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Costs and Returns for Corn, Cotton, Rice, Soybeans, and Wheat in Mississippi, 1996

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Stan R. Spurlock
Agricultural Economist
Department of Agricultural Economics
Mississippi State University

W. Gail Gillis
Senior Research Assistant
Department of Agricultural Economics
Mississippi State University

For more information, contact Dr. Spurlock: telephone (662) 325-7995; e-mail spurlock@agecon.mssstate.edu.
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Introduction

Information about production costs and returns from agricultural enterprises in Mississippi is important to

producers, lenders, agricultural economists, researchers, extension personnel, policy makers, and others involved in agriculture. This bulletin presents per-acre information for yield, revenue, cost of production, and net revenue for corn, cotton, rice, soybean, and wheat crops that were produced in Mississippi during 1996. First, the methods and procedures used to develop the estimates are discussed. Then, the results of the study are presented.

Methods and Procedures

The five soil resource areas in Mississippi delineated in this study were Upper Delta, Lower Delta, Brown Loam, Coastal Plain, and Black Belt (see Appendix Tables 1-5). For each soil resource area, statisticians with the Mississippi Agricultural Statistics Service (MASS) developed a stratified random sample of farms that produced either corn, cotton, rice, soybeans, o r wheat in 1996. The strata were based on different farm sizes. Farm size was measured by the farm's acreage planted to a specific crop -- not the farm's total acreage. After contacting the owner or manager of the farm operation in the fall of 1996, an en umerator employed by MASS randomly selected a field on the chosen farm and collected information about the farm and the cultural practices used to produce the crop on that field. Information included types of preplant tillage operations, planting practice s, fertilizer and pesticide applications, harvesting operations, and custom hired work. After the crop was harvested, the enumerator contacted the producer again to obtain the crop yield for the whole farm. A total of 398 usable surveys were taken.

Upon completion of the survey, MASS developed two numbers called "expansion factors" for each sampled field so that the sample information related to the field could be expanded to represent the population of crop farms within the soil resource area. These expansion factors were used to compute weighted means (or averages) and standard deviations of costs and returns. The first expansion factor was used to expand information pertaining to the sampled field to the farm level. It was computed as the number of acres of the crop on the farm divided by the number of acres of the crop in the sampled field. The second expansion factor was used to expand the farm-level information about the crop to the whole soil resource area. Each crop in each stratum had an expansion factor of this type. This expansion factor was computed as the total number of farm operations that produced a specific crop in each stratum divided by the number of farms sampled in that stratum (i.e., the number of farms in the population divided by the number of farms in the sample).

Estimating Economic Costs and Returns

The information about production practices from each sampled field was entered into data files by using the Mississippi State Budget Generator (MSBG) program. This computer program uses information about farm machinery, operating inputs, and prices to convert production practice information into budgetary information (costs and returns). Essentially, the program estimates the variable and fixed costs per acre of each field operation. These field operation costs are then organized into various useful budget output formats.

Variable Cost Estimation

Variable costs are those that a manager has control over in the short run and that will increase as total planned production is increased. Variable cost categories for owned machinery were defined as diesel fuel, repairs and maintenance, and labor. Powered machines (tractors and combines, for instance) consume diesel fuel at a specified rate per hour of operation. This consumption rate was multiplied by the machine's performance rate (the time it takes to complete a field operation on one acre) to obtain the fuel consumption per acre. This quantity was multiplied by the diesel fuel price (estimated to be 82 cents per gallon) to obtain the fuel cost per acre.

An average hourly cost for repairs and maintenance (R&M) was estimated by dividing the machine's estimated total lifetime R&M expense (specified as a percent of the machine's current list price, assuming the machine is new, not used) by the machine's estimated total operational life (in hours). This amount was then multiplied by the machine's performance rate to obtain the R&M cost per acre.

Depending on the type of field operation, the type of labor required may be the machine operator alone or may also include non-operator labor. Labor use for each type of labor associated with the field operation (hours per acre) was multiplied by the labor cost per hour (the going wage rate plus employer contributions for perks and benefits, estimated to be $7.50 per hour for operator labor and $5.87 per hour for non-operator labor) to obtain the labor cost per acre. A category for overhead labor (or non-fieldwork labor) was established to account for labor expenses that are not directly related to fieldwork. Cox (*1*) conducted a labor study and concluded that overhead labor expenses could be estimated as a percent of operator labor for specific crop enterprises. The estimation method used by Cox resulted in different overhead labor rates for different crops. The rates estimated by Cox and used in this study were 90 percent for corn, rice, and soybeans, and 80 percent for cotton and wheat.

For irrigated fields, similar computations were made to estimate variable costs for an acre-inch of irrigation water. Cost per acre-inch was multiplied by the number of inches per acre pumped to obtain the cost per acre of irrigation water.

Other variable cost categories were defined for purchased operating inputs, such as fertilizer and pesticides. The quantity per acre of each operating input was multiplied by its price to obtain its cost per acre. Other variable cost items are ginning cotton, hauling the crop to a storage or handling facility, and hiring custom work. Again, the quantity per acre was multiplied by the charge or fee per unit to obtain the cost per acre.

Finally, an interest charge was applied to each variable cost item to account for the opportunity cost of using operating capital to produce crops instead of some alternative investment, which could include paying off current debt. The interest cost was estimated by multiplying a short-term monthly interest rate on borrowed funds (estimated to be 0.786 percent per month in 1996) by the cost per acre for each month between the time that the field operation was performed and the harvest month.

Fixed Cost Estimation

The ownership costs of machines need to be estimated on an annual basis to properly allocate the original investment capital to one production period (i.e., 1 year). One type of ownership cost is the loss in value of a machine during the year; this cost is termed depreciation. There is also an opportunity cost for the capital invested in a durable machine; an interest charge is estimated to account for this cost. Technically, these two ownership costs are often categorized as noncash fixed costs because their values do not depend on the level of production. However, the methods used in this study to estimate depreciation per acre and interest on average investment capital per acre depend on machinery use per acre. To be consistent with standard budgeting procedures, these costs were termed machinery fixed costs in this study.

Depreciation per hour was calculated by dividing the machine's current price (assuming it is new) by its total hours of operational life. In the current study, a machine's salvage value was specified to be zero, reflecting the assumption that a machine will be placed in use for its whole operational life, at which time it wi ll have no remaining market value. Hourly depreciation was then multiplied by the machine's performance rate to obtain depreciation per acre.

Interest on average investment capital was first computed for the year by multiplying the average investment (one-half of the sum of the machine's new price and its salvage value, which again is assumed to be zero) by an annual interest rate applicable for intermediate-term debt (estimated to be 9.43 percent per year in 1996). This amount was divided by the machine's estimated hours of annual use to obtain the interest cost per hour. This hourly interest cost was then multiplied by the machine's performance rate to obtain the interest cost per acre.

Another fixed cost category involves land, which may be a cash cost for rented land or a noncash opportunity cost in the case of owned land. In this study, the cash rental rate per acre was used as an estimate of the annual cost of land. In the event that the producer rented land to produce the crop in question, the cash rental rate was elicited from the producer. For producers who did not cash-rent land, the cash rental rate had to be estimated. The simple average of the rental rates reported by the cash renters in the sample was assigned to those producers who did not report having a rental charge.

Other fixed cost categories that may need to be allocated to crop enterprises are general farm overhead and a management charge. There was no reliable method for estimating these types of costs with the available data; therefore, these costs were not included in the analysis.

Revenue Estimation

Revenue per acre was estimated by multiplying the crop yield by the statewide average market price received by farmers (collected and published by MASS). Market prices used were $0.701 per pound of cotton lint, $0.0595 per pound of cotton seed, $4.50 per bushel of rice, $3.40 per bushel of corn, $7.10 per bushel of soybeans, and $4.35 per bushel of wheat. Cotton seed yield was assumed to be 1.55 pound of seed per pound of lint. The sampling procedure did not request information about government program payments received. Thus, the net revenue estimates do not account for any government payments that may have been received. Net revenue was then computed as the difference between total revenue and total specified cost.

Computing Weighted Means and Standard Deviations

The data for machinery prices, performance rates, operational hours, operating input, and crop prices were the same for all producers; only the individual production practices and crop yields were different across sampled fields. After the budgetary information was estimated within the MSBG framework and the land rental rate was estimated where necessary, the weighted average (mean) of each item was computed. For each sampled field, the number of acres in the field was multiplied by the product of the two expansion factors to obtain the total number of acres represented by the sampled field. These expanded acre values were summed over the whole sample to obtain the total acres represented by the sample. The weight for each sample unit was obtained by dividing its expanded acres by the total acres represented. These weights were used to compute weighted means and weighted standard deviations for crop yields, revenues, selected cost categories, and net returns.

Results

Interpretation of Data

Results from the surveys are presented in Tables 1-17. In each table, the "Item" column is followed by columns that list each item's mean (or average) value, standard deviation, minimum value, and maximum value . The mean value is one measure of central tendency of a distribution. On each table, there is a list of farm characteristics, yields, revenues, some of the more important variable cost categories, specified fixed cost categories, and net revenue. Since o nly some of the variable cost categories are listed, the sum of the mean values of the listed categories does not equal the total variable cost presented.

While the mean measures the central tendency of a large group of values, it may not be enough to provide an accurate picture of the overall group. Most groups of scores possess some degree of variability. Standard deviation is the measure of variability used in this study to indicate how spread out the values are. The standard deviation of an item is a measure of the dispersion of values around the mean. The higher the standard deviation, the more dispersed the values are around the mean; the lower the standard deviation, the more uniform the values. If the measurements were from a normal distribution, about 68 percent of the values would occur between one standard deviation below the mean and one standard deviation above the mean. Also, only about 2.5 percent of the values would occur less than two standard deviations below the mean, and about 2.5 percent of the values would occur more than two standard deviations above the mean.

An item's minimum value is the lowest value observed in the sample, while its maximum value is the largest value observed. These extreme values for the various items would necessarily have come from different farms. Thus, it is not proper to add or subtract the values in these columns.

Corn Costs and Returns

In Table 1, the results for corn production in the Delta Area show that the unweighted mean size of the total operation was 2,567 acres. About three-fourths of the 2,211 cropland acres operated were rented. On average, t hese producers planted 442 acres of corn for grain. The weighted mean corn yield was 94.5 bushels per acre. The average revenue was about $321 per acre, the average total specified cost of production was about $279 per acre, and the average net revenue wa s about $43 per acre. The fertilizer category was by far the largest variable cost item at about $45 per acre. Other major cost categories were custom harvest/haul, seed, and herbicides. Operator and overhead labor expense was estimated to be about $13 per acre.

Twenty-four of the 32 producers surveyed rented the selected field. Eighteen cash rents ranged from $35 to $120 per acre, and five were share based. Seven of the producers indicated that their corn was produced on Class I soils, 19 on Class II soils, 5 on Class III soils, and 1 on Class IV soils. Soil tests were performed on 14 operations. Nine operations plan to lime in the future. The most common application rate was 1 ton per acre every 3 years. The most prominent row spacing was 38 inches used by 2 2 producers. Nineteen producers had irrigation systems available in the field. The numbers and types of systems were: seven center pivot, seven roll-out pipe, three gated pipe, and two flood.

In Table 2, the results for corn production in the Brown Loam Area show that the unweighted mean size of the total operation was 1,947 acres. Sixty-one percent of the 1,160 cropland acres operated were rented. On average , these producers planted 421 acres of corn for grain. The weighted mean corn yield was 95 bushels per acre. The average revenue was about $323 per acre, the average total specified cost of production was about $249 per acre, and the average net revenue w as about $74 per acre. The fertilizer category was by far the largest variable cost item at $59 per acre. Seed, custom harvest/haul, and repairs and maintenance were also major cost categories. Operator and overhead labor expense was estimated to be about $14 per acre.

Ten of the 19 corn producers surveyed rented the selected field. Seven cash rents ranged from $30 to $65, and three were share based. Two of the producers indicated that their corn was produced on Class I soils, 13 on Class II soils, and 4 on Class III soils. Soil tests were performed on four operations. Fifteen plan to lime in the future. The most common application rate was 1 ton per acre every 4 years. The most common row spacing was 38 inches, used by 14 producers.

In Table 3, the results for corn production in the Coastal Plain and Black Belt Areas show that the unweighted mean size of the total operation was 995 acres. About 70 percent of the 702 cropland acres operated were rent ed. On average, these producers planted about 286 acres of corn for grain. The weighted mean corn yield was 90 bushels per acre. The average revenue was about $305 per acre, the average total specified cost of production was about $226 per acre, and the a verage net revenue was about $79 per acre. The fertilizer category was by far the largest variable cost item at $59 per acre. Other important cost categories were seed, herbicides, and repairs and maintenance. Operator and overhead labor expense was estimated to be about $12 per acre.

Twenty of the 37 producers surveyed rented the selected field. Ten cash rents ranged from $15 to $55, and eight were share based (two did not specify the rental agreement). Twenty-five producers indicated that their corn was produced on Class II soils, 10 on Class III soils, and 2 on Class IV soils. Soil tests were performed on 15 operations. Twenty-nine operations plan to lime in the future. The most common application rate was 1 ton per acre every 3 years. Sixteen producers planted 38-inch rows and 15 planted 30-inch rows.

Cotton Costs and Returns

In Table 4, the results for cotton production in the Upper Delta Area show that the unweighted mean size of the total operation was 1,664 acres, with about 1,626 acres in cropland. Approximately 90 percent of the total c ropland was rented. On average, 645 acres of cotton were produced on the sampled farms. The weighted mean cotton yield was 912 pounds per acre. The average revenue for cotton producers was about $732 per acre, the average total specified cost of productio n was about $528 per acre, and the average net revenue was about $204 per acre. Ginning charges were the largest variable cost item. Insecticide and herbicide costs (which do not include application costs) were also large cost categories, followed by repairs and maintenance and fertilizer. Operator and overhead labor expense was estimated to average about $25 per ac re.

Of the 25 cotton producers surveyed, 20 rented the selected field. Eighteen cash rents ranged from $25 to $120 per acre, and one rent was share based (one producer did not specify the rental agreement). Four producers indicated their cotton was grown o n Class I soils, 16 on Class II soils, 4 on Class III soils, and 1 on Class IV soils. Soil tests were performed on 11 operations. Seven plan to lime in the future. The most common application rate was 1 ton per acre every 3-4 years. The irrigation systems used by 14 of the producers were 6 center pivot, 6 roll-out pipe, and 2 gated pipe. The most prominent row spacing was 38-inch rows used by 19 producers.

In Table 5, the results for cotton production in the Lower Delta Area show that the unweighted mean size of the operation was 1,081 acres, with about 1,011 acres in cropland. Approximately 85 percent of the total croplan d was rented. On average, 433 acres of cotton were produced on the sampled farms. The weighted mean cotton yield was 759 pounds per acre. The average revenue was about $609 per acre, the average total specified cost of production was about $461 per acre, and the average net revenue was about $148 per acre. Ginning charges were the largest variable cost item. Herbicide and insecticide costs (which do not include application costs) were also large cost categories, followed by fertilizer and repairs and maintenance. Operator and overhead labor expense was estimated to average about $26 per acre.

Of the 31 cotton producers surveyed, 18 rented the selected field. Fifteen cash rents ranged from $20 to $120 per acre, and three rents were share based. Eight producers indicated that their cotton was grown on Class I soils, 16 on Class II soils, and 7 on Class III soils. Soil tests were performed on 12 operations. Four operations plan to lime in the future. The most common application rate was 1 ton per acre every 3 years. The irrigation systems available for use by five producers were one center piv ot, one roll-out pipe, and three gated pipe. The most prominent planting pattern was solid, used by 27 producers; and the most prominent row spacing was 38 inches, used by 22 producers.

In Table 6, the results for cotton production in the Brown Loam Area show that the unweighted mean size of the operation was 1,303 acres, with about 806 acres in cropland. Approximately 75 percent of the total cropland w as rented. On average, 356 acres of cotton were produced on the sampled farms. The weighted mean cotton yield was 792 pounds per acre. The average revenue was about $636 per acre, the average total specified cost of production was about $493 per acre, and the average net revenue was about $143 per acre. Ginning charges were the largest variable cost item. Herbicide and insecticide costs (which do not include application costs) were also large cost categories, followed by fertilizer and repairs and mainten ance. Operator and overhead labor expense was estimated to average about $28 per acre.

Of the 19 producers surveyed, 13 rented the selected field. Eight cash rents ranged from $40 to $75 per acre, and five rents were share based. One producer indicated that the cotton was grown on Class I soils, 14 on Class II soils, and 4 on Class III s oils. Soil tests were performed on nine operations. Fourteen plan to lime in the future. The most common application rate was 1 ton per acre every 3 years. Only two producers had irrigation systems available for use in the selected field: one center pivot and one gated pipe. The most prominent row spacing was 38 inches, used by 16 producers.

In Table 7, the results for cotton production in the Coastal Plain and Black Belt Areas show that the unweighted mean size of the operation was 1,224 acres, with about 1,011 acres in cropland. Approximately 72 percent of the total cropland was rented. On average, 465 acres of cotton were produced on the sampled farms. The weighted mean cotton yield was 803 pounds per acre. The average revenue was about $645 per acre, the average total specified cost of production was abo ut $445 per acre, and the average net revenue was about $200 per acre. Ginning charges were the largest variable cost item. Fertilizer and herbicide costs were also large cost categories, followed by repairs and maintenance and technology fees. Operator a nd overhead labor expense was estimated to average about $27 per acre.

Of the 22 producers surveyed, 10 rented the selected field. Four cash rents ranged from $30 to $80 per acre, and six rents were share based. Five producers indicated that their cotton was grown on Class I soils, 12 on Class II soils, and 5 on Class III soils. Soil tests were performed on 10 operations. Nineteen plan to lime in the future. The most common application rate was 1.5 tons per acre every 3 years. Only two producers had irrigation systems available for use in the selected field. The most prom inent row spacing was 38 inches, used by 17 producers.

Rice Costs and Returns

In Table 8, the results for rice in the Upper Delta Area show that the unweighted mean size of the total operation was 1,973 acres, with about 1,854 acres in cropland. Approximately 72 percent of the total cropland was r ented. On average, 339 acres of rice were produced on the sampled farms. The weighted mean rice yield was 139 bushels per acre. The average revenue was about $625 per acre, the average total specified cost of production was about $455 per acre, and the av erage net revenue was about $169 per acre. Drying charges were the largest variable cost item. Fertilizer and herbicide costs were also large cost categories, followed by repairs and maintenance and diesel fuel. Operator and overhead labor expense was estimated to average about $31 per acre.

Of the 26 producers surveyed, 13 rented the selected field. Eleven cash rents ranged from $50 to $100 per acre, and two rents were share based. One producer indicated that the crop was grown on Class I soils, 7 on Class II soils, 17 on Class III soils, and 1 on Class IV soils. Soil tests were performed on 10 operations. One plans to lime in the future at the rate of 1.5 tons per acre every 3 years. Thirteen producers had contour levee systems, 11 had straight levee systems, and 2 had parallel levees. T he most prominent crop rotation, used by 13 producers, was 1 year of rice followed by 2 years of soybeans. Eight producers rotated 1 year of rice followed by 1 year of soybeans.

In Table 9, the results for rice in the Lower Delta Area show that the unweighted mean size of the total operation was 2,412 acres, with about 2,374 acres in cropland. Approximately 66 percent of the total cropland was r ented. On average, 393 acres of rice were produced on the sampled farms. The weighted mean rice yield was 131 bushels per acre. The average revenue was about $591 per acre, the average total specified cost of production was about $436 per acre, and the av erage net revenue was about $155 per acre. Drying charge was the largest variable cost item. Fertilizer and herbicide costs were also large cost categories, followed by repairs and maintenance and diesel fuel. Operator and overhead labor expense was estim ated to average about $26 per acre.

Of the 22 producers surveyed, 13 rented the selected field. Eleven cash rents ranged from $40 to $85 per acre, and two rents were share based. One producer indicated that the crop was grown on Class I soils, 4 on Class II soils, 11 on Class III soils, and 6 on Class IV soils. Soil tests were performed on two operations. Six producers had contour levee systems, 15 had straight levee systems, and 1 had a paral lel levee system. The most prominent crop rotation, used by 10 producers, was 1 year of rice followed by 2 years of soybeans. Seven producers rotated 1 year of rice followed by 1 year of soybeans.

Soybean Costs and Returns

In Table 10, the results for soybean production in the Upper Delta Area show that the unweighted mean size of the total operation was 989 acres, with 947 in cropland. About 83 percent of the total cropland was rented. O n average, there were about 494 acres of soybeans planted on the sampled farms. The weighted mean soybean yield was 36.4 bushels per acre. The average revenue was about $258 per acre, the average total specified cost of production was about $208 per acre, and the average net revenue was about $50 per acre. The herbicide category was the largest variable cost item, followed by seed and repairs and maintenance. Operator and overhead labor expense was estimated to be about $14 per acre.

Of the 32 producers surveyed, 19 rented the selected field. Fourteen cash rents ranged from $20 to $78, and five rents were share based. Six producers indicated the crop was produced on Class I soils, 14 on Class II soils, 11 on Class III soils, and 1 on Class IV soils. Soil tests were performed on four operations. Three plan to lime in the future. The most common application rate was 1 ton per acre every 3 years. There was no dominant row spacing. Only four producers in the survey double cropped.

In Table 11, the results for soybean production in the Lower Delta Area show that the unweighted mean size of the total operation was 1,496 acres, with 1,441 acres in cropland. About 83 percent of the total cropland was rented. On average, there were about 921 acres of soybeans planted on the sampled farms. The weighted mean soybean yield was 27 bushels per acre. The average revenue was about $192 per acre, the average total

specified cost of production was about $160 p er acre, and the average net revenue was about $32 per acre. The herbicide category was the largest variable cost item, followed by seed and repairs and maintenance. Operator and overhead labor expense was estimated to be about $9 per acre.

Of the 26 producers surveyed, 15 rented the selected field. Thirteen cash rents ranged from $20 to $60, and one rent was share based. One producer did not specify the rental agreement. One producer indicated the crop was produced on Class I soils, 8 on Class II soils, 11 on Class III soils, and 6 on Class IV soils. Soil tests were performed on three operations. Four plan to lime in the future. The most common application rate was 1 ton per acre every 3 years. There was no dominant row spacing. Only one producer in the survey double cropped.

In Table 12, the results for soybean production in the Brown Loam Area show that the unweighted mean size of the total operation was 967 acres, with 739 acres in cropland. About 73 percent of the total cropland was rent ed. On average, there were about 254 acres of soybeans planted on the sampled farms. The weighted mean soybean yield was 31.9 bushels per acre. The average revenue was about $226 per acre, the average total specified cost of production was about $152 per acre, and the average net revenue was about $74 per acre. The herbicide category was the largest variable cost item, followed by seed and repairs and maintenance. Operator and overhead labor expense was estimated to be about $9 per acre.

Of the 20 producers surveyed, 13 rented the selected field. Eight cash rents ranged from $17 to $65, and five rents were share based. Ten producers indicated that the crop was grown on Class II soils and 10 on Class III soils. Soil tests were performed on five operations. Nine plan to lime in the future. The most common application rate was 1 ton per acre every 3 years. There was no dominant row spacing. Only three producers in the survey double cropped.

In Table 13, the results for soybean production in the Coastal Plain Area show that the unweighted mean size of the total operation was 787 acres, with 610 acres in cropland. About 73 percent of the total cropland was r ented. On average, there were about 360 acres of soybeans planted on the sampled farms. The weighted mean soybean yield was 31.9 bushels per acre. The average revenue was about $227 per acre, the average total specified cost of production was about $168 p er acre, and the average net revenue was about $59 per acre. The herbicide category was the largest variable cost item, followed by seed and repairs and maintenance. Operator and overhead labor expense was estimated to be about $12 per acre.

Of the 20 producers surveyed, 13 rented the selected field. Six cash rents ranged from $10 to $50, and seven rents were share based. Three producers indicated that the crop was grown on Class I soils, nine on Class II soils, and eight on Class III soil s. Soil tests were performed on six operations. Nineteen plan to lime in the future. The most common application rate was 1 ton per acre every 3 years. There was no dominant row spacing. Only two producers in the survey double cropped.

In Table 14, the results for soybean production in the Black Belt Area show that the unweighted mean size of the total operation was 863 acres, with 658 acres in cropland. About 54 percent of the total cropland was rent ed. On average, there were about 329 acres of soybeans planted on the sampled farms. The weighted mean soybean yield was 31 bushels per acre. The average revenue was about $220 per acre, the average total specified cost of production was about $125 per acre, and the average net revenue was about $95 per acre. The herbicide category was the largest variable cost item, fo llowed by seed and repairs and maintenance. Operator and overhead labor expense was estimated to be about $9 per acre.

Of the 23 producers surveyed, 11 rented the selected field. Six cash rents ranged from $15 to $35, and five rents were share based. Thirteen producers indicated that the crop was grown on Class II soils and 10 on Class III soils. Soil tests were perfor med on 10 operations. Eleven plan to lime in the future. The most common application rate was 1 ton per acre every 3 years. The dominant row spacing was 30 inches, used by 10 producers. Only two producers in the survey double cropped.

Wheat Costs and Returns

In Table 15, the results for wheat production in the Upper Delta Area show that the unweighted mean size of

the total operation was 2,825 acres, with 2,718 acres in cropland. About 75 percent of the total cropland was r ented. On average, there were about 374 acres of wheat planted on the sampled farms. The weighted mean wheat yield was 56 bushels per acre. The average revenue was about $244 per acre, the average total specified cost of production was about $168 per acre , and the average net revenue was about $76 per acre. The fertilizer category was the largest variable cost item, followed by seed and custom harvest/haul. Operator and overhead labor expense was estimated to be about $4 per acre.

Of the 14 producers surveyed, 9 rented the selected field. Seven cash rents ranged from $30 to $57, and two rents were share based. Two producers indicated that the crop was grown on Class I soils, eight on Class II soils, and four on Class III soils. Soil tests were performed on one operation. One plans to lime in the future at a rate of 1 ton every 3 years. The most common planting system was double cropping used by 10 producers. The most common rotation was wheat between two soybean crops.

In Table 16, the results for wheat production in the Lower Delta Area show that the unweighted mean size of the total operation was 2,525 acres, with 2,522 acres in cropland. About 89 percent of the total cropland was r ented. On average, there were about 363 acres of wheat planted on the sampled farms. The weighted mean wheat yield was 55 bushels per acre. The average revenue was about $239 per acre, the average total specified cost of production was about $150 per acre , and the average net revenue was about $90 per acre. The fertilizer category was the largest variable cost item, followed by seed and custom harvest/haul. Operator and overhead labor expense was estimated to be about $4 per acre.

Of the 16 producers surveyed, 11 rented the selected field. Eight cash rents ranged from $25 to $70, and three rents were share based. One producer indicated that the crop was grown on Class I soils, seven on Class II soils, seven on Class III soils, a nd one on Class IV soils. Soil tests were performed on one operation. The most common planting system was double cropping used by 13 producers. The most common rotation was wheat between two soybean crops.

In Table 17, the results for wheat production in the Brown Loam, Coastal Plain, and Black Belt Areas show that the unweighted mean size of the total operation was 2,532 acres, with 1,948 acres in cropland. About 76 perc ent of the total cropland was rented. On average, there were about 580 acres of wheat planted on the sampled farms. The weighted mean wheat yield was 50 bushels per acre. The average revenue was about $217 per acre, the average total specified cost of pro duction was about $177 per acre, and the average net revenue was about $40 per acre. The fertilizer category was the largest variable cost item, followed by seed and custom harvest/haul. Operator and overhead labor expense was estimated to be $5 per acre.

Of the 15 producers surveyed, 4 rented the selected field. Four cash rents ranged from $30 to $50. Two producers indicated that the crop was grown on Class I soils, 11 on Class II soils, 1 on Class III soils, and 1 on Class IV soils. Soil tests were pe rformed on four operations. The most common planting system was double cropping, used by 14 producers. The most common rotation was wheat between two soybean crops. Four producers planted wheat after corn and followed this with a soybean crop.

Conclusions

Revenues from crop sales, selected production costs, and net revenues were estimated for a sample of farms that produced a major crop in 1996. In this study, net revenue does not include a charge for general farm overhead or management, and government payments are not included as a source of revenues. Based on the mean values from the producer surveys, the least expensive crops to produce on a per-acre basis in 1996 were soybeans and wheat, followed by corn, and then rice and cotton. However, cotton and rice had the highest average net revenues. In 1996, crop yields and prices received by farmers were above historical averages; this combination of favorable yields and prices allowed market revenues to cover specified production costs for the average producer.

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