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# How Costs of Production Vary

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***In this report...*** *Costs of producing crops per unit of output vary considerably across farms. The major factors affecting cost levels are yields, input use, and size of farm. Major differences also exist by production region. The 25 percent of farms with the lowest costs account for as much as 50 percent of U.S. production.*

Producers able to keep their unit costs low contribute disproportionately more of U.S. crop production. For example, the 25 percent of cotton and wheat producers with the lowest costs accounted for almost 50 percent of total production during the study years.

Although low-cost producers may spend more per acre, their higher yields generally lead to lower costs per unit of output. High-cost producers generally have smaller farms and receive a greater portion of their income from off-farm sources.

Most U.S. farms produce more than one commodity. Farmers diversify to manage their risks from production failure or low market prices and to best use their resources. Because the whole farm is the legal and production entity, financial data are most often available on a farm basis. However, cost and returns data are available for specific commodities. Commodity-level financial information helps farm operators evaluate the profitability of different commodities. Costs and returns information also helps agricultural analysts understand the demand for production inputs and the competitiveness of U.S. agriculture. Costs and returns information also helps agricultural policymakers as they set support levels.

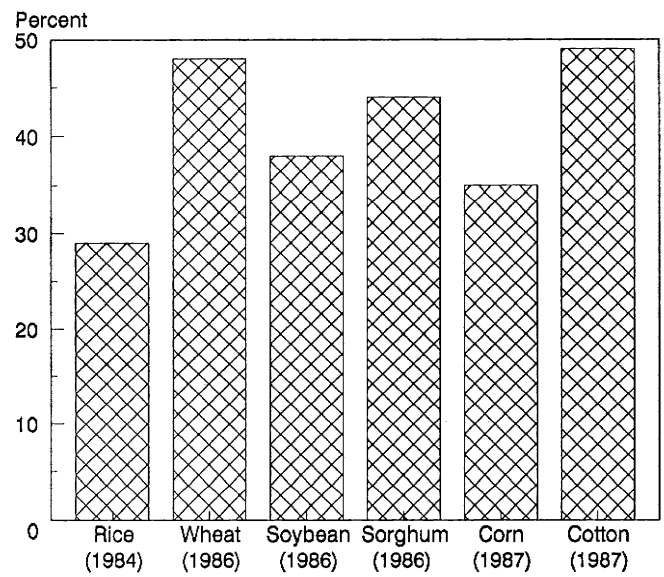
Until recently, financial data on commodities were available only as State average costs and returns. ERS can now provide distributional information on costs and returns. Information about the distribution of costs is critical for gauging the potential effects of policies before they are implemented.

This report describes the cost of producing corn in 1987, soybeans in 1986, wheat in 1986, cotton in 1987, sorghum in 1986, and rice in 1984. For each of these commodities, we have analyzed the 25 percent of producers with the lowest costs of production ("low-cost producers"), the 25 percent with the highest costs ("high-cost producers"), and the 50 percent in the midrange of costs ("mid-cost producers").

Figure 1

**Percent of U.S. production by low-cost producers**

*Low-cost cotton and wheat producers accounted for almost half of production, while low-cost rice producers accounted for less than 30 percent of rice production*



## Farms Are Divided into Three Groups To Determine How Farm Characteristics Vary with Production Costs

**Costs of production vary considerably across farms and commodities. To evaluate how costs vary and the characteristics of the farms at differing cost levels, low-cost farms were defined as the 25 percent of farms with the lowest costs, high-cost farms as the 25 percent of farms with the highest costs, and mid-cost farms as the middle 50 percent.**

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This report uses standard USDA cost of production accounting. Economic costs are the most inclusive measure, including all inputs, whether owned or rented.

We used three approaches in deriving costs:

- Direct Costing. Producers provide their costs per input item for the commodity of interest. This method is only appropriate for estimating the costs of variable cash inputs and is necessary when the quantities of inputs, such as chemicals, are difficult to collect.
- Valuing Quantities. Producers provide the quantities of inputs they use in the production of a crop. Costs are estimated by multiplying these quantities by State average prices. This method is useful for inputs, such as fertilizers, for which the farmer can report quantities.
- Indirect Costing. Producers provide the machinery used and the field operations performed in producing a crop. This information and price information are used with a "budget generator" to calculate costs of selected input items. The indirect method is appropriate for machinery-related inputs.

**Size is measured by acres planted to a crop and by economic classes.** The planted acreage categories are fewer than 25 acres, 25-99 acres, 100-499 acres, and 500 or more acres. Economic class is a dollar measure of gross value of sales, Government payments, other farm income, and landlord and contractor shares of production. The classes are less than $40,000; $40,000-$99,999; $100,000-$249,999; and $250,000 or more.

A favorable financial position is measured as a farm business with a positive net cash income and a debt-to-asset ratio of less than 0.40.

The primary data source for this report is the Farm Costs and Returns Survey (FCRS). Some farm financial information is collected each year. Detailed cost information, however, is collected in a 4-year rotation. Thus, the estimates presented are not for the same year. The cost information is collected on special versions of the FCRS to statistically represent most of the production of each crop.

The 1987 ***corn*** version of the FCRS represented 80 percent of U.S. corn production and 83 percent of corn acreage. The survey represented 482,500 farms, 77 percent of those reported in the 1987 *Census of Agriculture*.

The 1986 ***soybean*** version represented 71 percent of U.S. soybean production and 68 percent of soybean acreage. The survey represented 267,669 farms, compared with 441,899 in the 1987 *Census of Agriculture*.

The 1986 ***wheat*** version represented 82 percent of U.S. wheat production and 74 percent of wheat acreage. The survey represented 280,846 farms, compared with 352,237 surveyed by the 1987 *Census of Agriculture*.

The 1986 ***sorghum*** version represented 49 percent of U.S. sorghum production. The survey represented 48,668 farms, compared with 89,642 surveyed by the 1987 *Census of Agriculture*.

The 1987 ***cotton*** version represented about 66 percent of 1987 U.S. cotton production, 67 percent of the acres planted to cotton in 1987, and 54.9 percent of the cotton-producing farms reported by the *Census of Agriculture*.

The 1984 ***rice*** version represented 10,072 rice producers and 2.83 million acres of rice. The production estimate of 146.2 million hundredweight (cwt) is about 5 percent more than USDA's Agricultural Statistics Board estimate of 138.8 million cwt, mainly because the FCRS estimate used a different sample of farms.

## External Forces Important in Study Crops, Years

**Because crop production costs are presented for only a single year, the growing conditions that affect per unit costs must be considered when evaluating the cost distributions.**

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The six crops in this report are among the 10 most valuable crops produced in the United States. Five of them are "program commodities," for which the Federal Government administers an income-support program. The sixth, soybeans, is not covered by an income-support program. The Government administers price-support programs, through the Commodity Credit Corporation, for all six crops.

Corn is the most valuable U.S. crop. About 75 percent of the domestically used corn is for feed. During the 1980's, 20 percent or more of production was exported, accounting for well over half of the world trade. Only beef cattle and hay are produced on more U.S. farms. Over 600,000 farms produce corn. It, however, is usually not the major product of these farms; only 20 percent specialize in corn.

Soybeans follow corn in value of production. Acreage and farms producing soybeans declined in the late 1980's, however. Soybeans are used for human and animal food and industrial purposes. The United States exports more soybeans than any other crop and is the world's largest producer.

Wheat is the third most valuable U.S. crop. More than half of the production is exported, accounting for 30-40 percent of the world trade. More than 350,000 farms produce wheat, but only 65,000 specialize in wheat.

Sorghum is produced on about 90,000 farms. Most sorghum is fed to livestock. It trails corn in value as a feed crop. About 30 percent of U.S. sorghum is exported.

Cotton accounts for about 50 percent of world fiber production. Over 40,000 U.S. farms produce cotton, and about 26,000 specialize in cotton. Its production costs per acre are very high, and specialization among cotton producers is very high. About 40 percent of the 1989 crop was exported, though exports vary greatly.

Rice is produced on about 12,000 U.S. farms and is the costliest of the major crops to produce per acre. Although the U.S. trend is for the number of farms to decrease, farms producing rice and farms specializing in rice increased during the 1980's. Rice acreage planted declined. The number of small rice farms increased, and the number of large rice farms decreased. U.S. rice accounts for nearly 20 percent of all world rice trade.

***Corn production in 1987*** was 15 percent below 1986 because fewer acres were harvested. The 1986 and 1987 yields were about the same. Bumper crops in 1985 and 1986 may have led farmers to enroll more land in acreage reduction programs (ARP's), participate to a greater extent in commodity programs, or switch to more valuable crops.

***Soybean production in 1986*** continued its 1980's downward trend. The Southeast and Delta were also hit hard by drought. Yields averaged 40 bushels per planted acre in the North Central region, compared with only 23 and 19 bushels in the Southeast and Delta.

***Wheat production in 1986*** was the lowest in several years because fewer acres were planted to wheat and because of drought in many areas, especially the Southern Plains and North Central regions. The 1986 U.S. wheat yield was the lowest since 1980.

***Sorghum production in 1986*** was 16 percent lower than the record production in 1985, but still higher than in 1984. It declined mainly because sorghum acreage fell 17 percent because of the increased sorghum ARP and despite record 1986 yield.

***Cotton production in 1987*** was the best in several years because of excellent growing conditions in the West, Southern Plains, and Delta. The Southeast suffered somewhat from drought. The 1987 U.S. yield was a record 703 pounds per acre, 73 pounds above the previous record set in 1985.

***Rice production in 1984*** was 138.8 million cwt (rough), down from the record of 182.7 million cwt set in 1981. Although planted acreage declined from previous years' levels because of ARP's, the U.S. rice yield continued to climb. The adoption of new high-yielding, semidwarf varieties resulted in 1985 yield increases as much as 23 percent above 1984 levels for some States.

## The Costs of Producing Corn in 1987

**Corn yields, farm size, and input use affected costs per bushel more significantly than other factors.**

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The average cash cost of producing corn was $1.39 per bushel ($164.88 per acre) and the average economic cost was $2.15 per bushel ($253.96 per acre). Twenty-five percent of farms had economic costs per bushel of $1.87 or less. These low-cost producers accounted for 35 percent of the corn production. At the other end of the distribution, 25 percent of farms had economic costs of $2.90 or more per bushel, but those farms accounted for only 8 percent of corn production.

Total economic costs per acre were considerably lower for low-cost producers ($221), but varied little between mid- and high-cost producers ($270 versus $262). However, yield differences among the cost groups led to costs per bushel that deviated more significantly ($1.63 versus $2.23 versus $3.79). The high-cost group had 17 percent of its producers with yields above their State median, compared with 64 percent of the low-cost group.

High-cost producers planted less than half the acres of corn that low-cost producers planted, and 65 percent of the high-cost group had total gross farm income of $40,000 or less. Their characteristics were similar to other operators of small farms; they were more likely to have a major occupation other than farming, and the households earned more off the farm than on the farm.

### Regional Summaries

We used the following definition for the corn regions: Northeast States included Connecticut, Delaware, Maine, Maryland, New York, Pennsylvania, and Vermont; Southeast States included Alabama, Kentucky, North Carolina, South Carolina, Tennessee, and Virginia; Corn Belt States included Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin; Northern Plains States included Colorado, Kansas, Nebraska, North Dakota, and South Dakota; Western States included California, Louisiana, Texas, and Washington.

The Corn Belt had the greatest proportion of low-cost producers. Corn producers in this region were more specialized, had the highest yield per acre, and had low variable cash costs. About 65 percent of their total farmland was cropland, 50 percent of which was planted to corn.

Economic costs per bushel and per acre varied significantly by region. The Southeast region had the highest economic cost per bushel ($3.08). That region also had the largest proportion of high-cost producers, a high proportion of small corn-producing farms, and the lowest yield per acre.

Northern Plains farmers had the lowest economic costs per acre. They also had the lowest per bushel costs, despite their moderate yields.

### Other Relevant Facts

- Three percent of all corn farms planted 500 or more acres of corn and produced 25 percent of all U.S. corn. However, 24 percent of corn-producing farms planted 25 acres of corn or less, producing only 2 percent of the crop. Large farms planted a higher proportion of their cropland to corn than did small farms.
- Economic cost per acre increased as size increased and per bushel economic costs decreased as size increased. However, per bushel corn costs for farms with corn acreage of 100-499 acres varied little from those with 500 acres or more.
- About 75 percent of the low- and mid-cost producers received Government payments compared with 50 percent of the high-cost operators. The average dollar amount received by those in the low-cost group was more than twice as high ($16,511 per farm) as that of that high-cost group, largely because of the differences in farm size. Ninety-five percent of producers in the Northern Plains received Government payments, compared with only 25 percent in the Northeast.

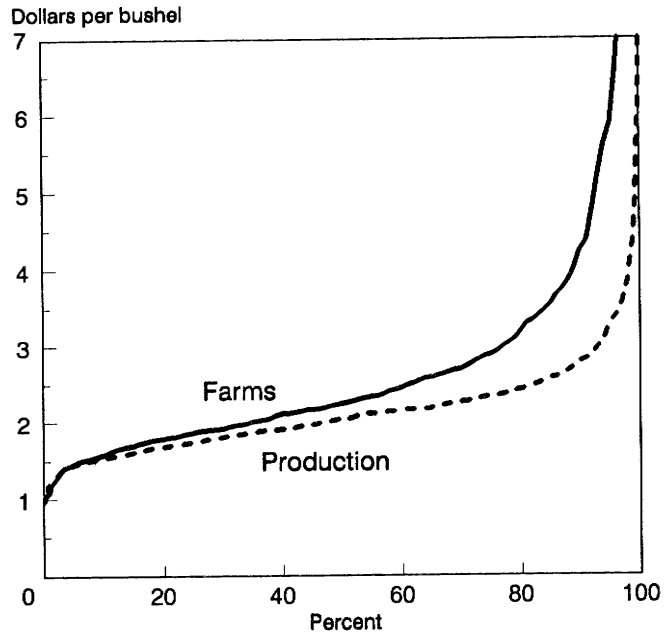
**Table 1—Corn characteristics, by cost group, 1987**

| Item | Unit | Cost group | | |
|---|---|---|---|---|
| | | Low-cost | Mid-cost | High-cost |
| Share of U.S. corn farms | Percent | 25 | 50 | 25 |
| Share of U.S. production | Percent | 35 | 57 | 8 |
| Corn yields | Bu./acre | 136 | 121 | 69 |
| Corn cropland | Acres/farm | 123 | 112 | 56 |
| Economic cost | Dol./acre | 220.88 | 269.91 | 262.38 |
| Economic cost | Dol./bu. | 1.63 | 2.23 | 3.79 |
| Share of group's farms in economic class: | | | | |
| Less than $40,000 | Percent | 28 | 36 | 65 |
| $40,000 - $99,999 | Percent | 29 | 28 | 16 |
| $100,000 - $249,999 | Percent | 29 | 24 | 12 |
| $250,000 or more | Percent | 14 | 12 | 7 |
| Farm finances. | | | | |
| Net cash income | Dollars | 40,230 | 23,860 | 15,184 |
| Government payments | Dollars | 16,511 | 13,714 | 7,001 |
| Assets | Dollars | 452,349 | 383,627 | 295,711 |
| Debt | Dollars | 86,930 | 78,449 | 44,711 |
| Debt/asset ratio | Percent | 19 | 20 | 15 |
| Favorable position | Percent | 63 | 68 | 64 |
| Operator characteristics: | | | | |
| Farming as major occupation | Percent | 83 | 85 | 70 |
| Older than 65 years | Percent | 20 | 16 | 19 |
| Household off-farm income | Dollars | 14,730 | 16,795 | 20,002 |

Figure 2

## Corn: Cumulative distribution of economic production costs, 1987

*Twenty-five percent of farms produced corn for $1.87 per bushel or less*




75 percent of farms had economic costs of $2.90 or less and 75 percent of the corn harvest was produced with economic costs of $2.34 or less.

**Table 2—Corn characteristics, five regions, 1987**

| Item | Unit | Northeast | Southeast | Corn Belt | Northern Plains | West |
|---|---|---|---|---|---|---|
| Share of U.S. corn farms | Percent | 8 | 14 | 66 | 10 | 2 |
| Share of U.S. production | Percent | 3 | 6 | 74 | 15 | 2 |
| Corn yields | Bu./acre | 92 | 77 | 125 | 115 | 120 |
| Corn cropland | Acres/farm | 40 | 60 | 108 | 154 | 118 |
| Economic cost | Dol./acre | 235.99 | 238.20 | 260.19 | 232.58 | 314.53 |
| Economic cost | Dol./bu. | 2.55 | 3.08 | 2.08 | 2.01 | 2.62 |
| Share of group's farms in economic class: | | | | | | |
| Less than $40,000 | Percent | 42 | 66 | 39 | 24 | 27 |
| $40,000-$99,999 | Percent | 25 | 15 | 28 | 25 | 19 |
| $100,000-$249,999 | Percent | 20 | 10 | 23 | 36 | 27 |
| $250,000 or more | Percent | 13 | 9 | 10 | 15 | 27 |
| Farm finances: | | | | | | |
| Net cash income | Dollars | 27,296 | 17,825 | 11,917 | 30,062 | 44,231 |
| Government payments | Dollars | 2,071 | 6,228 | 8,340 | 21,976 | 39,207 |
| Assets | Dollars | 473,775 | 297,078 | 284,772 | 460,631 | 648,475 |
| Debt | Dollars | 61,941 | 54,670 | 42,733 | 91,669 | 129,317 |
| Debt/asset ratio | Percent | 13 | 18 | 15 | 20 | 20 |
| Favorable position | Percent | 59 | 65 | 68 | 59 | 56 |
| Operator characteristics: | | | | | | |
| Farming as major occupation | Percent | 79 | 66 | 82 | 96 | 95 |
| Older than 65 years | Percent | 18 | 17 | 19 | 26 | 6 |
| Household off-farm income | Dollars | 23,940 | 21,609 | 16,352 | 10,122 | 13,913 |

## The Costs of Producing Soybeans in 1986

**Soybean yields, size of farm, and soybean acreage most affected costs per bushel.**

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The average cash cost of producing soybeans was $2.46 per bushel ($84.43 per acre), and the economic cost was $4.53 per bushel ($155.42 per acre). Twenty-five percent of farms had economic costs per bushel of $3.98 or less. These low-cost producers accounted for about 38 percent of total soybean production. Another 25 percent of farms had economic costs per bushel of $5.56 or more and accounted for only 11 percent of the total soybean crop.

Low-cost producers had per acre economic costs that were slightly higher than those of high-cost producers, and the mid-cost group had the highest per acre costs. However, differences in yields caused costs per bushel among the groups to vary significantly. Only 11 percent of producers in the high-cost group had yields above the State median, compared with 80 percent of the low-cost producers.

High-cost producers planted fewer acres of soybeans, and about 62 percent of them were classified in the smallest economic class of $40,000 or less in farm sales. Their characteristics were similar to other small farms; they were more likely to have an operator whose major occupation was other than farming, a farm operator household that earned most of its income off the farm, lower debt and asset levels, and a higher proportion of older operators.

### Regional Summaries

We defined the soybean production regions as follows: North Central States included Illinois, Indiana, Iowa, Minnesota, Missouri, Nebraska, and Ohio; the Southeast included Alabama, Georgia, Kentucky, North Carolina, and Tennessee; the Delta States were Arkansas, Louisiana, and Mississippi.

Most (83 percent) soybean farms were located in the North Central region, and 93 percent of the low-cost group were there, because of the yield advantage of the region. North Central growers incurred much higher costs per acre than producers in the other regions. Higher land costs accounted for most of this difference, because greater yields in the North Central region made land more valuable than in the Southeast and Delta.

The Southeast and Delta regions had the highest per bushel costs. A much higher proportion of those regions' farms were in the high-cost group (65 and 50 percent). Much of this difference can be explained by the regional effects of the drought during 1986. The Southeast, however, also had a higher proportion of small soybean-producing farms. Because of the relationships between farm size and costs of production, Southeast producers probably have higher costs even during normal years. In the Delta, soybeans were produced on farms larger in size than those in the North Central States. Lower input use and the drought probably caused lower yields and greater costs per bushel on the Delta farms.

### Other Relevant Facts

- Five percent of all soybean farms had 500 or more soybean acres and produced nearly 25 percent of all U.S. soybeans. The large producers of soybeans also planted a greater proportion of their cropland to soybeans than did the smaller producers. The 15 percent of all soybean farms that had 25 or fewer acres of soybeans produced only 1 percent of the crop.

- Total economic cost per acre and per bushel generally decreased as soybean acreage increased, suggesting a size efficiency. However, the lowest average costs per bushel were for the producers with 100-500 acres of soybeans.

- About 86 percent of the low-cost producers received Government payments, compared with only 58 percent of the high-cost group. The average dollar amount received by farmers in the low-cost group was more than twice that of the high-cost group.

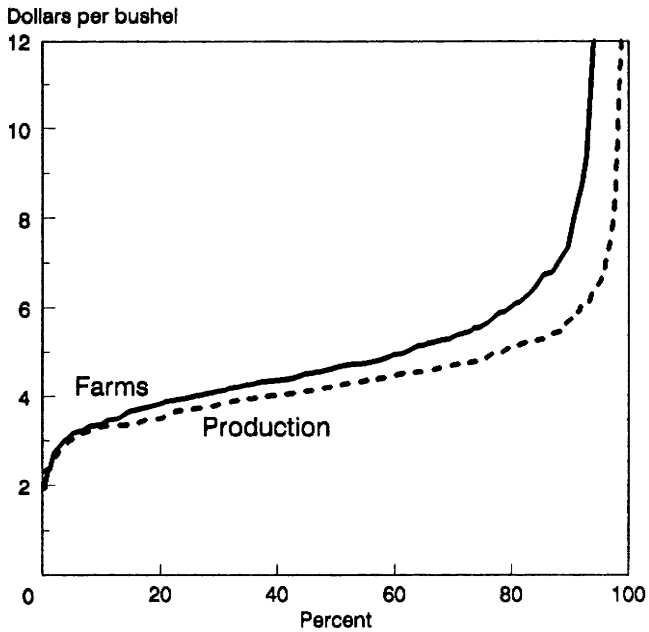
**Table 3—Soybean characteristics, by cost group, 1986**

| Item | Unit | Cost group | | |
|---|---|---|---|---|
| | | Low-cost | Mid-cost | High-cost |
| Share of U.S. soybean farms | Percent | 25 | 50 | 25 |
| Share of U.S. production | Percent | 38 | 51 | 11 |
| Soybean yields | Bu./acre | 43 | 36 | 17 |
| Soybean cropland | Acres/farm | 186 | 149 | 128 |
| Economic cost | Dol./acre | 147.19 | 168.45 | 137.12 |
| Economic cost | Dol./bu. | 3.45 | 4.60 | 7.90 |
| Share of group's farms in economic class: | | | | |
| Less than $40,000 | Percent | 21 | 33 | 62 |
| $40,000 - $99,999 | Percent | 18 | 34 | 16 |
| $100,000 - $249,999 | Percent | 43 | 28 | 18 |
| $250,000 or more | Percent | 18 | 5 | 3 |
| Farm finances: | | | | |
| Net cash income | Dollars | 46,063 | 19,862 | 3,375 |
| Government payments | Dollars | 17,767 | 11,395 | 7,193 |
| Assets | Dollars | 454,598 | 315,422 | 242,609 |
| Debt | Dollars | 142,557 | 102,689 | 74,808 |
| Debt/asset ratio | Percent | 31 | 33 | 31 |
| Favorable position | Percent | 48 | 47 | 50 |
| Operator characteristics: | | | | |
| Farming as major occupation | Percent | 81 | 87 | 70 |
| Older than 65 years | Percent | 4 | 13 | 14 |
| Household off-farm income | Dollars | 27,853 | 23,870 | 20,280 |

Figure 3

**Soybeans: Cumulative distribution of economic production costs, 1986**

*Twenty-five percent of farms produced soybeans for $3.98 per bushel or less*




75 percent of farms had economic costs of $5.56 or less and 75 percent of the soybean harvest was produced with economic costs of $4.82 or less.

**Table 4—Soybean characteristics, three regions, 1986**

| Item | Unit | North Central | Southeast | Delta |
|---|---|---|---|---|
| Share of U.S. soybean farms | Percent | 83 | 11 | 6 |
| Share of U.S. production | Percent | 83 | 8 | 9 |
| Soybean yields | Bu./acre | 39 | 23 | 19 |
| Soybean cropland | Acres/farm | 132 | 163 | 437 |
| Economic cost | Dol./acre | 169.50 | 129.91 | 112.44 |
| Economic cost | Dol./bu. | 4.27 | 5.59 | 5.94 |
| Share of group's farms in economic class: | | | | |
| Less than $40,000 | Percent | 35 | 59 | 30 |
| $40,000 - $99,999 | Percent | 27 | 12 | 35 |
| $100,000 - $249,999 | Percent | 30 | 19 | 26 |
| $250,000 or more | Percent | 8 | 10 | 9 |
| Farm finances: | | | | |
| Net cash income | Dollars | 25,027 | 6,193 | 10,561 |
| Government payments | Dollars | 12,184 | 6,866 | 17,388 |
| Assets | Dollars | 329,203 | 356,885 | 306,743 |
| Debt | Dollars | 104,080 | 89,390 | 155,160 |
| Debt/asset ratio | Percent | 32 | 25 | 51 |
| Favorable position | Percent | 49 | 47 | 35 |
| Operator characteristics: | | | | |
| Farming as major occupation | Percent | 80 | 82 | 91 |
| Older than 65 years | Percent | 10 | 21 | 2 |
| Household off-farm income | Dollars | 25,392 | 18,337 | 13,698 |

## The Costs of Producing Wheat in 1986

**The major factors affecting per bushel cost levels were wheat yields, size of farm, and wheat acreage.**

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The average cash cost of producing wheat was $2.01 per bushel ($65.74 per planted acre) and the economic cost was $3.50 per bushel ($114.48 per planted acre). Twenty-five percent of farms had economic costs of $3.01 or less per bushel. These low-cost producers harvested about 50 percent of total wheat production. At the other end of the distribution, 25 percent of farms had economic costs of $6.14 or more per bushel and produced less than 5 percent of the total wheat crop.

Costs per acre were similar in low- and high-cost groups. However, because of differences in yields, costs per bushel varied significantly. Only 8 percent of producers in the high-cost group had yields above the State median, compared with 90 percent of the low-cost producers.

High-cost producers had significantly lower wheat acreage, and 50 percent of them were in the smallest economic class. Their characteristics were similar to other small farms; they were more likely to have an operator whose major occupation was other than farming, an operator household with more off-farm income than farm income, lower debt and asset levels, and a higher proportion of older operators.

### Regional Summaries

We defined the regions as follows: Northeast States included New York and Pennsylvania; North Central States included Illinois, Indiana, Missouri, and Ohio; Southeast States included Alabama, Arkansas, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia; Northern Plains States included Minnesota, Montana, North Dakota, and South Dakota; Central Plains States included Colorado, Kansas, Nebraska, and Wyoming; Southern Plains States included New Mexico, Texas, and Oklahoma; Northwest States included Idaho, Oregon, and Washington; and Southwest States were California and Arizona.

Costs per bushel varied significantly by region, with the Northeast, North Central, and Southeast having the highest costs. Northeast wheat costs need to be examined with returns for wheat and wheat straw. High costs in the North Central region can be partly explained by the 1986 drought. However, the Northeast and Southeast, with many small wheat-producing farms, would probably be high-cost regions even during normal years.

The Northern and Central Plains and the Northwest had economic costs below $3.50 per bushel. The Plains also had low costs per acre. The Northwest had high costs per acre but much greater yields.

The Plains States produced the most wheat, the Eastern States the least. The predominant type of wheat varied among the regions, hard red winter wheat in the Central and Southern Plains, soft red winter wheat in the North Central and Southeast, white winter wheat in the Northwest, and winter and spring wheat varieties in the Northern Plains.

Ninety percent of wheat acres in the Southwest and 15-20 percent in the Southern Plains and Northwest regions were irrigated. In the other regions, almost all wheat was not irrigated. More than half of the wheat in the Northwest and the Northern and Central Plains was planted on land that had been fallow.

### Other Relevant Facts

- Ten percent of the all-wheat farms had 500 or more wheat acres and produced 50 percent of the wheat grown in the United States. On the other hand, 25 percent of the total farms had 25 or fewer acres of wheat and produced only 2 percent of the U.S. crop.
- Total economic cost per acre and per bushel decreased as wheat acres increased, suggesting a size efficiency.
- The number of producers that received Government payments was similar among the cost groups. However, the average dollar amount received by all producers in the low-cost group was $21,867 per farm, three times greater than the high-cost group, mainly because of the differences in farm size. The Northern Plains had the highest participation rate among producers, 97 percent.

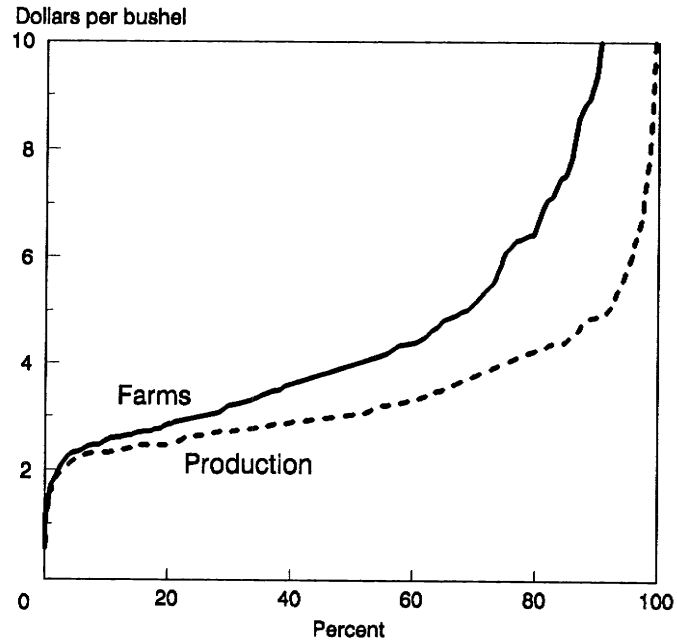
**Table 5—Wheat characteristics, by cost group, 1986**

| Item | Unit | Cost group | | |
|---|---|---|---|---|
| | | Low-cost | Mid-cost | High-cost |
| Share of U.S. wheat farms | Percent | 25 | 50 | 25 |
| Share of U.S. production | Percent | 49 | 47 | 4 |
| Wheat yields | Bu./acre | 42 | 31 | 12 |
| Wheat cropland | Acres/farm | 290 | 192 | 85 |
| Economic cost | Dol./acre | 106.89 | 121.49 | 108.64 |
| Economic cost | Dol./bu. | 2.57 | 3.98 | 8.93 |
| Share of group's farms in economic class: | | | | |
| Less than $40,000 | Percent | 24 | 38 | 52 |
| $40,000 - $99,999 | Percent | 29 | 30 | 31 |
| $100,000 - $249,999 | Percent | 34 | 23 | 14 |
| $250,000 or more | Percent | 13 | 9 | 3 |
| Farm finances: | | | | |
| Net cash income | Dollars | 31,398 | 2,628 | 4,659 |
| Government payments | Dollars | 21,867 | 13,934 | 7,715 |
| Assets | Dollars | 484,770 | 404,765 | 285,219 |
| Debt | Dollars | 122,390 | 93,839 | 89,555 |
| Debt/asset ratio | Percent | 25 | 23 | 31 |
| Favorable position | Percent | 47 | 51 | 49 |
| Operator characteristics: | | | | |
| Farming as major occupation | Percent | 92 | 82 | 79 |
| Older than 65 years | Percent | 9 | 19 | 24 |
| Household off-farm income | Dollars | 12,967 | 16,253 | 14,873 |

Figure 4

**Wheat: Cumulative distribution of economic production costs, 1986**

*Twenty-five percent of farms produced wheat for $3.01 per bushel or less*




75 percent of farms had economic costs of $6.11 or less and 75 percent of the wheat harvest was produced with economic costs of $3.97 or less.

**Table 6—Wheat characteristics, five major regions, 1986** [1]

| Item | Unit | North Central | Northern Plains | Central Plains | Southern Plains | Northwest |
|---|---|---|---|---|---|---|
| Share of U.S. wheat farms | Percent | 32 | 18 | 19 | 10 | 6 |
| Share of U.S. production | Percent | 9 | 31 | 26 | 14 | 13 |
| Wheat yields | Bu./acre | 34 | 31 | 31 | 27 | 48 |
| Wheat cropland | Acres/farm | 51 | 322 | 280 | 321 | 295 |
| Economic cost | Dol./acre | 132.79 | 108.23 | 101.76 | 98.22 | 168.80 |
| Economic cost | Dol./bushel | 3.86 | 3.48 | 3.29 | 3.61 | 3.49 |
| Share of group's farms in economic class: | | | | | | |
| Less than $40,000 | Percent | 45 | 28 | 33 | 43 | 20 |
| $40,000 - $99,999 | Percent | 33 | 37 | 36 | 19 | 20 |
| $100,000 - $249,999 | Percent | 14 | 25 | 24 | 34 | 44 |
| $250,000 or more | Percent | 8 | 10 | 7 | 4 | 16 |
| Farm finances: | | | | | | |
| Net cash income | Dollars | 10,077 | 30,225 | -19,964 | 8,811 | 31,833 |
| Government payments | Dollars | 7,462 | 21,788 | 17,468 | 17,824 | 26,129 |
| Assets | Dollars | 339,726 | 454,504 | 376,930 | 409,000 | 590,572 |
| Debt | Dollars | 76,829 | 139,119 | 77,678 | 117,844 | 168,349 |
| Debt/asset ratio | Percent | 23 | 31 | 21 | 29 | 29 |
| Favorable position | Percent | 56 | 50 | 46 | 30 | 53 |
| Operator characteristics: | | | | | | |
| Farming as major occupation | Percent | 75 | 96 | 75 | 88 | 92 |
| Older than 65 years | Percent | 19 | 11 | 14 | 22 | 17 |
| Household off-farm income | Dollars | 15,560 | 9,407 | 18,343 | 26,166 | 10,538 |

[1]See appendix table 1 for information about the Northeast, Southeast, and Southwest regions.

## Sorghum

## The Costs of Producing Sorghum in 1986

**Yields and input use most affected the cost of producing a bushel of sorghum.**

---

The average cash cost of producing sorghum was $1.28 per bushel ($86.71 per acre), and the economic cost was $1.87 per bushel ($126.73 per acre). Twenty-five percent of farms had economic costs per bushel of $1.51 or less. These low-cost producers accounted for almost 44 percent of the sorghum production. At the other end of the distribution, 25 percent of farms had economic costs of $2.59 or more per bushel and accounted for only 13.6 percent of sorghum production.

Both costs per bushel and per acre increased as farms moved from the low-cost group to the high-cost group. Costs per acre ranged from an average of $113 for low-cost producers to an average of $136 for high-cost producers. Almost 85 percent of producers in the high-cost group had lower yields than their State median, compared with 17 percent of low-cost producers who had yields below their State median.

Low-cost producers tended to have larger farms and have larger sorghum acreage. They were also more likely to have an operator whose major occupation was farming and to have relatively larger farm income and asset levels but lower off-farm incomes. Drawing distinctions to characterize and differentiate between sorghum producers in the mid- and high-cost groups is more difficult, possibly because of the restricted coverage of sorghum production by the survey.

### Regional Summaries

We defined the sorghum regions as follows: Southern Plains States were Arkansas and Texas and the Central Plains States were Kansas, Missouri, and Nebraska.

Seventy-five percent of the farms and production and about 65 percent of the sorghum acres represented in the FCRS were in the Central Plains. Sorghum producers in the Central Plains were three times more likely to be in the low-cost group than were their counterparts in the Southern Plains. Total costs per acre were very similar for the two regions, although differences did exist across input items. The Central Plains had low costs per acre for all inputs except chemicals, interest, and land charges. The critical factor that explained differences in costs per bushel was the yield differences. Yields in the Central Plains were more than 50 percent higher than in the Southern Plains.

### Other Relevant Facts

- Farms with 500 or more sorghum acres represented less than 4 percent of the total sorghum farms, but they accounted for almost 27 percent of the sorghum production in 1986. The farms with fewer than 25 acres of sorghum represented 11 percent of the sorghum farms but produced less than 1 percent of the U.S. crop.
- Total economic cost per acre and per bushel decreased as size increased, suggesting a size efficiency.
- A larger proportion of low-cost producers received Government payments than did high-cost producers (95 percent versus 77 percent).

**Table 7—Sorghum characteristics, by cost group, 1986**

| Item | Unit | Cost group | | |
|---|---|---|---|---|
| | | Low-cost | Mid-cost | High-cost |
| Share of U.S. sorghum farms | Percent | 25 | 50 | 25 |
| Share of U.S. production | Percent | 43 | 44 | 13 |
| Sorghum yields | Bu./acre | 84 | 67 | 35 |
| Sorghum cropland | Acres/farm | 188 | 119 | 138 |
| Economic cost | Dol./acre | 113.16 | 132.32 | 135.57 |
| Economic cost | Dol./bu. | 1.27 | 1.94 | 3.63 |
| Share of group's farms in economic class: | | | | |
| Less than $40,000 | Percent | 28 | 43 | 47 |
| $40,000 - $99,999 | Percent | 24 | 33 | 36 |
| $100,000 - $249,999 | Percent | 40 | 19 | 14 |
| $250,000 or more | Percent | 8 | 5 | 3 |
| Farm finances: | | | | |
| Net cash income | Dollars | 32,236 | 25,967 | 15,717 |
| Government payments | Dollars | 19,387 | 17,078 | 17,741 |
| Assets | Dollars | 410,302 | 312,107 | 331,019 |
| Debt | Dollars | 121,978 | 83,555 | 80,225 |
| Debt/asset ratio | Percent | 30 | 27 | 24 |
| Favorable position | Percent | 37 | 53 | 50 |
| Operator characteristics: | | | | |
| Farming as major occupation | Percent | 90 | 70 | 75 |
| Older than 65 years | Percent | 31 | 8 | 11 |
| Household off-farm income | Dollars | 9,551 | 18,106 | 30,777 |

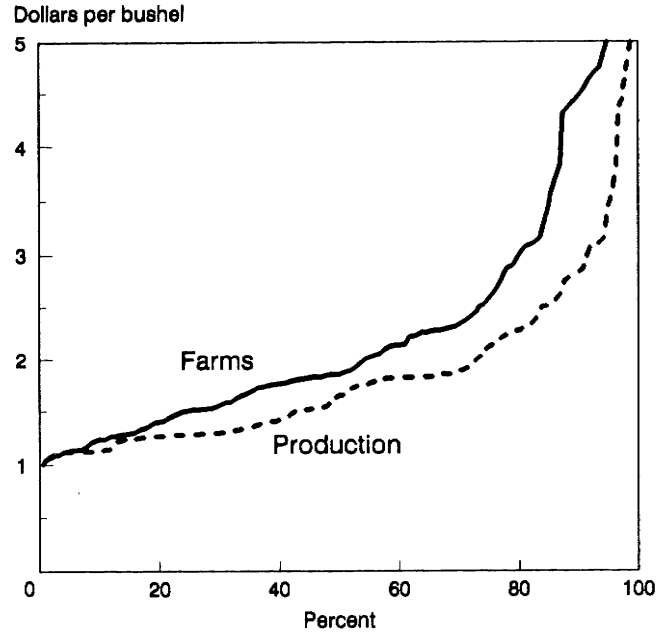
**Table 8—Sorghum characteristics, two regions, 1986**

| Item | Unit | Central Plains | Southern Plains |
|---|---|---|---|
| Share of U.S. sorghum farms | Percent | 75 | 25 |
| Share of U.S. production | Percent | 78 | 22 |
| Sorghum yields | Bu./acre | 77 | 49 |
| Sorghum cropland | Acres/farm | 127 | 183 |
| Economic cost | Dol./acre | 126.67 | 126.84 |
| Economic cost | Dol./bu. | 1.65 | 2.59 |
| Share of group's farms in economic class: | | | |
| Less than $40,000 | Percent | 42 | 34 |
| $40,000 - $99,999 | Percent | 29 | 39 |
| $100,000 - $249,999 | Percent | 24 | 21 |
| $250,000 or more | Percent | 5 | 6 |
| Farm finances: | | | |
| Net cash income | Dollars | 24,269 | 26,991 |
| Government payments | Dollars | 16,734 | 21,021 |
| Assets | Dollars | 299,565 | 464,459 |
| Debt | Dollars | 90,236 | 98,444 |
| Debt/asset ratio | Percent | 30 | 21 |
| Favorable position | Percent | 47 | 52 |
| Operator characteristics: | | | |
| Farming as major occupation | Percent | 74 | 83 |
| Older than 65 years | Percent | 12 | 15 |
| Household off-farm income | Dollars | 20,407 | 15,451 |

Figure 5

**Sorghum: Cumulative distribution of economic production costs, 1986**

*Twenty-five percent of farms produced sorghum for $1.51 per bushel or less*




75 percent of farms had economic costs of $2.59 or less and 75 percent of the sorghum harvest was produced with economic costs of $2.10 or less.

## The Costs of Producing Cotton in 1987

**Yields and size most affected cotton cost levels per pound.**

---

The average cash cost of producing cotton was 48 cents per pound ($305.44 per acre), and the average total economic cost was 69 cents per pound ($442.13 per acre). Twenty-five percent of farms had average total economic costs of $0.66 or less per pound. These low-cost producers accounted for about 50 percent of cotton production. At the other end of the distribution, 25 percent of farms had economic costs of 98 cents or more per pound and accounted for only about 8 percent of cotton production.

The low-cost producers had significantly higher yields. Only 17 percent of producers in the high-cost group had yields greater than their State median, compared with 70 percent of low-cost producers.

Costs per acre decreased from low-cost producers to high-cost producers. Costs ranged from $523 per acre for the low-cost group, to $435 per acre for the mid-cost group, to $321 per acre for the high-cost group.

More high-cost producers had $40,000 or less in farm sales than the other cost groups. Many of their characteristics were similar to small farms in the sector; they were more likely to have a major occupation other than farming and their net worth and farm income were lower than other groups. However, the low-cost group actually had the highest average off-farm income.

### Regional Summaries

We defined the cotton production regions as follows: the Southeast was Alabama and Georgia; the Delta was Arkansas, Louisiana, Mississippi, and Tennessee; the Southern Plains States were Oklahoma and Texas; and the Southwest was Arizona and California.

About 65 percent of the high-cost cotton producers and 46 percent of all U.S. cotton producers were in the Southern Plains. Of the low-cost producers, almost 45 percent were in the Delta where yields were 753 pounds per acre. About 32 percent of the low-cost cotton producers were in the Southwest. The Southeast was the only region in which cotton production suffered from drought.

Southwest cotton producers had the highest costs per acre ($775.49 per acre) and the highest yields per acre (1,357 pounds per acre), giving them the lowest costs per pound of cotton ($0.57 per pound). Costs per pound were highest in the Southern Plains, followed by the Southeast and Delta.

### Other Relevant Facts

- Sixteen percent of cotton farms had 500 or more acres of cotton and produced 46 percent of the cotton in 1987. Farms with less than 100 acres (38 percent of all U.S. cotton farms) produced just over 5 percent of the cotton.
- As acres of cotton increased, costs per pound declined. However, costs for farms with 100-500 acres of cotton and those with 500 or more acres did not differ significantly. Farms with 100-500 acres of cotton had the highest cost per acre, but their high yields gave them per pound costs only 1 cent above the lowest cost.
- Participation in Government programs was high for all cotton cost groups (about 95 percent). The average payments per farm were higher for cotton than for any of the other commodities, and low-cost producers received more per operation.

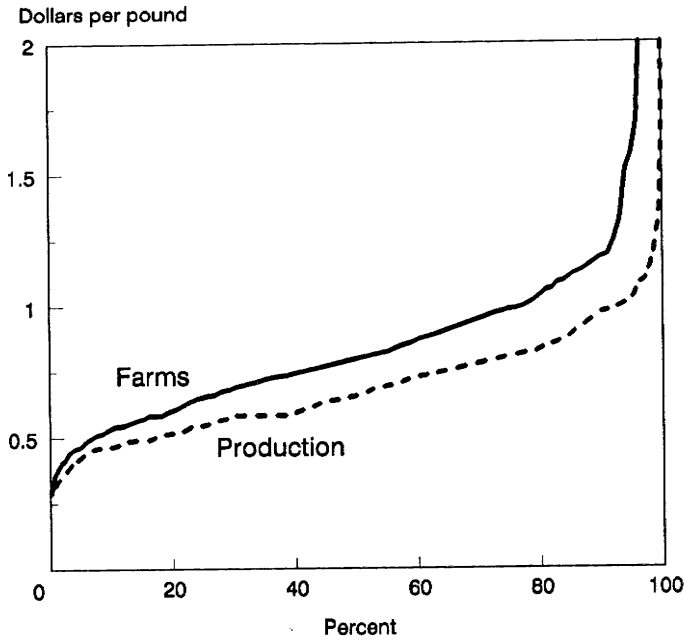
**Table 9—Cotton characteristics, by cost group, 1987**

| Item | Unit | Cost group | | |
|---|---|---|---|---|
| | | Low-cost | Mid-cost | High-cost |
| Share of U.S. cotton farms | Percent | 25 | 50 | 25 |
| Share of U.S. production | Percent | 50 | 42 | 8 |
| Cotton yields | Lbs./acre | 982 | 547 | 280 |
| Cotton cropland | Acres/farm | 360 | 274 | 208 |
| Economic cost | Dol./acre | 523.40 | 435.28 | 320.95 |
| Economic cost | Dol./lb. | .53 | .80 | 1.15 |
| Share of group's farms in economic class: | | | | |
| Less than $40,000 | Percent | 7 | 22 | 45 |
| $40,000 - $99,999 | Percent | 12 | 20 | 28 |
| $100,000 - $249,999 | Percent | 34 | 38 | 23 |
| $250,000 or more | Percent | 46 | 20 | 5 |
| Farm finances: | | | | |
| Net cash income | Dollars | 73,127 | 49,423 | 17,872 |
| Government payments | Dollars | 58,923 | 31,839 | 24,221 |
| Assets | Dollars | 1,069,999 | 560,252 | 369,495 |
| Debt | Dollars | 227,953 | 106,661 | 126,721 |
| Debt/asset ratio | Percent | 21 | 19 | 34 |
| Favorable position | Percent | 63 | 59 | 43 |
| Operator characteristics: | | | | |
| Farming as major occupation | Percent | 88 | 89 | 80 |
| Older than 65 years | Percent | 14 | 15 | 17 |
| Household off-farm income | Dollars | 37,609 | 18,390 | 18,866 |

Figure 6

**Cotton: Cumulative distribution of economic production costs, 1987**

*Twenty-five percent of farms produced cotton for $0.66 per pound or less*




75 percent of farms had economic costs of $0.984 or less and 75 percent of the cotton harvest was produced with economic costs of $0.811 or less.

**Table 10—Cotton characteristics, four regions, 1987**

| Item | Unit | Delta | Southeast | Southwest | Southern Plains |
|---|---|---|---|---|---|
| Share of U.S. cotton farms | Percent | 31 | 11 | 12 | 46 |
| Share of U.S. production | Percent | 30 | 8 | 29 | 33 |
| Cotton yields | Lbs./acre | 753 | 502 | 1,357 | 414 |
| Cotton cropland | Acres/farm | 228 | 248 | 310 | 313 |
| Economic cost | Dol./acre | 471.10 | 387.29 | 775.49 | 349.59 |
| Economic cost | Dol./lb. | .63 | .77 | .57 | .84 |
| Share of group's farms in economic class: | | | | | |
| Less than $40,000 | Percent | 31 | 24 | 4 | 25 |
| $40,000 - $99,999 | Percent | 13 | 24 | 16 | 25 |
| $100,000 - $249,999 | Percent | 36 | 19 | 23 | 37 |
| $250,000 or more | Percent | 20 | 33 | 56 | 13 |
| Farm finances: | | | | | |
| Net cash income | Dollars | 53,236 | 24,755 | 70,335 | 42,746 |
| Government payments | Dollars | 35,897 | 30,072 | 59,453 | 32,658 |
| Assets | Dollars | 414,044 | 762,950 | 357,661 | 566,628 |
| Debt | Dollars | 105,104 | 109,502 | 302,361 | 131,371 |
| Debt/asset ratio | Percent | 25 | 14 | 22 | 23 |
| Favorable position | Percent | 53 | 51 | 57 | 59 |
| Operator characteristics: | | | | | |
| Farming as major occupation | Percent | 88 | 83 | 88 | 86 |
| Older than 65 years | Percent | 10 | 16 | 18 | 18 |
| Household off-farm income | Dollars | 20,567 | 21,419 | 30,098 | 23,761 |

## The Costs of Producing Rice in 1984

**Rice yields and input use most affected cost levels per cwt.**

---

The average cash cost of producing rice in 1984 was $6.30 per cwt ($325.06 per acre), and the average economic cost was $9.25 per cwt ($477.57 per acre). Twenty percent of rice farms had economic costs of $7.47 per cwt or less. These low-cost producers accounted for 29 percent of total rice production. At the other end of the distribution, 25 percent of rice farms had economic costs of $10.89 or more per cwt and accounted for 23 percent of total rice production.

Rice production costs per acre were much lower for low-cost producers. Yields were similar for the low-cost and mid-cost producers, but the high-cost group had significantly lower yields. Only 34 percent of high-cost farms had yields above the State median, compared with 83 percent of the low cost. Economic costs per cwt for high-cost farms were more than twice those for the low-cost farms.

Relationships between rice costs and farm size are not as clear as they are for some crops. Low-cost farms had the largest rice acreage, but high-cost farms had larger rice acreage than the mid-cost farms. The relationship between total farm acreage and cost group was similar. Farms with $100,000 or more in gross farm income were more likely than smaller farms to have low costs. However, farms in the $100,000-$249,999 class were twice as likely as the very largest farms to be low-cost producers.

### Regional Summaries

The Delta includes the areas in Arkansas, Louisiana, and Mississippi along the Mississippi River. An additional Arkansas region (non-Delta) includes the Northeast and Grand Prairie. The Gulf Coast is Southwest Louisiana and the Texas Coast.

Arkansas (non-Delta) accounted for 50 percent of all U.S. rice farms and 37 percent of rice production. Sixty-two percent of low-cost rice farms were in this region, which was dominated by midsized farms and had very few large farms. Economic costs averaged $8.87 per cwt with an average yield of 49 cwt.

The Delta accounted for 20 percent of U.S. rice farms and 20 percent of rice production. Economic costs of rice production averaged $9.16 per cwt. The Delta had the lowest per acre costs, partly because of its low costs for irrigation, interest, land, and unpaid labor. However, the Delta also had low yields. Like California, a high percentage of Delta rice farms were in the largest economic class.

The Gulf Coast accounted for 21 percent of all U.S. rice farms, but 39 percent of high-cost farms and only 11 percent of low-cost producers. The Gulf Coast produced 24 percent of U.S. rice. Economic costs averaged $10.89 per cwt, the highest of the regions. Although the Gulf Coast yields were similar to the Delta and Arkansas, costs per acre were more than 20 percent greater. The Gulf Coast had much higher irrigation costs.

California had 9 percent of U.S. rice farms and 19 percent of production. California rice farms had the lowest economic cost per cwt. Their high per acre costs were offset by high yields.

### Other Relevant Facts

- Farms with 500 or more rice acres accounted for 11 percent of farms but over 40 percent of production. Almost 75 percent of rice-producing farms had 100-500 acres in rice and accounted for 55 percent of U.S. production.
- Farms with less than 25 acres of rice had the highest cost per cwt, over $11. For larger acreage classes, costs tended to decrease as acreage increased but fell within a narrow range of $9.20 to $9.45.
- The percentage of farms receiving Government payments was similar for the three cost groups and was 79 percent of all rice farms. Low-cost producers received an average of $25,205 in total Government payments, compared with $19,436 for mid-cost producers and $18,110 for high-cost producers. California producers were most likely to participate (89 percent), and Delta producers were least likely to participate (67 percent).

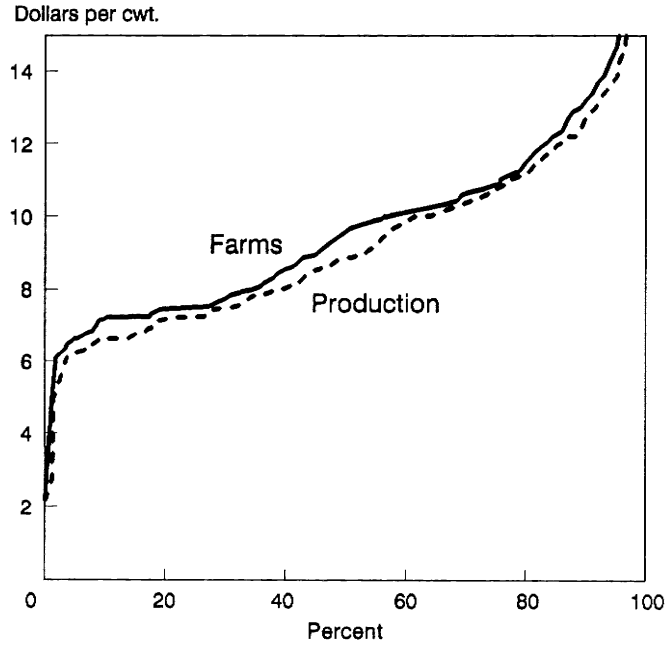
**Table 11—Rice characteristics, by cost group, 1984**

| Item | Unit | Cost group | | |
|---|---|---|---|---|
| | | Low-cost | Mid-cost | High-cost |
| Share of U.S. rice farms | Percent | 20 | 55 | 25 |
| Share of U.S. production | Percent | 29 | 48 | 23 |
| Rice yields | Cwt/acre | 55 | 54 | 44 |
| Rice cropland | Acres/farm | 381 | 232 | 311 |
| Economic cost | Dol./acre | 368.08 | 479.28 | 580.91 |
| Economic cost | Dol./cwt | 6.68 | 8.83 | 13.22 |
| Share of group's farms in economic class: | | | | |
| Less than $40,000 | Percent | 1 | 9 | 13 |
| $40,000 - $99,999 | Percent | 7 | 21 | 22 |
| $100,000 - $249,999 | Percent | 68 | 37 | 37 |
| $250,000 or more | Percent | 24 | 33 | 28 |
| Farm finances: | | | | |
| Net cash income | Dollars | 69,068 | 53,405 | -8,933 |
| Government payments | Dollars | 25,205 | 19,436 | 18,110 |
| Assets | Dollars | 981,355 | 578,076 | 698,647 |
| Debt | Dollars | 238,243 | 213,785 | 187,005 |
| Debt/asset ratio | Percent | 24 | 37 | 27 |
| Favorable position | Percent | 27 | 48 | 31 |
| Operator characteristics: | | | | |
| Household off-farm income | Dollars | 8,943 | 3,726 | 5,995 |

Figure 7

## Rice: Cumulative distribution of economic production costs, 1984

*Twenty percent of farms produced rice at $7.47 per hundredweight or less*




75 percent of farms had economic costs of $10.88 or less and 75 percent of the rice harvest was produced with economic costs of $10.80 or less.

**Table 12—Rice characteristics, four regions, 1984**

| Item | Unit | Delta | Arkansas | Gulf Coast | California |
|---|---|---|---|---|---|
| Share of U.S. rice farms | Percent | 20 | 50 | 21 | 9 |
| Share of U.S. production | Percent | 20 | 37 | 24 | 19 |
| Rice yields | Cwt/acre | 45 | 49 | 48 | 76 |
| Rice cropland | Acres/farm | 315 | 216 | 349 | 409 |
| Economic cost | Dol./acre | 413.18 | 438.28 | 525.59 | 604.42 |
| Economic cost | Dol./cwt | 9.16 | 8.87 | 10.89 | 8.00 |
| Share of group's farms in economic class: | | | | | |
| Less than $40,000 | Percent | 6 | 8 | 12 | 10 |
| $40,000 - $99,999 | Percent | 9 | 19 | 27 | 13 |
| $100,000 - $249,999 | Percent | 47 | 46 | 37 | 33 |
| $250,000 or more | Percent | 38 | 27 | 24 | 44 |
| Farm finances: | | | | | |
| Net cash income | Dollars | 14,590 | 56,178 | -1,435 | 112,144 |
| Government payments | Dollars | 21,269 | 17,507 | 19,615 | 34,336 |
| Assets | Dollars | 872,545 | 497,637 | 574,932 | 1,578,782 |
| Debt | Dollars | 322,363 | 132,658 | 197,551 | 435,013 |
| Debt/asset ratio | Percent | 37 | 27 | 34 | 28 |
| Favorable position | Percent | 21 | 46 | 37 | 47 |
| Operator characteristics: | | | | | |
| Household off-farm income | Dollars | 3,767 | 4,288 | 6,936 | 10,673 |

**Appendix:**

## About the Accounting System

The average costs and returns presented in this report vary slightly from those published in the *Economic Indicators of the Farm Sector* series published by USDA's Economic Research Service. The data presented here are from a new system, called the Farm-Level Budget Model (FLBM). The data published in the *Economic Indicators* series are from a version of the system called the Firm Enterprise Data System (FEDS). Under the FLBM, the costs and returns are calculated for each farm observation, and then farms are properly weighted to provide State, regional, and national estimates. Under the FEDS, cost and return estimates are calculated as if all production for a commodity is produced on a single average acre in the State. The FLBM allows for the distributional analysis presented in this report, but the FEDS does not. Differences in estimates can arise under the two systems due to the assumptions in FEDS about average practices in States.

The accounting of costs and returns follows the ERS methods and format. The methods and format have been developed over time with input from the National Agricultural Cost of Production Standards Review Board which was established under the Agricultural and Food Act of 1981. The format was revised in the early 1980's after reviews by commodity groups, land-grant university economists, and individual farmers.

Economic costs are designed to account for the value of all inputs in production. An estimated cost is calculated for all inputs--whether owned, rented, or financed--in a consistent manner. That is, economic costs represent the production situation as if the operation and landlord fully own the production inputs. Therefore, the economic costs section does not include any interest payments for loans. This full ownership assumption of costs and returns allows comparisons among producers without regard to the actual ownership and debt positions of producers.

There are three underlying characteristics of the ERS estimates of crop cost and returns that distinguish them from other common cost accounting systems:

**Government programs.** ERS estimates exclude the direct effects of Government programs where possible. Thus, policymakers may be informed as to production costs and returns in the absence of programs. Participants in an income-support program must set aside or conserve a portion of their acreage that would have been planted to a particular crop in return for direct Government payments based on production of the crop on the remaining acreage. Participants may also be required to incur costs by maintaining a cover crop or by controlling weeds on set-aside acreage. ERS does not include either these costs or direct payments for participating in the Government commodity-based income-support programs. If ERS included the direct effects of Government programs on costs, the greatest effect would generally be on the cost for land. Exclusion of all of the effects from Government programs is not possible, however. For example, participants forgo current income from their acreage that is set aside, which may lead to increased output on the acreage in following years because the land has been fallow or planted to legumes. For another example, both participants and nonparticipants are affected when the supply of a crop is restricted and prices rise. Also, prices of specialized inputs, particularly cropland, tend to increase as expected income increases either from higher output prices or direct Government commodity program payments.

**Combined operation-landlord costs and returns.** The estimates of costs and returns are for the farm operation and landlord combined, as if they were one combined business. Thus, each line item is for both the farm operation and landlord. The combined operation-landlord account also means that estimates of cash expenses do not include an expense for cash- and share-rent expenses paid by the farm operation to the landlord. What is a rental expense to the farm business is exactly cancelled as an income to the landlord. Estimates of cash expenses include an interest expense, however, because the interest is paid to those other than the combined operation-landlord entity.

**Separation of production and marketing costs.** To separate the costs of production from the costs of marketing, the production costs are to the point of first sale or storage, if the commodity is not sold immediately after harvest. Costs of drying and costs of hauling the crop to the elevator or processor are included. Because storage costs are excluded, the commodity is valued at its time of harvest.

**Appendix table 1—Wheat characteristics, Northeast, Southeast, and Southwest regions, 1986**

| Item | Unit | Northeast | Southeast | Southwest |
|---|---|---|---|---|
| Share of U.S. wheat farms | Percent | 2 | 10 | 2 |
| Share of U.S. production | Percent | 1 | 4 | 2 |
| Wheat yields | Bu./acre | 44 | 34 | 74 |
| Wheat cropland | Acres/farm | 32 | 68 | 101 |
| Economic cost | Dol./acre | 199.24 | 125.18 | 277.06 |
| Economic cost | Dol./bu. | 4.58 | 3.74 | 3.73 |
| Share of group's farms in economic class: | | | | |
| Less than $40,000 | Percent | 34 | 45 | 75 |
| $40,000 - $99,999 | Percent | 6 | 23 | 0 |
| $100,000 - $249,999 | Percent | 44 | 25 | 2 |
| $250,000 or more | Percent | 16 | 7 | 23 |
| Farm finances: | | | | |
| Net cash income | Dollars | 32,048 | 13,897 | 12,965 |
| Government payments | Dollars | 2,424 | 8,727 | 12,588 |
| Assets | Dollars | 465,109 | 306,937 | 712,714 |
| Debt | Dollars | 65,974 | 76,181 | 187,870 |
| Debt/asset ratio | Percent | 14 | 25 | 26 |
| Favorable position | Percent | 53 | 53 | 13 |
| Operator characteristics: | | | | |
| Farming as major occupation | Percent | 98 | 90 | 98 |
| Older than 65 years | Percent | 19 | 22 | 75 |
| Household off-farm income | Dollars | 11,340 | 12,586 | 3,420 |

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Glaze, D. "A New Approach to Estimating COP Budgets," *Agricultural Income and Finance*, AFO-29, U.S. Dept. Agr., Econ. Res. Serv., May 1988.

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