The hired farmwork force declined by 5 percent in 1969 to a level only 61 percent of the 1960 hired work force.

1/ Under the provisions of PL 82-414, the Secretary of Labor establishes minimum wages in States which use foreign nationals. The purpose of these minimum wages is to keep the wage rates of domestic workers from being depressed, and permitting wage increases if these would otherwise occur.

Table 2.--Farm wage rates: United States, selected years, 1950-69 1/

Period	Per month		Per week, without board or room 2/	Per day, without board or room 2/	Per hour		Composite rate per hour 3/
	With house	With board and room			With house	Without board or room	
	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
1965	223	170	51.50	7.60	1.03	1.14	.95
1966	243	185	55.75	8.20	1.10	1.23	1.03
1967	262	200	60.50	9.00	1.18	1.33	1.12
1968	283	216	66.50	9.90	1.28	1.44	1.21
Jan.	269	209	60.50	9.30	1.15	1.42	1.24
April	270	206	63.50	9.50	1.17	1.44	1.08
July	295	217	70.75	9.80	1.33	1.45	1.18
Oct.	283	220	66.50	10.50	1.42	1.41	1.27
1969	307	234	72.75	10.90	1.42	1.58	1.33
Jan.	294	230	68.50	10.60	1.28	1.57	1.38
April	296	228	70.00	10.30	1.34	1.59	1.21
July	319	232	75.75	10.80	1.45	1.58	1.29
Oct.	304	235	72.75	11.40	1.54	1.51	1.37

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.

The increasingly smaller number of workers on farms results from: (a) a decrease in the number of farm families; (b) use of larger capacity tractors and machines; (c) greater use of laborsaving materials handling equipment; (d) custom-hire of more and more crop operations performed by workers classified as nonfarm; and, (e) transfer to off-farm plants of some operations formerly performed on farms.

Total man-hours of farmwork increased slightly in 1969, as compared with a decline of almost 4 percent in 1968 (table 3). This would indicate that, in view of the decrease in the number of workers, those remaining worked longer hours.

Farm output rose again in 1969 but the increase of about 1 percent was relatively small. In addition, the gain in output per man-hour was much smaller than in any year of the 1960 decade.

Since the termination of Public Law 78, foreign nationals can be used on U.S. farms only when it is determined that bona fide shortages of labor exist. The use of 18,399 foreign nationals was authorized in 1969. About 60 percent of these workers were authorized for Florida with the remaining 40 percent being used in 9 Northeastern States.

Table 3.--Labor used on farms, wage rates, and related data, United States, selected years, 1940-1969 1/

Year	Farm employment			Man-hours of farmwork	Farm output index		Average hourly wage rates	
	Total 2/	Family 2/	Hired		Total 3/	Per man-hour	Farm-workers 4/	Industrial workers 5/
	Thousands			Millions	(1957-59 = 100)		Dollars	
1940	10,979	8,300	2,679	20,472	70	36	0.17	0.66
1950	9,926	7,597	2,329	15,137	86	61	.56	1.44
1955	8,381	6,345	2,036	12,808	96	80	.68	1.86
1960	7,057	5,172	1,885	9,795	106	115	.82	2.26
1965	5,610	4,128	1,482	7,775	114	156	.95	2.61
1966	5,214	3,854	1,360	7,381	113	164	1.03	2.72
1967	4,903	3,650	1,253	7,269	118	174	1.12	2.83
1968	4,746	3,533	1,213	6,998	120	182	1.21	3.01
1969 6/	4,582	3,429	1,153	7,032	121	183	1.33	3.19

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. Department of Labor. Figure for 1969 is based on 11 months data.

6/ Preliminary. Estimates on farm output and man-hours based on December 1969 Crop Production report and other releases of the Statistical Reporting Service, USDA.

Around 55 percent of those authorized for Florida were used in sugarcane, predominantly in harvesting. The remainder were used in fruits and vegetables. Those authorized for use in the Northeast helped in harvesting apples, potatoes, and maple sugar.

NONFARM INPUTS

Farm Power and Machinery

In 1969, the wholesale price index for farm machinery and equipment was 33 percent above 1957-59 (table 4). This compares with a rise of nearly 36 percent for construction machinery. From September 1968 to September 1969, prices paid by farmers for farm machinery rose 5 percent. Prices of motor vehicles (tractors, trucks, and automobiles) and motor supplies went up 4 percent during this time. Loss of the 7-percent investment tax credit by manufacturers will no doubt exert additional upward pressure on prices of machinery and equipment. The investment credit repeal also affects all farm equipment bought after April 18, 1969. However, farmers should check with their tax advisors regarding special cases such as contracts made before the cut-off date.

Table 4.--Factors related to costs of farm power and equipment, 48 States, selected years, 1940-69

Year	Wholesale price index of farm machinery and equipment 1/	Gross capital expenditures for motor vehicles and other farm machinery 2/	Inventory value of machinery and motor vehicles used in farming 3/	Investment in farm machinery and equipment per man-hour of labor input 4/	Tractor horsepower per farmworker 4/
	(1957-59 = 100)	Billion dollars	Billion dollars	Dollars	Number
1940	50	0.6	3.8	0.19	4
1945	53	1.2	6.9	.37	6
1950	80	3.2	11.2	.74	10
1955	89	2.8	15.8	1.23	15
1960	105	2.7	19.1	1.95	22
1961	107	2.9	18.6	1.98	23
1962	109	3.1	18.8	2.09	24
1963	111	3.6	19.1	2.20	25
1964	113	3.7	19.9	2.43	28
1965	115	4.2	21.2	2.73	32
1966	118	4.7	22.5	3.05	36
1967	122	5.8	24.3	3.34	40
1968	127	4.9	26.3	3.76	43
1969	133	---	27.6	3.92	44

1/ Bureau of Labor Statistics, U.S. Department of Labor.
2/ Farm Income Situation, FIS-214, Economic Research Service, USDA, July 1969.
3/ Balance Sheet of the Farming Sector, 1969, U.S. Dept. Agr., Agr. Inform. Bul. No. 340, Jan. 1970, table 23.
4/ Man-hours, tractor horsepower, and farmworkers, from Changes in Farm Production and Efficiency, U.S. Dept. Agr. Statis. Bul. No. 233, Rev. June 1969.

Despite higher prices for farm power and equipment, maintaining and operating this equipment now require a smaller portion of farm income than in the latter part of the 1950 decade--17 percent, compared with 19 percent. Also, costs of all power and equipment represent a smaller part of total farm production expenses now than in the late 1950's--23 percent compared with 26 percent.

Total sales value of farm machinery and equipment to farmers declined from 1968 to 1969, but sales of most large units increased again. Sales of tractors with 100 horsepower and over rose from 9 percent of total unit sales of tractors in January-October 1968 to 17 percent in the same period of 1969. Sales of all tractors through October 1969 were 8 percent below 1968 sales in the same period, reflecting a decrease in demand for some of the smaller sizes.

With 1969 farm wage rates 74 percent above 1957-59 and wholesale prices of farm machinery and equipment up 33 percent, large machines have become a big factor in the substitution of power and machinery for labor. Trends in this substitution may be viewed in different ways. For example, the inventory value of machinery and equipment was 19 cents per hour of farm labor input in 1940 and $3.92 in 1969. Tractor horsepower available per farmworker was 4 in 1940 and 44 in 1969.

While the increase in tractor power per farmworker is impressive, further increases are possible. According to a recent article in a national farm magazine, one man with a large tractor and accompanying equipment can handle 1,000 acres in corn and soybeans with less than $1,000 worth of hired labor. Few farmers care about working this much land almost single-handed, but none could do it without the aid of big, well-managed equipment.

Despite recent declines in shipments and sales of farm machinery, future demand at a relatively high level seems assured. Replacement as such will be less important than in the past. It will be continuing substitution of larger equipment for small equipment, which will in effect enable more output with less labor input. The number of farms will be less but those remaining will have more machinery and better maintained machinery. No doubt the number of units of most machines on farms will decline. During the next 5 years, horsepower per tractor likely will increase about 20 percent and total horsepower available from tractors, 10-15 percent. With a continuing decline in the number of farmworkers, available horsepower from tractors alone will be near 60 per farmworker compared with 44 now.

One of the chief factors in machinery costs is extent of use. Fixed costs exist, of course, whether the machine is used or not. The effect of use on cost is well illustrated in an Ohio study on use of large and small tractors.2/ For a 3-4 plow tractor with 100-200 hours of annual use, the hourly tractor cost was $4.56. When the same size of tractor was operated 400-500 hours a year, the hourly cost was $2.13, or less than half.

2/ D.R. Miskell and E.T. Shaudys, Ohio Report, Agricultural Research and Development Center, Wooster, Ohio. November-December 1968.

Tractor costs per acre did not vary greatly among tractor sizes in this study. However, when the labor cost was included, per acre costs were much less for large tractors. Based on 500 tractor hours per year with 200 hours for plowing, tractor and labor costs per acre for plowing were $3.63 for 2-3 plow tractors compared with $2.02 for 5-6 plow tractors.

Fertilizer

Fertilizer prices dropped sharply in 1969 despite shoring-up attempts by producers and marketers of basic fertilizer materials. Farmers benefited as prices continued downward in the face of expanding capacity to produce more fertilizer in an already oversupplied market (table 5). Of the broad categories of goods and services that farmers buy and use for farm production, only fertilizer prices declined from 1968 to 1969. Decidedly more formidable efforts will be employed to raise prices in 1970 than were used in 1969. However, their success will be minimal.

What users will pay, particularly for fertilizer containing potash, in 1970 and for some years after will depend largely upon actions of officials responsible for Canadian potash output and prices and the reaction of potash producers in Europe. What is happening is this: Until 1962, U.S. capacity to produce potash was, with substantial imports from Europe--principally from France and West Germany--in line with demand. And potash prices were relatively stable. In 1962, after a severe and lengthy technical setback by one firm, potash shipments started to come out of Saskatchewan, Canada. By the end of 1968, 8 firms were operational in Canada and a ninth will enter the market in 1970.

Table 5.--Average prices per ton paid by farmers for selected fertilizers, United States, April 15 prices, 1957-59 average and 1965-69

Year	Anhydrous ammonia	Superphosphate		Ammonium phosphate 16-20-0	Potash	Mixed fertilizer
		46 percent P_2O_5	20 percent P_2O_5		60 percent K_2O	6-24-24
	Dollars					
Average 1957-59	149.00	82.20	37.00	89.60	1/ 56.80	91.10
1965	122.00	79.10	40.70	80.70	1/ 58.50	85.60
1966	119.00	80.90	41.40	81.10	1/ 59.90	85.10
1967	113.00	84.10	42.10	80.70	1/ 58.50	85.70
1968	91.40	78.40	43.20	78.40	49.10	81.80
1969	75.60	74.00	43.80	77.70	47.80	73.20

1/ Based on equivalent price for 55 percent K_2O reported by SRS.

Source: Agricultural Prices, Pr. 1 (4-69), Statistical Reporting Service, USDA, April 29, 1969, and earlier issues.

The result of this change in the market has been a classic example of economic forces at work. As capacity to produce and supplies far exceeded demand, prices tumbled. In 1962, New Mexico potash ranged around $22.00 per ton, f.o.b. Carlsbad for standard muriate. By the end of 1969 the Carlsbad price was quoted at $12.60 per ton. At the same time, the Canadian price reportedly ranged from $12.00 to $14.00 per ton.

Prices at these low levels did not, in some instances, even cover the cost of production. Some remedy was needed before the situation deteriorated further. Accordingly, after considering the alternatives, Sasdatchewan officials limited output to 55 percent of capacity and in turn set a price floor equivalent to $18.75 (U.S.) per ton, 60 percent K_2O, f.o.b. mines. Effective January 1, these limitations cover the first quarter of 1970.

Whether or not this price holds depends upon issuance by European producers of a potash price schedule equivalent to the Canadian price. At the beginning of 1970, there were indications that they would adopt the new price.

Of the 8 producers in Canada, 5 are U.S. based firms, of which 4 also produce potash in the U.S. It is logical to assume that these latter firms are as willing to support the $18.75 base price for their domestic output as they are for their Canadian output. As a result, prices paid by farmers for potash materials as well as mixed fertilizer using potash could rise. The average retail price for potash as a separate material could go up 10 percent or more to an average of over $52.00 per ton if marketing margins and freight rates remain stable in 1970.

Capacity to produce nitrogenous and phosphatic fertilizers is far in excess of potential demand in 1970. Furthermore, sulfur, used extensively for production of most phosphatic and some nitrogenous fertilizers, is no longer in short supply. As a consequence, sulfur prices have dropped substantially and this should be influencial in holding fertilizer prices down.

Even if fertilizer prices increase, they are likely to be only slightly higher than those of 1969. Except for the artificial floor price under potash, there's nothing in view to put much starch in fertilizer prices for the next few years.

Pesticides

Agricultural usage of pesticides in 1969 was generally above that of 1968 and fermers will use more pesticides than ever in 1970. The greatest rate of increase, as in earlier recent years, was in the use of herbicides (weedkillers). Insecticide usage showed a more moderate advance and fungicides held steady. Growth in use of agricultural pesticides is expected to continue as more farmers adopt pest control as a necessary practice for efficient crop and livestock production.

Industry sources indicate that 1969, for the most part, was a good year for pesticide sales, especially for herbicides. Export markets continued to take a substantial share of pesticide production, particularly insecticides.

Supplies of most chemicals were adequate and prices at the wholesale level remained relatively unchanged. Of 24 pesticide products commonly used by farmers in 1969, the prices of 12 were the same as in 1968, 5 were up, and 7 were down. Of the products for which prices changed, only 3 differed by 10 percent or more. These were lead arsenate, methyl parathion, and malathion, each down by 10-12 percent.

Costs of pesticides used on farms are generally increasing, mostly because of the use of more specialized products. While the average price per pound of fungicide material at the manufacturer's level remained about the same between 1964 and 1968 at 45 to 50 cents a pound, the average for insecticides went up from about 50 to 60 cents a pound, and the average for herbicides rose from $1.00 to $1.50 a pound.

Changes taking place in the traditional channels of pesticide distribution may affect farmers' costs. Adjustments are being made to give pesticide producers more control over product sales and also to trim distribution costs. The trend is toward more direct paths from producers to ultimate markets. Formulators are steadily being taken over by the technical chemical producers. Manufacturers are setting up branch offices and warehouses that support independent dealers. Frequently producers sell directly to users--especially large farms.

Herbicides

Selective herbicide use on corn and soybeans will increase again in 1970. Gains in acres treated are likely, especially for soybeans. The use of herbicides on corn and cotton may begin to level off, however. About three-fourths of these crops are now being treated for weed control which may be reaching an upper limit.

Familiar products are becoming proportionately less important in the herbicide market. Each year the sales of newer selective herbicides increase faster than sales of 2,4-D, a familiar established product. In corn production, for example, triazine herbicides each year become a larger share of herbicides used in comparison to 2,4-D. Trifluralin is becoming more important in the treatment of cotton. Trifluralin and amiben are the important herbicides being used to control weeds in soybeans.

Insecticides

The share of corn acreage treated with insecticides will increase from the 50 percent now being treated. With the practice of planting continuous corn, growers are paying more attention to the control of insects. Insecticide use probably will continue upward until most of the corn in the major producing regions is routinely treated for insect control.

Insect resistance to the chlorinated hydrocarbon insecticides and their pollution potential based on their persistence in soil and water have caused substantial inroads into the usage of DDT and other chlorinated hydrocarbons. Organophosphorus and carbamate insecticides are replacing the chlorinated hydrocarbon insecticides.

Conservationists and others continue to be concerned about environmental pollution from pesticides. Their concern about the use of cholorinated hydrocarbon insecticides, for example, and their endeavors to restrict the use of these insecticides will undoubtedly continue.

Restricting the use of chlorinated hydrocarbon insecticides could increase farmers' costs of production. The cost of chlorinated hydrocarbon insecticides and the cost of application usually are below the cost of the substitute insecticides. To maintain a given level of insect control, DDT is less expensive than substitute carbamate or organophosphorus insecticides. In addition the less persistent substitutes may require a greater number of applications to obtain effective insect control, thereby adding to application costs.

FARM PRODUCED INPUTS

Feed

Feed grain supplies for 1969-70 will total about 224 million tons. This is about 7 million more than last year and 15 million tons above the 1963-67 average. Total utilization of feed grains in 1969-70 is expected to be well above the previous year's total of 172 million tons due to higher feeding rates and more livestock (table 6). Favorable feeding margins for cattle and hog feeders were at near-record levels during the 1968-69 feeding year and prospects are good for continued favorable margins in all livestock and poultry operations during the current feeding year.

Stronger domestic and export demand this year has boosted feed grain prices a little above those of a year earlier. Higher livestock prices, increased poultry production, liberal feeding per animal, and a moderate increase in exports are major factors strengthening the demand this season. Feed grain prices in October-December averaged 6 percent above a year earlier. They probably will be nearer to last year's level this spring and summer, since a smaller seasonal rise is expected this year.

Soybean meal prices held up well during the first quarter of the current feeding year (October-December 1969) with soybean mills enjoying their best crushing margins since World War II. Meal and oil prices boosted margins to 50 cents per bushel in the first quarter compared with 19 cents a year earlier. These wide margins continued into 1970, reflecting very strong demand both here and abroad.

Formula feed prices are slightly higher than a year ago. Prices paid by farmers in mid-January for mixed 16 percent protein dairy feed were $2 a ton higher, while laying mash had also advanced $2 a ton over January 1969. Oilseed meal prices were 5-10 percent higher than a year earlier (table 7). For the current year, there is a good possibility that formula feed prices will continue steady. Any major change will probably reflect higher labor and transportation costs.

Using various State feed grain prices received by farmers as a proxy for prices paid, the relative advantages some States have regarding feed costs becomes clearer. For instance, the October-December quarter corn prices in Georgia averaged $1.35 per bushel while Nebraska farmers sold corn for an average of $1.05 and the U.S. price averaged $1.09 per bushel. With these price differences for the major feed ingredient for broilers, it is apparent that the broiler/feed price ratio in Georgia would fail to equal the U.S. average because of higher corn prices in Georgia. Another example would be grain sorghum prices--U.S., Texas, and Arizona differentials. Sorghum grain prices nationally

Table 6.--Supply and utilization of feed concentrates, and livestock feed, United States, 1952-69 1/

Feeding year beginning Oct. 1	Supply				Utilization		Stocks of feed grains, end of year 4/	Number of grain-consuming animal units 5/	Per grain-consuming animal unit		
	Stocks of feed grains beginning of year	Production of feed grains 2/	Other feed concentrates 3/	Total supply	Food, industry, seed, and exports	Concentrates fed to livestock 2/			Production of feed grains	Supply of concentrates	Concentrates fed
	Million tons							Million	Tons		
Average:											
1952-56	32.2	114.7	27.1	174.0	18.4	117.7	38.0	101.7	1.13	1.71	1.16
1957-61	66.9	144.5	29.7	241.1	26.1	143.3	71.6	103.8	1.39	2.32	1.38
1962-66	60.6	148.9	33.6	243.1	36.3	153.2	53.5	108.2	1.38	2.25	1.42
1962	72.2	141.7	31.4	245.3	30.6	150.4	64.4	109.0	1.30	2.25	1.38
1963	64.4	153.8	32.2	250.4	33.2	148.3	69.3	108.3	1.42	2.31	1.37
1964	69.3	134.2	34.1	237.6	36.5	145.3	54.8	105.9	1.27	2.24	1.37
1965	54.8	157.4	35.0	247.2	44.1	161.0	42.1	106.3	1.48	2.33	1.51
1966	42.1	157.6	35.4	235.1	37.0	160.8	37.1	111.5	1.41	2.11	1.44
1967	37.1	176.0	36.0	249.1	38.5	162.2	48.3	111.4	1.58	2.24	1.46
1968 6/	48.3	168.9	39.2	256.4	34.1	172.6	50.2	113.5	1.49	2.26	1.52
1969 7/	50.2	174.2	38.6	263.0	35.7	177.3	50.0	115.4	1.51	2.28	1.54

1/ Grain and Feed Statistics, U.S. Department of Agriculture, Economic Research Service.
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/ Revised. Based on feeding rates and relationships existing during the feeding years 1959-61 between milk cows and other kinds of livestock and poultry. For more detailed explanation see USDA-ERS Statis. Bul. No. 446, February 1970.
6/ Preliminary.
7/ Preliminary estimates based on indications in January 1970.

Table 7.--Average prices of selected feeds, United States, Jan. 15, 1968-70

Item	Unit	1968	1969	1970 1/	Change from 1969 to 1970
		---------Dollars----------			Percent
Prices received by farmers:					
Corn	Bushel	1.05	1.08	1.12	4
Oats	do.	.61	.62	.59	-5
Barley	do.	.90	.90	.88	-2
Sorghum grain	Cwt.	1.72	1.74	1.92	10
Hay, baled	Ton	23.00	23.50	25.00	6
Prices paid by farmers:					
Mixed dairy feed, 16 percent protein	Cwt.	3.60	3.60	3.70	3
Laying feed	do.	3.95	4.00	4.10	2
Broiler grower feed	do.	4.40	4.40	4.65	6
Turkey grower feed	do.	4.30	4.35	4.65	7
Cottonseed meal, 41 percent protein	do.	5.08	5.04	5.31	5
Soybean meal, 44 percent protein	do.	5.31	5.24	5.73	9
Bran	do.	3.50	3.59	3.73	4
Middlings	do.	3.61	3.69	3.81	3
Average value of concentrate ration fed to cows: 2/					
Fed to milk cows, in milk-selling areas		3.06	3.11	3.23	4

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.

averaged $1.92 per hundredweight while the Arizona price was $2.36 and the Texas price averaged slightly over $2.00.

Differences between local feed grain production and utilization help explain varying feed price levels and the comparative area advantages (fig. 1). Regional production and utilization of feed grains in 1968-69 were estimated as follows:3/

3/ Additional disappearance not included in this computation: Feed grains for seed, human food, and industry as well as those for export. Further details on estimating procedure are given in U.S. Dept. Agr. Statis. Bul. No. 446.

Region	Production	Grain fed
	Million tons	Million tons
Northeast	4.6	10.9
Lake States	23.6	15.4
Corn Belt	80.2	43.3
Northern Plains	28.6	15.8
Appalachian	6.6	10.6
Southeast	3.4	11.9
Delta States	.9	7.1
Southern Plains	11.8	7.7
Mountain	4.8	7.4
Pacific	3.6	8.8

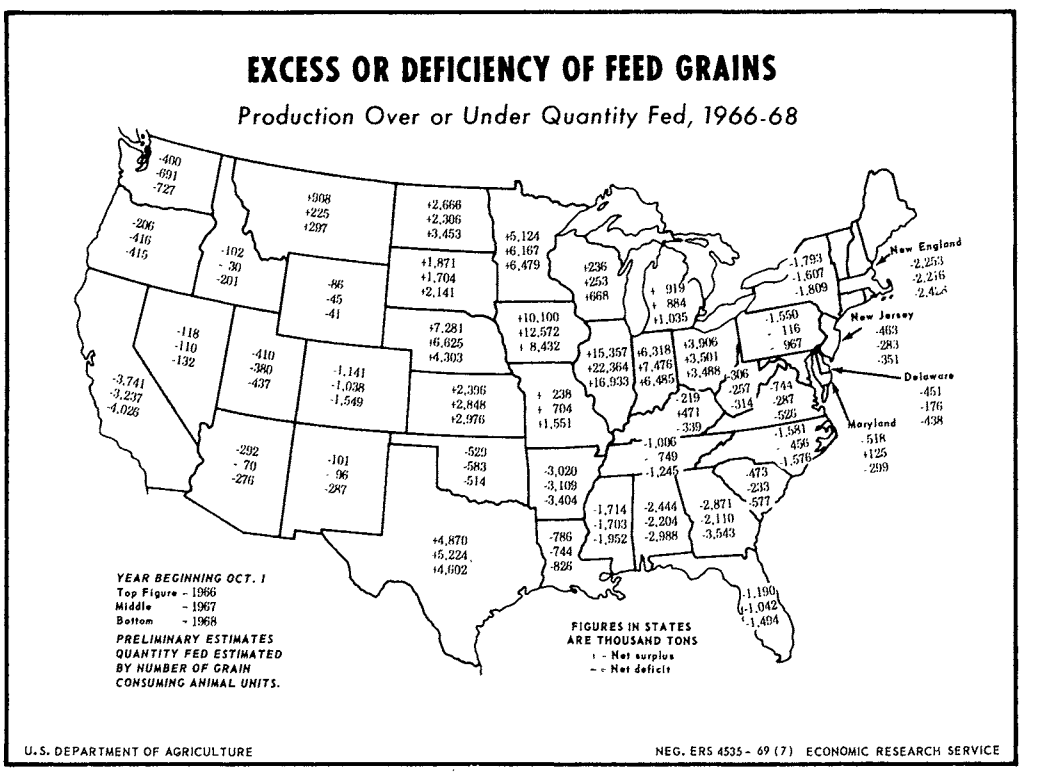

Figure 1

Feeder and Replacement Livestock

During the early months (October-December) of the current (1969-70) feeding year, farmers were paying substantially higher prices for feeder cattle, feeder lambs, and feeder pigs than they did a year ago (table 8). These price increases reflect a strong demand for feeder animals, a demand arising from two factors.

One factor is the more or less sustained rise in livestock prices in the face of relatively stable feed grain and feed concentrate prices. These trends have been going on for several years (table 9). The result has been a continual improvement in livestock-feed price ratios (table 10). The effect on demand for feeder animals would be even greater except for the fact that feed costs comprise a decreasing portion and the nonfeed costs an increasing portion of the total expenses of fattening livestock. Thus, somewhat higher price ratios are now required as an incentive to bring forth an increase in livestock feeding activity.

Another factor in the demand for feeder cattle has been the price spread or margin between grain fattened cattle and feeders (fig. 2). Historically, the spread has been greatest for the older, heavier feeder cattle and the spread has been smallest, often negative, in the case of feeder calves. These differences reflect basic differences in feed-conversion ratios, and hence in the costs of liveweight gains. Price spreads were usually favorable to the cattle feeder from August 1967 to fall 1969 except for a few weeks in mid-1969.

The supply (number) of cattle available for drylot feeding in the current feeding year may be slightly higher than it was a year ago, resulting from a slightly larger 1969 calf crop (up 1 percent) and slightly smaller slaughter of cattle during the past year.

The potential supply of cattle for drylot feeding includes some cattle and calves that are slaughtered directly without grain feeding. Such cattle have been drawn upon increasingly by the feedlots in recent years. A rough indication of the number potentially available for feedlot feeding is found in table 11, the next to last column of which shows a residual after allowance for replacements to the breeding herd. The relatively slow increase in cattle numbers partly accounts for the strong upward movement in price of both feeder cattle and slaughter grade cattle.

Prices paid for feeder lambs moved up unevenly during 1969 from $25.50 per hundredweight in January to a high of $28.60 in November, and they have remained near that level since then. Prices of feeder lambs probably will continue strong through the winter, and unless prices of fed lambs strengthen, returns above feed and other costs will permit only a small margin of profit, if any.

Prices paid for feeder pigs since 1966 have ranged from about $5.00 to $22.00 per hundredweight higher than prices received for barrows and gilts 4 months later (fig. 3). This negative margin has tended to become smaller in recent years, but with larger month-to-month fluctuations. With both prices received for barrows and gilts and marketing margins rising since their lows in late 1967, and feed cost about the same, profits from finished feeder pigs have risen during the past 2 years. With prospects of firm prices for butcher hogs

Table 8.--Feeder and replacement livestock and poultry: Prices paid by farmers, United States, low and high months for 1969, with comparisons

Commodity and unit	December 1967	December 1968	Low month		High month		December 1969
			Month	Price	Month	Price	
	Dollars	Dollars		Dollars		Dollars	Dollars
Cattle and calves, per cwt.	23.90	26.40	January	25.80	June	32.40	29.70
Lambs, per cwt.	22.40	24.60	January	25.50	November	28.60	28.50
Feeder pigs, per cwt.	30.60	30.00	January	31.10	December	44.50	44.50
Baby chicks, per 100	10.70	11.50	November 1/	11.50	April	12.50	11.70
Turkey poults, per 100	54.60	52.70	September	50.50	June	58.00	53.10
Milk cows, per head	265.00	283.00	January	282.00	December	309.00	309.00

1/ Also February 1969.

Source: Agricultural Prices, Statistical Reporting Service, USDA.

Table 9.--Average prices paid by farmers, United States

Item	1964	1965	1966	1967	1968	1969
	Dollars					
Corn, per bushel 1/	1.17	1.16	1.24	1.03	1.08	1.13
Grain sorghum, per bushel 1/	1.05	.99	1.02	.99	.95	1.08
Barley, per bushel 1/	.95	1.02	1.05	1.00	.91	.90
Soybean meal, per ton	4.88	4.93	5.51	5.36	5.34	5.27
Alfalfa hay baled, per ton	32.6	33.0	33.4	34.1	32.9	34.1
Feeders and stockers:						
Cattle and calves, cwt.	19.8	22.1	25.0	24.6	25.8	29.4
Lambs, cwt.	18.3	21.4	22.8	21.3	24.2	26.9
Pigs, cwt.	16.7	35.4	40.6	33.5	33.0	39.2
Baby chicks, per 100	12.3	12.4	12.5	11.4	11.7	11.8
Started pullets, (egg type) ea.	---	1.70	1.68	1.67	1.67	1.68
Turkey poults, per 100	57.2	56.8	57.0	55.7	54.5	54.7

1/ Prices received by farmers assumed to reflect change in prices paid.

Source: Statistical Reporting Service, USDA.

Table 10.--Commodity-feed price ratios, United States, December 1969, with comparisons 1/

Commodity-feed price ratio	Dec. 1966	Dec. 1967	Dec. 1968	Dec. 1969
Beef-steer: Bushels of No. 3 yellow corn equivalent in value to 100 pounds of slaughter steers, Chicago	17.2	23.7	25.4	24.7
Hog-corn: Bushels of corn equal in value to 100 pounds of hog, liveweight, United States	14.7	16.2	17.0	23.6
Egg-feed: Pounds of laying feed equal in value to 1 dozen eggs	9.3	7.8	10.7	13.5
Broiler-feed: Pounds of broiler grower equal in value to 1 pound of broiler liveweight	2.6	2.7	3.1	3.0
Turkey-feed: Pounds of turkey grower equal in value to 1 pound of turkey, liveweight	5.4	4.2	4.9	5.6
Milk-feed: Pounds concentrate ration equal in value to 1 pound of whole milk	1.61	1.69	1.82	1.84

1/ Adapted from Feed Statistics, supplement for 1969 to Statistical Bullen No. 410, ERS, and from recent issues of The Feed Situation, ERS.

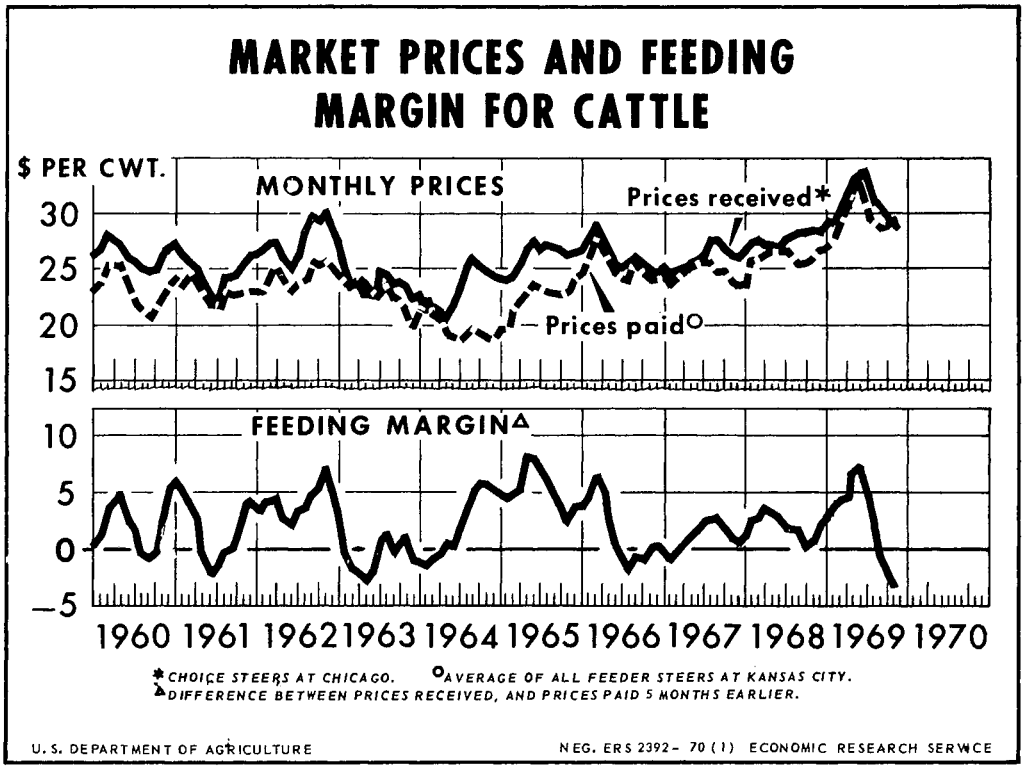

Figure 2

Table 11.--Cattle and calves on farms January 1: Number of cows, bulls, potential herd replacements, and all other, 1960 and 1965-70 1/

Year	Dairy cows	Beef cows	Bulls 1 year +	Potential replacements 2/	All other cattle and calves 3/	Total
	Millions					
January 1						
1960	19.5	26.3	1.7	25.5	23.2	96.2
1965	17.0	34.2	1.9	27.8	28.1	109.0
1966	16.0	34.4	1.9	27.3	29.2	108.8
1967	15.2	34.7	1.9	28.3	28.5	108.6
1968 4/	14.7	35.3	1.9	27.6	29.7	109.2
1969 4/	14.2	36.2	1.9	27.8	29.8	109.9
1970 5/	13.9	37.4	2.0	28.5	30.5	112.3

1/ Adapted from Livestock and Poultry Inventory, Jan. 1, Statistical Reporting Service, USDA.

2/ Includes the official Jan. 1 estimated number of dairy heifers 1 to 2 years, dairy heifer calves and beef heifers 1 to 2 years, plus an estimate of beef heifer calves.

3/ Estimated. Represents potential feeders. Includes cattle and calves on feed, those not on feed, and vealers. Does not include she-stock eventually culled from replacement category, and diverted to feeder category.

4/ Revised.

5/ Preliminary.

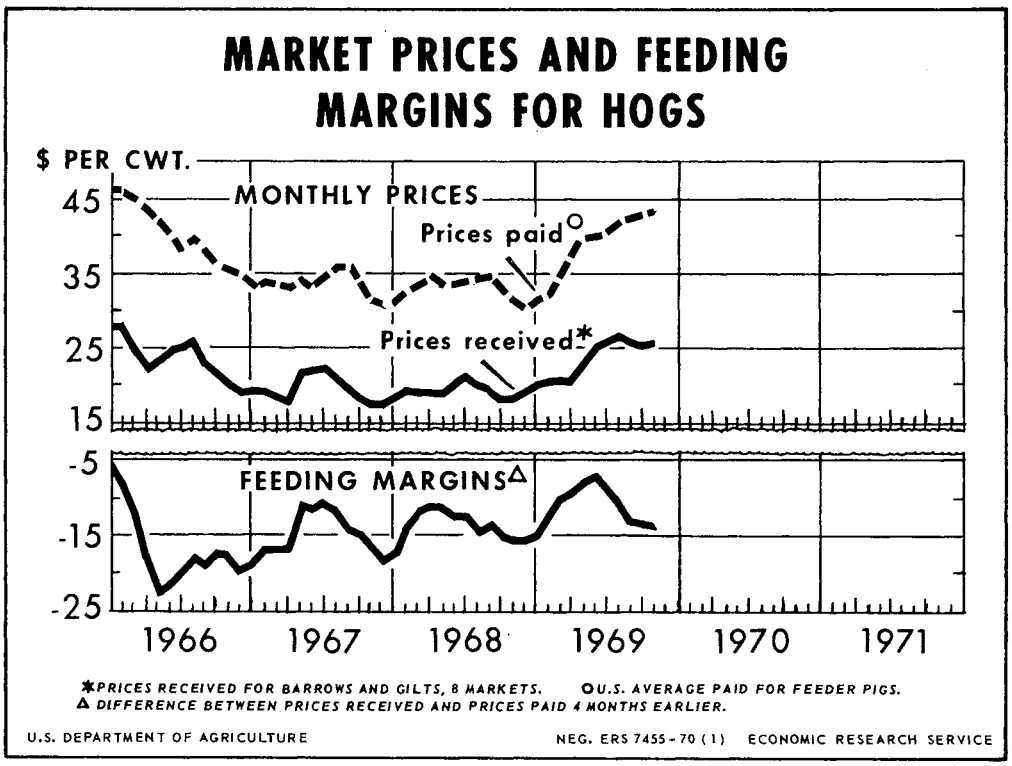

Figure 3

for the next several months, prices of feeder pigs also are likely to remain firm and feeding margins may decline from current levels.

The increasing importance of raising feeder pigs on some farms and feeding them out on other farms is indicated by the rising inshipments of feeder hogs by States (table 12). (Data on intrastate sales are not available.) Gross interstate shipments rose steadily from 1960 to 1964. Following a small dip in 1965 they rose to a new high in 1968, and preliminary data indicate a further rise in 1969. About 85 percent of the feeder pig shipments go into 6 North Central States. If intrastate sales were included, the proportion of feeder pigs fed in these States likely would be higher than indicated by interstate shipments.

The prices farmers were paying for started pullets (egg type), turkey poults and baby chicks were only slightly higher in October-December 1969 than a year ago.

Seed

Supplies of most field seeds are adequate for 1970 planting (table 13). Prices are expected to average only slightly above those of the previous year except for some of the turf grasses and legumes which may be higher because of a 3- to 4-percent reduction in supply.

Production of most clovers in 1969 was significantly lower than in the early 1960's. However, upward trends in imports have reduced the impact of the domestic decreases. Some of the downward trends in supply reflect adjustments to shifts in the type of crops being planted. The clovers and lespedeza are examples of crops being produced in lower

Table 12.--Inshipments of pigs, 1960-68, selected States and U.S. total 1/

State	1960	1965	1966	1967	1968
	1,000 head				
Ohio	135	174	179	221	252
Indiana	465	515	587	731	786
Illinois	179	325	350	399	523
Iowa	1,235	758	776	761	900
South Dakota	59	166	210	194	165
Kansas	75	82	104	115	115
6-State total	2,148	2,020	2,206	2,421	2,741
All other States	352	365	389	452	574
U.S. total	2,500	2,385	2,595	2,873	3,315

1/ Excludes intrastate sales of feeder pigs.

Table 13.--Initial supply of selected field seeds, United States, 1969 with comparisons 1/

Seed crop	1969 2/	1968	1960-64 average
	Million pounds of clean seed		
Alfalfa	143.3	151.6	172.6
Red clover	58.3	62.0	102.4
Sweet clover	16.0	17.6	34.5
White clover	3.7	3.2	7.5
Ladino clover	6.0	5.5	7.3
Crimson clover	9.3	8.4	15.6
Lespedeza	46.7	41.4	75.3
Timothy	39.2	40.0	41.5
Orchard grass	14.0	11.7	16.7
Marion Kentucky bluegrass	6.4	9.1	5.1
Other Kentucky bluegrass	45.1	45.6	32.9
Chewings fescue	8.3	9.0	13.9
Red fescue	15.2	13.8	12.0
Tall fescue	70.6	67.9	49.7
Bent grass	7.6	9.0	8.7
Harry vetch	12.7	14.7	29.7
All rye grass	204.7	190.9	213.3

1/ Seed Crops Annual Summary, 1969 Statistical Reporting Service, December 1969. Initial supply includes production plus June 30 carryover and does not constitute supply precisely since relatively small quantities of seeds are exported or imported.
2/ Preliminary.

volume. In contrast are crops such as sudex, sorghum, and safflower whose production is being expanded.

Stocks of most vegetable seeds are higher than in the recent past, and generally adequate supplies are expected.

OVERHEAD COSTS

Interest

Interest charges on farm loans totaled a record $3.2 billion in 1969 and will approach $3.5 billion in 1970 (table 14). The interest cost in 1969 was 8 percent higher than the year before and was nearly 2-1/2 times the cost in 1960. Total farm interest charges were almost equally divided between short- and intermediate-term debt on the one hand and long-term real estate debt on the other.

Interest rates on farm loans rose dramatically in 1969, and are not expected to drop in the first half of 1970. There may be some downward movement by midyear but no significant drop is likely by the end of 1970. In the last decade, interest rates on farm loans became increasingly influenced by activity in the central money markets and the general economy. This trend will continue.

Interest rates on loans for farm operating expenses, purchasing feeder cattle and for machinery rose from 1 to 2 percentage points during 1969. However, most of the rise occurred after March or April so that many of the farm operating loans did not carry interest rates much higher than loans made in late 1968.

An indication of the extent of changes in non-real estate interest rates during 1969 is shown in the following tabulation of production credit associations (PCA's):

Interest rate charged 1/	Production credit association charging specified rates				
	1968		1969		1970
	January	July	January	July	January
	Percent				
6 percent or less	19	17	13	3	0
6-1/8 to 6-7/8 percent	16	10	13	3	1
7-1/8 to 7-7/8 percent	61	69	70	44	1
8 percent and over	4	4	4	50	98

1/ Rates shown exclude loan fees, which in 1968 averaged 0.53 percent.

At the beginning of 1969 most PCA's were charging interest rates between 7 and 8 percent. One year later even more were charging 8 percent or over. Reports from bankers indicate that interest rates charged by banks went up from 1/2 to 1-1/2 percentage points during 1969 and now range from 7-1/4 to 8-1/2 percent on most farm loans.

Table 14.--Annual interest charges on the farm debt, United States, selected years, 1950-70

Year	Total	Charges on mortgage debt	Charges on short-term debt owed to--1/				
			All lenders	Commercial banks	Production credit associations 2/	Farmers Home Administration	Merchants dealers and miscellaneous creditors
	Million dollars						
1950	585	264	321	134	32	17	138
1955	838	402	436	186	47	21	182
1960 3/	1,335	627	708	300	120	20	268
1965 3/	2,132	1,075	1,057	434	179	36	408
1966 3/	2,394	1,204	1,190	484	214	38	454
1967 3/	2,699	1,341	1,358	548	265	40	505
1968 3/	2,977	1,475	1,502	614	300	42	546
1969 4/	3,223	1,600	1,623	658	339	43	583
1970 5/	3,480	1,730	1,750	---	---	---	---

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/ Revised.

4/ Preliminary.

5/ Estimated.

Data are meager on the volume of credit extended farmers by merchants, dealers, and other miscellaneous lenders and on rates of interest they charge. Estimates place farm loans outstanding from these non-institutional lenders at about 40 percent of the total non-real estate farm debt. Interest rates on such loans are probably as high as those charged by banks and PCA's and in all likelihood average higher.

Yearend interest rates on real estate loans were 1-1/4 to 2 percentage points higher than at the beginning of the year. Interest rates on farm mortgage loan commitments by life insurance companies averaged 8.72 percent in the third quarter of 1969 compared with 7.54 percent for the third quarter of 1968. There were similar hikes in interest rates charged farmers by the Federal land banks. At the end of 1969, 10 of the Federal land banks were charging 8-1/2 percent on loans. Another bank was charging 8 percent. The twelfth bank charged 8-1/2 percent on new loans and 8 percent on re-amortized and refinanced loans. One year earlier, interest rates on these banks' loans ranged from 6 to 7 percent.

A significant development in loan contracts of Federal land banks particularly, and perhaps some other lenders, was the initiation of variable interest rates. In such cases a loan is made at a specified

rate of interest for a certain time period, usually 2 or 3 years, with the provision that the interest rate may then be changed at the discretion of the lender.

The increase in interest rates was only one reason for the rise in total interest charges on farms in 1969. Farmers also used more credit. Farm debt outstanding at the beginning of 1970 totaled $58 billion, over 6 percent higher than a year earlier. Farm debt not secured by farmland climbed during 1969 at a slightly faster rate than in 1968. Although most purchased inputs were higher priced and total costs of farming were up, farmers apparently were willing to borrow money at the higher interest rates. Farm real estate debt increased in 1969 but at a slower rate than in the last several years. Farmers were hesitant to borrow money for long terms at high interest rates. Some short-term loans were probably for purposes ordinarily financed on longer terms.

A contributing factor to the slower rise of farm real estate debt was the decision of many life insurance companies to vacate the farm mortgage investment field. These companies found better investment opportunities outside the farming sector. Also, they were hindered in some States by usury laws that kept interest rate ceilings below realistic levels.

The absence of the life insurance companies from active participation in the farm mortgage field is a significant development. Traditionally life insurance companies of a group have been the largest of the farm mortgage lenders. Their retreat within such a short period of time will have an impact on farm real estate credit. An immediate effect is that it has left the Federal land banks as the only institutional lenders seriously interested in making long-term farm real estate loans. Commercial and savings bank make farm real estate loans but usually for terms not longer than 10 or 12 years. Also, in times of tight money and high interest rates, such as at present, banks are not anxious to tie up loan funds in long-term commitments. If the withdrawal of life insurance companies from farm mortgage investments becomes permanent, major shifts could develop in this important farm credit field.

The total bill for interest on farm debt is not evenly distributed among farmers. About one-third of the commercial farmers and one-half of the noncommercial farmers have no farm debt, according to a 1966 Census survey of farm debt. And, of course, farmers who use credit vary widely in amounts used.

A distribution of interest charges on farm debt in 1969 by economic class of farm is shown in figure 4. Indebted farmers who sold products amounting to $10,000 or more annually paid two-thirds of the total interest charges on farm debt. These were about one-fifth of all farmers and they accounted for about three-fifths of the value of farm products sold in 1969.

Farmers in the two highest economic classes paid relatively more for non-real estate debt than for farm mortgage debt. The reverse was true for farmers in the other economic classes.

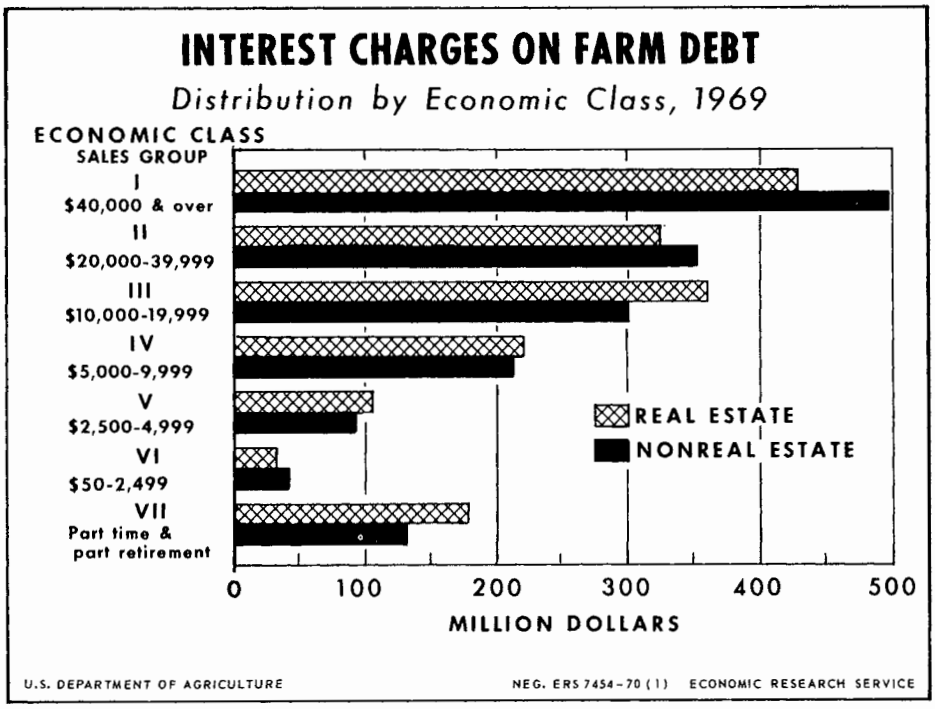

Figure 4

Insurance

In 1969, the cost of insurance for business purposes or that related to farm production and farm property used in production was estimated at $872 million (table 15). The cost for 1970 is projected at $923 million, an increase of about 6 percent. Expenditures for all types of insurance, including family and home insurance as well as farm business insurance, are estimated at $2.9 billion in 1970 compared to $2.8 billion in 1969. These are total premiums and social security taxes paid, not adjusted for indemnities or other benefit payments to farmers to show a net cost.

About 56 percent or $490 million of the 1969 expenditures for farm business insurance went for property and liability coverage. The cost of automobile and truck coverage, which made up $280 million of this class of insurance, has shown the largest rise in recent years. Increased premium rates on motor vehicles were recently approved by several State insurance commissioners because of more accidents and higher claims for repair and medical costs. Insurance company requests for higher premium rates are also pending in other States. Automobile insurance rates are rising faster in urban areas but the increase in farm and rural areas is also substantial.

The cost of insurance on service buildings, equipment, livestock, and personal property also is expected to continue upward. This is mainly fire and wind insurance, but additional coverage such as personal liability is now being included, especially in the package policies that are becoming more popular. Property insurance premium rates are increasing, primarily because repairs are becoming more expensive. Farmers are also buying larger amounts of insurance because of rising property values.

Table 15.--Expenditures for insurance by farmers, United States, 1969-70 1/

Type of insurance	1969			1970		
	Production	Family and home	Total	Production	Family and home	Total
	Million dollars					
Property and liability 2/	490	285	775	528	305	833
Crop 3/	179	---	179	183	---	183
Workmen's compensation	57	---	57	59	---	59
Social security	146	490	636	153	491	644
Life and health	---	1,160	1,160	---	1,220	1,220
Total	872	1,935	2,807	923	2,016	2,939

1/ Estimated annual cost of insurance premiums and social security taxes. Not adjusted for indemnities or other payments to insured. 1970 projected.

2/ Fire, wind, personal liability, and other coverage related to buildings and contents, machinery, livestock, and automobiles. About 50 percent and 60 percent of total insurance premiums on buildings and motor vehicles, respectively, assumed to be production expenditures.

3/ Includes Federal crop insurance and crop-hail insurance.

Premium for insurance on growing crops will probably rise in 1970. Crop insurance premium rates are relatively stable, but coverage bought by farmers has been increasing in recent years. Comparatively large amounts of insurance from both private crop-hail companies and the Federal Crop Insurance Corporation are purchased on wheat in the Great Plains, on cotton and soybeans in the Corn Belt, and on tobacco in North Carolina. Indemnity payments to farmers vary from year to year but have averaged about 60 percent of the premiums for crop-hail insurance and 96 percent for Federal crop insurance.

Expenditures for workmen's compensation insurance are small except in States like Califronia where the number of wage workers per farm is relatively large. However, broadening of legislation is being considered in other States, both to include more workers in the program and provide increased benefits. Workmen's compensation premiums are projected to increase slightly in 1970.

Social security taxes paid by farmers on behalf of wage workers will also rise in 1970. Although the number of wage workers will continue downward, the wages on which social security taxes are based will rise further.

Expenditures for family and home insurance are difficult to separate from farm business insurance but have been estimated to reach $2.0 billion in 1970. Property and liability insurance on farm homes and household goods will also rise. Factors causing the rise in such insurance expenditures are much the same as those affecting the cost of insurance on the property used in production.

Life and health insurance premiums will increase in 1970. Mainly life insurance, this is related to incomes of farm people, and premiums are expected to rise moderately this year. Medical and hospital insurance included in this category have been increasing sharply in recent years because of rises in medical and hospital costs. A further substantial increase will occur in 1970. The monthly charge for social security supplemental medical benefits will be increased from $4 to $5.30 on July 1, 1970.

Social security taxes paid by farmers for their own retirement or disability amounted to $490 million in 1969 and will not change much in 1970. Social security tax rates and the amounts of income on which taxes are paid are expected to remain the same.

Property Taxes

State and local taxes levied on U.S. farm real estate were estimated to be $2.1 billion in 1968. This amount was $209 million above the 1967 levies (revised), more than an 11 percent increase. This was the 26th consecutive yearly increase, and compares with the previous record rise of $143 million in 1967. The increase between 1967 and 1968 was greater than the total amount of farm real estate taxes levied in 1912. A further rise of nearly 10 percent is estimated for 1969.

In 48 of 50 States, increases in farm real estate taxes per acre were recorded in 1968. The single greatest increase was in Arizona with a 47.7 percent rise. Six States showed increases of over 15.0 percent. California was high in this category with 18.7 percent, followed by Georgia, Illinois, New Hampshire, Michigan, and Tennessee. Fourteen other States had increases of over 10 percent. The increase ranged between 5 and 10 percent in 16 States, and was less than 5 percent in 11 States.

The average tax per acre in 1968 was above $2.00 in 23 States, between $1.00 and $2.00 in 13 States and under $1.00 in 14 States. New Jersey continued to have the highest tax per acre--$16.55--while New Mexico continued to have the lowest--18 cents. Variations reflect differences in the value of farmland and in the value of improvements, as well as the role of the property tax in State-local tax systems. Thus, those States which have comparatively higher valued farmland, or relay proportionately more heavily on the property tax, tend to have higher taxes per acre.

Revised estimates show that taxes levied by State and local governments on farm personal property totaled about $382.5 million in 1967. This was more than double the amount levied in 1950. More of the increase occurred during the 1950's than during the 1960's.

Taxes on farmers' personal property have been increasing at a less rapid rate the past 10 years than have taxes on farmers' real estate. Yearly increase of personal property taxes has been fairly stable at around 5 percent. In 1967, personal property levies represented 17.1 percent of the total property tax bill as compared with 22.0 percent in 1952. This proportion has declined almost every year since 1959.

Livestock, farm machinery, motor vehicles, and household goods are the major classes of farm personalty taxed. In 1967, livestock represented about 55 percent of the total, farm machinery 27 percent, motor vehicles 14 percent, and household furniture 4 percent.

In the future, personal property taxes are apt to represent a smaller proportion of the total property tax bill paid by farmers because an increasing number of States are exempting all classes of personal property. Six States in 1967 did not tax personal property. Since then, 3 other States have passed laws exempting personal property.

Both the farm real estate tax and the personal property tax are imposed by local governments. The largest single use of these funds is to support local schools. The amount levied varies among States, depending upon the value of farmland and the State-local tax system. Increases in the past 25 years may be attributed to several causes. Higher prices for items local governments must purchase, increased salaries, and in some instances new projects, have contributed materially to higher costs of operation. The need for additional facilities to accommodate a growing population is reflected in larger budgets. Additional activities, associated with education, health, welfare, housing, law enforcement, and fire protection, impose heavier burdens on local governments. The need for expanding these services is expected to continue. Property taxes also will continue to increase unless substitute revenue sources are found to finance local governmental services.

FARM REAL ESTATE

Farm real estate will contribute to the expected general rise in farm costs during 1970. However, the impact will be uneven across the Nation. Real estate prices in the Corn Belt are expected to soften but prices in the Southeast and Delta regions should continue to increase moderately as farmers actively bid for land to expand their farms. As in the past several years, values are expected to increase most rapidly in areas where the application of new or additional technology can add substantially to the productivity of the land. Also price advances are expected in areas where it is relatively easy to bring together several tracts into a larger operating unit.

Much of the cost of holding farmland is attributable to real estate taxes and debt servicing cost. Both of these factors increased in 1969 and are at record levels. Interest rates on farm mortgage loans were typically 8 percent or more by the last half of 1969 and real estate taxes per acre for 1968--the latest year for which figures are available--increased 11 percent over the previous year. Nationally they averaged $2.05 per acre--ranging from 71 cents per acre in the Southern Plains to $5.99 per acre in the Pacific States.

Because of these increases in cost associated with ownership and because of a shortage of funds available for financing, there is a growing trend toward the rental of farmland by operators trying to expand. A recent survey showed that farmers adding land rented 2 additional acres for each acre purchased.

Rental rates have been increasing steadily but at a slower rate than land values, making rental better than purchase in acquiring the use rights to the land resource. The only exception to this trend has been in the Corn Belt where rents have increased slightly faster than land values over the last decade.

Although a declining rate of return to land rented for cash appears paradoxical, expectations of appreciation in value enter into the market price of farmland along with its current value in production. Thus, a

farmer interested only in the current use of the resource can obtain its services at a lower cost than he could through purchase.

In general gross rents per acre in 1969 varied considerably by States, ranging from an average of $36.20 per acre for cropland in Illinois to $10.60 per acre in South Dakota. However, comparing rents as a percentage of market value shows a 6.3 percent return in Illinois and an 8.3 percent return in South Dakota. Thus, a relatively low dollar rent may represent a relatively high rate of return on the market value of a tract of land.

The 1969 farm real estate sales market reflected the short supply and high cost of credit from commercial sources as sellers provided 60 percent of the dollar volume of funds for real estate purchases--up from 54 percent for the year ended October 1, 1968. Insurance companies--hard pressed by a large number of policy loans and by strong competition from industrial borrowers--provided only 8 percent of the credit for farm real estate purchases--down from 17 percent the previous year.

About 103,000 voluntary and estate sales of farmland occurred during the year, representing 22.7 million acres of farmland. The total volume of land transferred was down 9 percent from a year earlier.

As in past years farm operators led the buyer groups accounting for nearly 50 percent of the purchases. However, nonfarmers increased their share of purchases from 30 percent in 1966 to nearly 40 percent in 1969. On the seller side active farmers sold 40 percent of the tracts transferred in 1969 and nonfarmers sold about 30 percent--nearly the same share for each group as in previous years.

As of November 1, 1969, the total value of all farmland was estimated at $207.3 billion and the average value per acre reached $194--up 4 percent from November 1968, the slowest rate of increase since 1963. Among the States price changes were erratic, with Arizona, Illinois, Indiana, and Kansas showing declines of 1 percent, and Georgia posting a 14-percent increase (fig. 5).

The total market value of farm service buildings on March 1, 1969 was estimated at $19.5 billion, an increase of $1.8 billion over the 1968 figure. However, buildings still account for only 9 percent of the total value of farm real estate. Building costs have increased over the years, mainly due to the rising cost of hired labor for construction.

COSTS BY TYPE OF FARM

Farm production expenses for U.S. farms in 1969 averaged about 6 percent higher than in 1968. However, there was much variation among farms by type, size, and location (table 16). Farm operating expenses for each of 5 important types of viable commercial farms in different areas (fig. 6) ranged from 3 percent average increase on southeastern Wisconsin dairy farms to 10 percent increase on cattle ranches in the Northern Plains livestock area.

Primarily affecting operating expenses on all these farms was an increase in prices paid for items and services used in production. Cost

Table 16.--Costs and returns, selected types of farms, average 1960-64, 1968, 1969 preliminary

Type of farm	Unit	Average 1960-64	1968	1969
Dairy farms, Southeastern Wisconsin:				
Gross farm income	Dollar	1/21,284	30,399	31,283
Operating expenses	do.	1/13,621	15,549	16,006
Return to operator labor and management, and capital	do.	1/ 7,663	14,850	15,277
Cows, 2 years old and over	Number	1/40	40	40
Milk sold per cow	Pound	1/12,580	13,000	13,100
Total farm capital, Jan. 1	Dollar	1/81,050	102,800	113,200
Hog-beef fattening farms, Corn Belt:				
Gross farm income	do.	32,354	48,759	55,928
Operating expenses	do.	23,356	35,952	37,499
Return to operator labor and management, and capital	do.	8,998	12,807	18,429
Fat cattle sold	Cwt.	788	1,168	1,247
Hogs sold	do.	592	659	637
Total farm capital, Jan. 1	Dollar	113,300	175,630	187,980
Index numbers (1960-64 = 100):				
Net farm production	---	100	123	135
Prices paid	---	100	109	115
Prices received	---	100	112	125
Input per unit of production	---	100	100	96
Operating expense per unit of production	---	100	116	117
Cotton farms (large-scale), Mississippi Delta:				
Gross farm income	Dollar	76,976	85,592	77,770
Operating expenses	do.	44,070	47,682	52,263
Return to operator labor and management, and capital	do.	32,506	37,910	25,507
Cotton harvested	Acre	253	198	216
Yield per acre	Pound	602	635	575
Total farm capital, Jan. 1	Dollar	238,290	440,040	466,500
Index numbers (1960-64 - 100):				
Net farm production	---	100	95	91
Prices paid	---	100	121	125
Prices received	---	100	94	85
Input per unit of production	---	100	94	104
Operating expense per unit of production	---	100	112	128

See footnote at end of table.

Table 16.--Costs and returns, selected types of farms, average 1960-64, 1968, 1969 preliminary--Continued

Type of farm	Unit	Average 1960-64	1968	1969
Tobacco farms, Coastal Plain, North Carolina:				
Gross farm income	Dollar	12,635	11,560	13,492
Operating expenses	do.	6,285	6,549	6,896
Return to operator labor and management, and capital	do.	6,350	5,011	6,596
Tobacco harvested	Acre	8.3	7.0	7.6
Yield per acre	Pound	2,040	1,805	1,790
Total farm capital, Jan. 1	Dollar	38,930	50,400	51,030
Index numbers (1960-64 = 100):				
Net farm production	---	100	81	87
Prices paid	---	100	123	127
Prices received	---	100	109	124
Input per unit of production	---	100	105	101
Operating expense per unit of production	---	100	127	125
Cattle ranches, Northern Plains:				
Gross ranch income	Dollar	33,093	40,357	44,885
Operating expenses	do.	17,712	19,142	21,070
Return to operator labor and management, and capital	do.	15,381	21,215	23,815
Cows and heifers of breeding age	Number	292	306	309
Total ranch capital, Jan. 1	Dollar	293,530	406,530	429,640
Index numbers (1960-64 = 100):				
Net ranch production	---	100	115	111
Prices paid	---	100	116	119
Prices received	---	100	114	127
Input per unit of production	---	100	92	95
Operating expense per unit of production	---	100	102	112

1/ 1964.

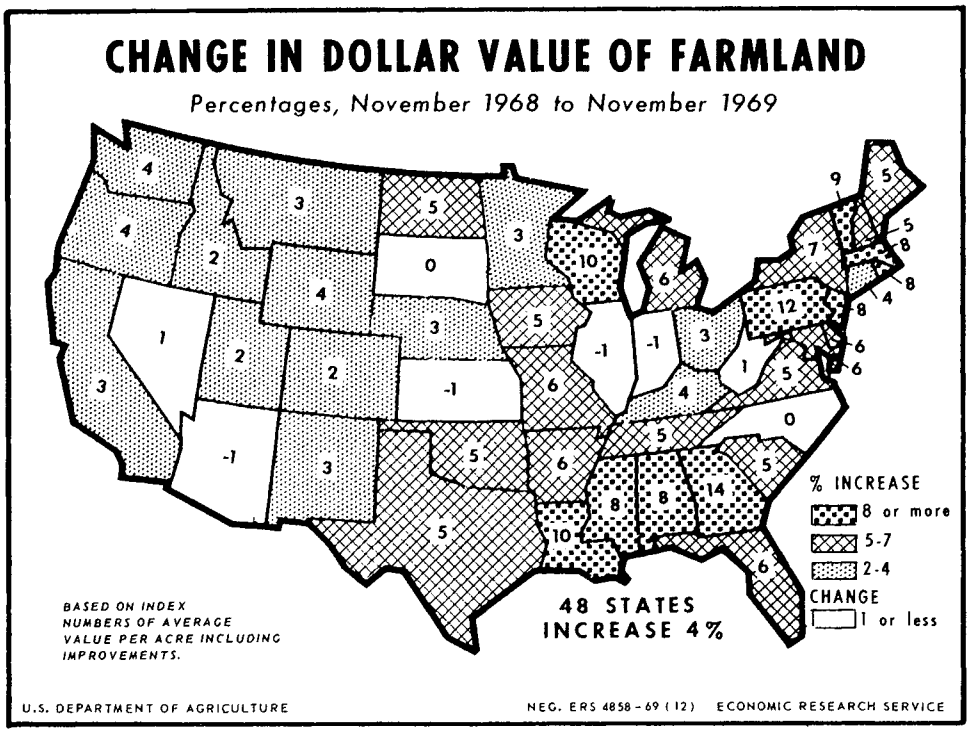

Figure 5

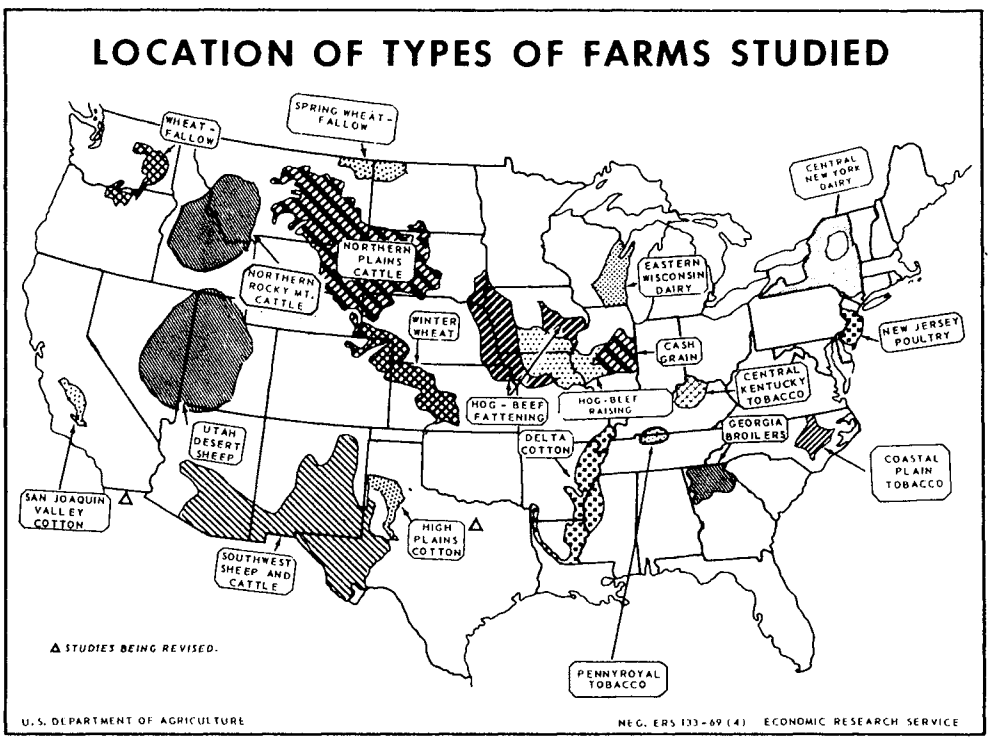

Figure 6

rates for nonfarm items and services increased for each of the farm types. Increases came in wage rates and taxes, in prices paid for farm machinery, and also in costs of farm-produced items. Prices paid for feeder cattle by Corn Belt farmers were up substantially in 1969, and prices paid for hay by Northern Plains livestock ranchers also increased.

Along with higher prices for production items, farm output increased significantly on the Corn Belt and tobacco farms and to some extent on the dairy farms. This greater output required more inputs. Production was lower in 1969 on the cotton farms and cattle ranches, primarily because of lower crop yields, but still more inputs were required than in 1968.

Returns to operators and families for their labor and management and to capital were up significantly on the Corn Belt and tobacco farms and the cattle ranches. They were down substantially on the cotton farms, but dairy farms showed a slight increase.

Dairy Farms, Southeastern Wisconsin

Operating expenses on specialized 40-cow dairy farms in southeastern Wisconsin averaged about 3 percent higher in 1969 than a year earlier. Prices of most inputs increased (particularly farm machinery, motor vehicles, and building materials) and accounted for most of the increase in total operating costs. Feed prices and feed expenditures were about the same both years.

Hog-Beef Fattening Farms, Corn Belt

Total operating expenses on hog-beef fattening farms in the Corn Belt averaged about 4 percent higher in 1969. The increase in expenses resulted mainly from larger outlays for feeder cattle, and for power and machinery purchases and operation. Taxes and expenditures for hired labor also exceeded those of 1968. An important item in keeping total expenditures down was a smaller outlay for feed in 1969, as a bumper corn crop was produced on these farms.

Prices paid for all items used in production averaged about 6 percent higher than in 1968. Prices were higher for feeder cattle and for power equipment, machinery, hired labor, and service work. Among the few items for which lower prices were paid, the principal one was fertilizer. Prices paid for feeder cattle averaged about 4 percent higher than a year earlier and more feeder cattle were bought. More fertilizer, pesticides, and hired labor were used.

Large-Scale Cotton Farms, Mississippi Delta

Operating expenses on large Delta cotton farms averaged 10 percent above 1968. This increase resulted mainly from costs associated with a 9-percent increase in cotton acreage, more intensive use of pesticides, and higher prices for production inputs. The cost of labor rose significantly, partly in response to the higher minimum wage requirement.

Tobacco Farms, Coastal Plain, North Carolina

In 1969, total farm operating expenses averaged 5 percent above 1968 on the tobacco farms. The higher cost reflected higher prices paid for a larger quantity of production inputs.

Prices paid for production goods and services averaged 3 percent higher than in 1968. Total input was up about 2 percent, chiefly because more labor was needed to harvest and handle a larger tobacco crop. Most of the increase in farm expense resulted from a greater expenditure for hired labor. Wage rates advanced about 7 percent.

Cattle Ranches, Northern Plains Area

Total operating expenses in 1969 on viable commercial cattle ranches in the Northern Plains livestock area averaged 10 percent higher than in 1968 and 19 percent higher than in 1960-64. The breeding herd was larger in 1969 but this alone did not account for the increase in expenditures. Prices paid for most production items and services edged upward, but the chief increase in costs was the extra expenditure for hay. Hay production in 1968 was well below a year earlier, forcing ranchers to buy considerably more hay in the spring of 1969 at prices averaging 12 percent higher than a year earlier. Quantities purchased of most other production items remained relatively unchanged but prices paid increased slightly.

Because operating expenses were up and net ranch production was down in 1969, operating expense per unit of production rose about 10 percent. Nevertheless, these ranchers had a relatively good year in 1969.

ENTERPRISE INPUT COSTS

The combination of direct production inputs varies among crops, and it varies over time as new technology emerges and its potential effect on yields becomes known to farmers. Farmers tailor their input mixes to suit the yield and quality of crop they believe to be feasible and profitable for them. In the 1969 issue of this publication (FCS-40) we showed examples of the direct inputs that leading farmers planned to use in producing 6 major crops on full-scale, well-equipped, and efficiently operated farms having excellent soils in specified producing areas. That information is updated here.

With all 6 crops, 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, seed, and other yield-increasing inputs. While the unit prices of labor and machinery services were higher in 1968-69 than in 1960, the unit prices of most fertilizers and some pesticides were lower.

Corn

Yield expectations of leading corn farmers in east-central Illinois rose from about 100 bushels per acre in 1960 to 130 bushels and above in 1968 and 1969. A shift from 4-row to 6-row powered equipment has reduced the labor input per acre (table 17). Leading growers have increased the rate of seeding (to obtain increased plant populations), and are using more fertilizer and herbicides. Leading farmers now plan to spend about $10 an acre more for direct inputs than they did in 1960.

Soybeans

In east-central Illinois, leading farmers have raised their yield expectations of soybeans from 35 bushels per acre in 1960 to 40 bushels

in 1968 and 1969. There has not been a yield "breakthrough" in soybeans comparable to that in corn and other leading crops. The decrease in labor input since 1960 is due to a shift from 4-row to 6-row equipment--as in corn (table 18). Landing farmers now plan to use higher plant populations, apply more fertilizer and use herbicides to control weeds. They are now spending about $10 more an acre for direct inputs than they did in 1960. The increase is due in part to higher prices for labor, machinery, and seed, and in part to higher rates of seeding and fertilizing.

Cotton

Leading cotton farmers in the Yazoo-Mississippi Delta have upped their expected yields of cotton lint from an average 750 pounds per acre in 1960 to 850 pounds in 1968-69 (table 19). These yields are for excellent cotton soils with the cotton planted solid, not "skip-rowed." The 1968-69 expected yield is about 1,100 pounds for cotton planted in a 2 by 2 skip-row pattern. Since 1960 leading farmers have greatly reduced their labor input by nearly eliminating hand chopping through the use of chemicals for weed control, by substituting machinery having greater capacity, and by more completely mechanizing their harvest. The reduction in labor was further stimulated by the extension of minimum wage legislation to farmers in 1967. In 1968-69, leading farmers could expect to produce an acre-yield 100 pounds larger but at a lower direct cost per acre than in 1960.

Rice

Leading rice farmers have upped their expected yield of rice from 4,200 pounds an acre in 1960 to 5,200 pounds an acre in 1968 and 1969. These yields are on excellent soils for rice grown under full irrigation. To achieve these yields, the leading farmers apply more seed and nitrogen per acre but they now use less labor (table 20). In 1969, leading farmers were spending about $20 more per acre for direct inputs than they did in 1960.

Wheat

Leading wheat growers in south-central Kansas have increased their expected yield of wheat from 28 bushels an acre in 1960 to 35 bushels in 1968 and 1969. They have increased the planned application of nitrogen and phosphate fertilizer, while the planned quantity of other inputs has not changed since 1960 (table 21). The increase of about $1 per acre in direct inputs has been more than offset by the increase in gross returns, including Government payments.

Grain Sorghum

In south-central Kansas, leading farmers have raised their yield expectations for grain sorghum from 40 bushels per acre in 1960 to 55 bushels in 1968 and 1969. These yields are for excellent soils and the crop is grown without irrigation. Irrigation of grain sorghum is more common in the western Kansas high plains where rainfall is much less. To achieve the 15-bushel increase in dryland yields in the South Central area, leading farmers have increased the application of both nitrogen and phosphate fertilizers (table 22). The increased expenditures for direct inputs have been more than offset by increased gross returns per acre.

Table 17.--Direct inputs per acre used by leading farmers in producing corn for grain, east-central Illinois, 1960 and 1968-69 1/

Input or cost	Quantity per acre				Cost per acre		
	Unit	1960	1968	1969	1960	1968	1969
					----------Dollars----------		
Labor 2/	Hour	5.5	4.0	4.0	5.95	7.00	7.40
Power and machinery services 3/	---	---	---	---	11.55	12.85	13.50
Seed	Pound	12	14	14	2.45	6.50	6.60
Fertilizer:							
Nitrogen	Pound	112	150	150	9.85	7.45	6.75
P_2O_5	do.	37	46	46	3.35	3.80	3.65
K_2O	do.	24	30	30	1.15	1.15	1.10
Pesticides	---	---	---	---	1.00	5.20	5.55
Corn drying	---	---	---	---	2.50	3.45	3.45
Other	---	---	---	---	1.50	1.50	1.50
Total					39.30	48.90	49.50

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 1968 and 1969.

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 1968 and 1969. Includes fuel, lubricants, repairs, and depreciation attributable to use.

Table 18.--Direct inputs per acre used by leading farmers in producing soybeans, east-central Illinois, 1960 and 1968-69 1/

Input or cost	Quantity per acre				Cost per acre		
	Unit	1960	1968	1969	1960	1968	1969
					----------Dollars----------		
Labor 2/	Hour	4.5	3.5	3.5	4.85	6.10	6.45
Power and machinery services 3/	---	---	---	---	10.00	11.15	11.70
Seed	Pound	60	78	78	2.40	5.20	5.20
Fertilizer:							
P_2O_5	Pound	28	35	35	2.55	2.90	2.75
K_2O	do.	36	45	45	1.70	1.70	1.60
Pesticides	---	---	---	---	0.00	3.50	3.35
Other	---	---	---	---	1.50	1.50	1.50
Total					23.00	32.05	32.55

1/ Estimated for a large well-managed cash-grain farm having excellent soil. The expected yields were 35 bushels per acre in 1960 and 40 bushels per acre in 1968 and 1969.

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 1968 and 1969. Includes fuel, lubricants, repairs, and depreciation attributable to use.

Table 19.--Direct inputs per acre used by leading farmers in producing cotton, Yazoo-Mississippi Delta, 1960 and 1968-69 1/

Input or cost	Quantity per acre				Cost per acre		
	Unit	1960	1968	1969	1960	1968	1969
					Dollars		
Labor 2/	Hour	82.0	13.5	13.5	46.80	15.50	17.40
Power and machinery services	---	---	---	---	25.00	32.00	32.00
Seed	Pound	40	18	18	3.60	2.35	2.35
Fertilizer:							
Nitrogen	Pound	100	90	90	6.80	5.75	5.75
Pesticides and chemicals	---	---	---	---	13.50	28.00	29.50
Custom application of pesticides	---	---	---	---	4.00	3.40	3.40
Ginning	---	---	---	---	20.25	26.50	26.50
Total					119.95	113.50	116.90

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 2 rows alternating with 2 skips. Expected yield of lint for solid plantings: 750 pounds in 1960; 850 in 1968 and 1969. Expected yield for skip-row plantings: 1,100 pounds in 1968 and 1969.

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

Table 20.--Direct inputs per acre used by leading farmers in producing rice, Grand Prairie, Arkansas, 1960 and 1968-69 1/

Input or cost	Ouantity per acre				Cost per acre		
	Unit	1960	1968	1969	1960	1968	1969
					Dollars		
Labor 2/	Hour	12.0	11.5	11.5	13.30	19.10	20.60
Power and machinery services	---	---	---	---	9.40	11.00	12.00
Seed	Pound	110	135	135	9.80	13.00	13.00
Fertilizer:							
Nitrogen	Pound	90	120	120	11.70	12.00	9.00
Potassium	do.	60	60	60	3.00	3.00	3.00
Herbicides	---	---	---	---	5.00	9.10	7.50
Custom application:							
Nitrogen	---	---	---	---	1.55	2.65	2.65
Herbicides	---	---	---	---	1.60	2.40	2.40
Irrigation	---	---	---	---	8.30	9.00	9.00
Drying	Cwt.	46	57	57	15.90	18.80	18.80
Total					78.55	100.05	97.41

1/ On well-managed large farms having excellent soils. Expected dry weight yields associated with these input-mixes were about 4,200 pounds per acre in 1960 and 5,200 pounds in 1968 and 1969.

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

Table 21.--Direct inputs per acre used by leading farmers in producing wheat, south-central Kansas, 1960 and 1968-69 1/

Input or cost	Quantity per acre				Cost per acre		
	Unit	1960	1968	1969	1960	1968	1969
					Dollars		
Labor 2/	Hour	2.0	2.0	2.0	2.10	2.90	3.10
Power and machinery services	---	---	---	---	4.40	5.10	5.30
Seed	Bushel	1.0	1.0	1.0	2.20	2.00	1.70
Fertilizer:							
Nitrogen	Pound	50	65	65	5.80	5.60	5.00
P_2O_5	do.	25	35	35	2.50	3.00	2.90
Total					17.00	18.60	18.00

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 1968 and 1969.

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

Table 22.--Direct inputs per acre used by leading farmers in producing grain sorghum, south-central Kansas, 1960 and 1968-69 1/

Input or cost	Quantity per acre				Cost per acre		
	Unit	1960	1968	1969	1960	1968	1969
					Dollars		
Labor 2/	Hour	2.2	2.2	2.2	2.30	3.20	3.40
Power and machinery services	---	---	---	---	4.90	5.60	5.80
Seed	Pound	4	4	4	.70	.80	.80
Fertilizer:							
Nitrogen	Pound	55	80	80	6.40	6.00	5.30
P_2O_5	do.	20	30	30	2.00	2.40	2.30
Herbicides	do.	.4	.4	.4	.50	1.20	1.40
Drying the grain 3/	---	---	---	---	.70	1.20	1.20
Total 3/					17.50	20.40	20.20

1/ On well-managed large farms having excellent soils. Expected yields associated with these input-mixes were about 40 bushels in 1960 and 55 bushels in 1968 and 1969. (56 pounds per bushel.)

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

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

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☆ U. S. GOVERNMENT PRINTING OFFICE : 1970 394-231 (ERS-141)