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Costs and Returns for Corn, Cotton, Rice, Soybeans, and Wheat in Mississippi, 1997

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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 produced in Mississippi during 1997. First, the methods and procedures used to develop the estimates are discussed. Then, the results of the study are presented.

Methods and Procedures

Mississippi is divided into four major soil resource areas (Figure 1). For purposes of this study, the Delta area was divided into two areas (Upper Delta and Lower Delta), and the Coastal Plain and Black areas were combined into one area. For each of the four areas identified for this study, statisticians with the Mississippi Agricultural Statistics Service (MASS) developed a stratified random sample of farms that produced either corn, cotton, rice, soybeans, or wheat in 1997. The three strata were based on different farm sizes, as measured by the farm's acreage planted to a specific crop -- not the farm's total acreage. Farms in stratum one had 1 to 99 acres, stratum two had 100 to 499 acres, and stratum three had 500 or more acres. After contacting the owner or manager of the farm operation in the fall of 1997, an enumerator 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 practices, 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 477 usable surveys was taken. See Appendix Tables 1-5 for a list of the number of surveys taken in each county in each area.

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 (averages) and standard deviations of costs and returns. The first expansion factor was used to expand information concerning 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. This assumes production practices for the crop at the whole-farm level are the same as those at the field level. 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 (that is, the number of farms in the population divided by the number of farms in the sample). This assumes that similar-sized farms have similar production practices.

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. The price data are updated annually and reported in departmental publications concerning planning budgets for crops.

Variable Cost Estimation

Variable costs are those that a manager controls in the short run and that will increase as total planned production is increased. Variable cost categories for owned machinery were defined as labor, diesel fuel, and repairs and maintenance. Powered machines (tractors and combines, for example) 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 1 acre) to obtain the fuel consumption per acre. This quantity was multiplied by the diesel fuel price (estimated to be 76 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 $7.87 per hour for operator labor and $6.56 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 (1982) 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 overhead rates (as a percent of operator labor) estimated by Cox and used in this study were 90% for corn, rice, and soybeans, and 80% 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 include 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.

Producers could report the expense of custom harvesting as either dollars per acre or dollars per quantity harvested.

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 9.34% per year or 0.778% per month in 1997) by the cost per acre for each month between the time that the field operation was performed and the harvest month.

Fixed Cost Estimation

One type of ownership cost is the loss in market value of a machine; 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. These ownership costs of machines need to be estimated annually to properly allocate the original investment capital to one production period (1 year). A traditional method of allocation is to estimate annual depreciation and annual interest on investment as separate items. However, the capital recovery method is a more accurate way to determine the annual ownership cost (Boehlje and Eidmen, p. 142). This method is used to compute the amount of money required at the end of each year to (1) pay interest on the unrecovered capital at the designated interest rate and (2) recover the initial investment within the specified number of years.

Technically, ownership cost is often categorized as a noncash fixed cost because its value does not depend on the level of use. That is, the cost per year would not vary if the machine were used 100 hours or 200 hours per year. However, the method used in this study to estimate ownership cost per acre does depend on machinery use per acre. First, the annual cost estimate is converted to an hourly cost estimate by dividing the annual cost by the hours used per year. Then, the hours per acre that the machine is used are multiplied by the cost per hour to obtain the cost per acre. Thus, if a tractor is used twice as much on one field as on another field, its ownership cost per acre will be twice as high. So although the ownership cost per acre is not really fixed with regard to usage, to be consistent with standard budgeting terminology, ownership cost was termed machinery fixed cost in this study.

A machine's price (assuming it was new, not used), its useful life (in years), its salvage value, and an annual interest rate were used to estimate the machine's annual capital recovery charge. In this study, the 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 will have no remaining market value. An annual interest rate applicable for intermediate-term debt was estimated to be 9.34% in 1997.

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. If 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 unweighted 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 as follows: $0.652 per pound of cotton lint, $106 per ton of cotton seed, $10.50 per hundredweight of rice, $2.65 per bushel of corn, $6.90 per bushel of soybeans, and $3.50 per bushel of wheat. Cotton seed yield was assumed to be 1.55 pounds 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 through 15. In each table, the "Item" column is followed by columns that list each item's weighted mean (or average) value, standard deviation, minimum value, and maximum value. The mean value is a measure of central tendency of a distribution. In each table, there is a list of farm characteristics, yields, revenues, some of the more important variable cost categories, returns above variable costs, specified fixed cost categories, and net revenue. Since only some 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 gives some indication of the midpoint of a large group of values, it does not provide any information about the amount of variation in the values. The standard deviation is the measure of variability used in this study to indicate how spread out, or dispersed, the values are. The higher the standard deviation, the more dispersed the values are around the mean; the lower the standard deviation, the more concentrated the values. If the measurements were from a normal distribution (a particular type of symmetric distribution), about 68% of the values would occur between one standard deviation below the mean and one standard deviation above the mean. Also, only about 2.5% of the values would occur less than two standard deviations below the mean and about 2.5% of the values would occur more than two standard deviations above the mean. If an item has a mean value that is close to the average of its minimum and maximum values, then it is likely to be from a symmetric distribution. For those items that do not come from a symmetric distribution, the above percentages may not be applicable.

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 Upper Delta show that the weighted mean size of the total operation was 3,809 acres. About 91% of the 3,624 cropland acres operated were rented. On average, these producers planted 628 acres of corn for grain. The weighted mean corn yield was 131 bushels per acre. The average revenue was $348 per acre, the average total specified cost of production was $320 per acre, and the average net revenue was $29 per acre. The fertilizer category was by far the largest variable cost item at $52 per acre. Other major cost categories were custom harvest/haul, seed, repairs and maintenance, and herbicides. Operator and overhead labor expense was estimated to be $13 per acre.

Twenty-one of the 28 producers surveyed rented the fields in question. Seventeen cash rents ranged from $50 to $125 per acre, and four were share based. One producer did not specify the rental arrangement. Five of the producers indicated that their corn was produced on Class I soils, 20 on Class II soils, 2 on Class III soils, and 1 on Class IV soils. Soil tests were performed on 11 operations. Eight operations plan to lime in the future. Twenty-three producers had irrigation systems available in the field: 10 center pivot, 9 roll-out pipe, and 4 gated pipe.

In Table 2, the results for corn production in the Lower Delta show that the weighted mean size of the total operation was 2,254 acres. About 64% of the 2,093 cropland acres operated were rented. On average, these producers planted 642 acres of corn for grain. The weighted mean corn yield was 132 bushels per acre. The average revenue was $351 per acre, the average total specified cost of production was $274 per acre, and the average net revenue was $77 per acre. The fertilizer category was by far the largest variable cost item at $45 per acre. Other major cost categories were custom harvest/haul, seed, repairs and maintenance, and herbicides. Operator and overhead labor expense was estimated to be $11 per acre.

Twenty of the 28 producers surveyed rented the selected fields. Eighteen cash rents ranged from $40 to $100 per acre, and two were share based. Six of the producers indicated that their corn was produced on Class I soils, 16 on Class II soils, 3 on Class III soils, and 3 on Class IV soils. Soil tests were performed on eight operations. Four operations plan to lime in the future. Ten producers had irrigation systems available in the field: three center pivot and seven roll-out pipe.

In Table 3, the results for corn production in the Brown Loam Area show that the weighted mean size of the total operation was 2,305 acres. Seventy-two percent of the 1,712 cropland acres operated were rented. On average, these producers planted 619 acres of corn for grain. The weighted mean corn yield was 117 bushels per acre. The average revenue was $309 per acre, the average total specified cost of production was $238 per acre, and the average net revenue was $72 per acre. The fertilizer category was by far the largest variable cost item at $48 per acre. Seed, custom harvest/haul, repairs and maintenance, and herbicides were also major cost categories. Operator and overhead labor expense was estimated to be $10 per acre.

Twenty-one of the 34 corn producers surveyed rented the selected fields. Fourteen cash rents ranged from $27 to $65, and six were share based. One producer did not specify the rental agreement. Two of the producers indicated that their corn was produced on Class I soils, 13 on Class II soils, 16 on Class III soils, and 3 on class IV soils. Soil tests were performed on 16 operations. Twenty-seven plan to lime in the future. The most frequently used application rates were 1 ton every 3 years, 1 ton every 4 years, and 1 ton every 5 years. Five producers had center pivot irrigation systems available in the field. In Table 4, the results for corn production in the Coastal Plains and Black Belt show that the weighted mean size of the total operation was 1,404 acres. About 68% of the 1,158 cropland acres operated were rented. On average, these producers planted 377 acres of corn for grain. The weighted mean corn yield was 89 bushels per acre. The average revenue was $237 per acre, the average total specified cost of production was $226 per acre, and the average net revenue was $11 per acre. The fertilizer category was by far the largest variable cost item at $55 per acre. Other important cost categories were seed, herbicides, repairs and maintenance, and custom harvest/haul. Operator and overhead labor expense was estimated to be $10 per acre.

Twenty-two of the 32 producers surveyed rented the selected fields. Fifteen cash rents ranged from $10 to $55, and seven were share based. Ten producers indicated that their corn was produced on Class II soils, 21 on Class III soils, and 1 on Class IV soils. Soil tests were performed on 13 operations. Twenty-nine operations plan to lime in the future. The most common application rate was 1 ton per acre every 3 years.

Cotton Costs and Returns

In Table 5, the results for cotton production in the Upper Delta show that the weighted mean size of the total operation was 2,371 acres, with 2,057 acres in cropland. Approximately 93% of the total cropland was rented. On average, 1,126 acres of cotton were produced on the sampled farms. The weighted mean cotton yield was 924 pounds of lint per acre. The average revenue for cotton producers was $679 per acre, the average total specified cost of production was $536 per acre, and the average net revenue was $143 per acre. Ginning charges were the largest variable cost item. Insecticide and herbicide costs (which do not include application

costs) and fertilizers were also large cost categories, followed by repairs and maintenance. Operator and overhead labor expense was estimated to average $27 per acre.

Of the 31 cotton producers surveyed, 23 rented the selected fields. Twenty-two cash rents ranged from $26 to $150 per acre, and one rent was share based. Eight producers indicated their cotton was grown on Class I soils, 18 on Class II soils, and 5 on Class III soils. Soil tests were performed on 13 operations. Four plan to lime in the future. The irrigation systems available for use in the fields were four center pivot, three roll-out pipe, and three gated pipe.

In Table 6, the results for cotton production in the Lower Delta show that the weighted mean size of the operation was 2,455 acres, with 2,432 acres in cropland. Approximately 46% of the total cropland was rented. On average, 1,167 acres of cotton were produced on the sampled farms. The weighted mean cotton yield was 893 pounds of lint per acre. The average revenue was $655 per acre, the average total specified cost of production was $500 per acre, and the average net revenue was $155 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 fertilizers and repairs and maintenance. Operator and overhead labor expense was estimated to average $25 per acre.

Of the 35 cotton producers surveyed, 19 rented the selected fields. Seventeen cash rents ranged from $45 to $125 per acre, and two rents were share based. Seven producers indicated that their cotton was grown on Class I soils, 24 on Class II soils, and 4 on Class III soils. Soil tests were performed on 16 operations. Eight operations plan to lime in the future. The irrigation systems available for use in these fields were one center pivot and four roll-out pipe.

In Table 7, the results for cotton production in the Brown Loam area show that the weighted mean size of the operation was 2,289 acres, with 1,666 acres in cropland. Approximately 67% of the total cropland was rented. On average, 875 acres of cotton were produced on the sampled farms. The weighted mean cotton yield was 879 pounds of lint per acre. The average revenue was $645 per acre, the average total specified cost of production was $452 per acre, and the average net revenue was $193 per acre. Ginning charges were the largest variable cost item. Fertilizers and repairs and maintenance were also large cost categories, followed by herbicides and technology fees. Operator and overhead labor expense was estimated to average $25 per acre.

Of the 32 producers surveyed, 22 rented the selected field. Fourteen cash rents ranged from $30 to $80 per acre, and eight rents were share based. Four producers indicated that the cotton was grown on Class I soils, 22 on Class II soils, and 6 on Class III soils. Soil tests were performed on 20 operations. Twenty-seven plan to lime in the future. The most common application rate was 1 ton per acre every 3 years. Only one producer had a roll-out pipe irrigation system available for use in the selected field.

In Table 8, the results for cotton production in the Coastal Plains and Black Belt areas show that the weighted mean size of the operation was 1,632 acres, with 1,314 acres in cropland. Approximately 81% of the total cropland was rented. On average, 791 acres of cotton were produced on the sampled farms. The weighted mean cotton yield was 689 pounds of lint per acre. The average revenue was $506 per acre, the average total specified cost of production was $418 per acre, and the average net revenue was $87 per acre. Ginning charges were the largest variable cost item. Fertilizer costs and technology fees were also large cost categories, followed by repairs and maintenance and herbicides. Operator and overhead labor expense was estimated to average $23 per acre.

Of the 34 producers surveyed, 24 rented the selected fields. Nine cash rents ranged from $30 to $60 per acre, and 15 rents were share based. One producer said that his cotton was grown on Class I soils, 20 on Class II soils, and 13 on Class III soils. Soil tests were performed on 14 operations. Twenty-four plan to lime in the future. The most common application rate was 1.5 tons per acre every 3 years.

Rice Costs and Returns

In Table 9 the results for rice in the Upper Delta show that the weighted mean size of the total operation was 3,688 acres, with 3,541 acres in cropland. Approximately 58% of the total cropland was rented. On average,

689 acres of rice were produced on the sampled farms. The weighted mean rice yield was 57 hundredweight per acre. The average revenue was $602 per acre, the average total specified cost of production was $441 per acre, and the average net revenue was $161 per acre. Drying charges were the largest variable cost item. Fertilizer and herbicides costs were also large cost categories, followed by repairs and maintenance, diesel fuel, and seed. Operator and overhead labor expense was estimated to average $38 per acre.

Of the 26 producers surveyed, 14 rented the selected fields. Ten cash rents ranged from $35 to $75 per acre, and four rents were share based. Five producers said that the crop was grown on Class II soils, 16 on Class III soils, and 5 on Class IV soils. Soil tests were performed on four operations. Three producers plan to lime in the future. Fourteen producers had contour levee systems, 11 had straight levee systems, and 1 had parallel levees. The most prominent crop rotations were 1 year of rice followed by 1 year of soybeans and 1 year of rice followed by 2 years of soybeans.

In Table 10 the results for rice in the Lower Delta show that the weighted mean size of the total operation was 2,097 acres, with 2,079 acres in cropland. Approximately 86% of the total cropland was rented. On average, 587 acres of rice were produced on the sampled farms. The weighted mean rice yield was 58 hundredweight per acre. The average revenue was $610 per acre, the average total specified cost of production was $468 per acre, and the average net revenue was $142 per acre. The drying charge was the largest variable cost item. Fertilizer and herbicide costs were also large cost categories, followed by repairs and maintenance, diesel fuel, and seed. Operator and overhead labor expense was estimated to average $38 per acre.

Of the 18 producers surveyed, 13 rented the selected fields. Eleven cash rents ranged from $50 to $100 per acre, and two rents were share based. One producer said that the crop was grown on Class II soils, 12 on Class III soils, and 5 on Class IV soils. Soil tests were performed on one operation. Twelve producers had contour levee systems, and six had straight levee systems. The most prominent crop rotation was 1 year of rice followed by 2 years of soybeans; seven producers used this system.

Soybean Costs and Returns

In Table 11 the results for soybean production in the Upper Delta show that the weighted mean size of the total operation was 1,653 acres, with 1,618 in cropland. About 70% of the total cropland was rented. On average, there were 1,120 acres of soybeans planted on the sampled farms. The weighted mean soybean yield was 36 bushels per acre. The average revenue was $245 per acre, the average total specified cost of production was $194 per acre, and the average net revenue was $51 per acre. The herbicide category was the largest variable cost item, followed by seed. Operator and overhead labor expense was estimated to be $11 per acre.

Of the 37 producers surveyed, 25 rented the selected fields. Twenty-two cash rents ranged from $20 to $63, and three rents were share based. Six producers said the crop was produced on Class I soils, 21 on Class II soils, 4 on Class III soils, and 6 on Class IV soils. Soil tests were performed on six operations. Seven plan to lime in the future. Only two producers in the survey doublecropped. Twelve producers had irrigation systems available in the field: six roll-out pipe, two center pivot, three flood, and one furrow.

In Table 12, the results for soybean production in the Lower Delta show that the weighted mean size of the total operation was 2,084 acres, with 1,973 acres in cropland. About 59% of the total cropland was rented. On average, there were 1,608 acres of soybeans planted on the sampled farms. The weighted mean soybean yield was 32 bushels per acre. The average revenue was $223 per acre, the average total specified cost of production was $181 per acre, and the average net revenue was $42 per acre. The herbicide category was the largest variable cost item, followed by seed. Operator and overhead labor expense was estimated to be $11 per acre.

Of the 36 producers surveyed, 19 rented the selected fields. Eighteen cash rents ranged from $18 to $68, and one rent was share based. One producer said the crop was produced on Class I soils, 14 on Class II soils, 11 on Class III soils, and 10 on Class IV soils. Soil tests were performed on four operations. Five plan to lime in the future. Three producers in the survey doublecropped.

In Table 13, the results for soybean production in the Brown Loam area show that the weighted mean size of

the total operation was 1,486 acres, with 1,178 acres in cropland. About 78% of the total cropland was rented. On average, there were 831 acres of soybeans planted on the sampled farms. The weighted mean soybean yield was 34 bushels per acre. The average revenue was $234 per acre, the average total specified cost of production was $162 per acre, and the average net revenue was $72 per acre. The herbicide category was the largest variable cost item, followed by seed. Operator and overhead labor expense was estimated to be $9 per acre.

Of the 27 producers surveyed, 17 rented the selected fields. Nine cash rents ranged from $10 to $68, and eight rents were share based. Three producers said that the crop was grown on Class I soils, 15 on Class II soils, and 9 on Class III soils. Soil tests were performed on six operations. Fourteen plan to lime in the future. The most common application rate was 1 ton per acre every 5 years. Five producers in the survey doublecropped.

In Table 14, the results for soybean production in the Coastal Plains and Black Belt areas show that the weighted mean size of the total operation was 1,726 acres, with 1,328 acres in cropland. About 79% of the total cropland was rented. On average, there were 951 acres of soybeans planted on the sampled farms. The weighted mean soybean yield was 22 bushels per acre. The average revenue was $152 per acre, the average total specified cost of production was $165 per acre, and the average net revenue was a loss of $12 per acre. The herbicide category was the largest variable cost item, followed by seed. Operator and overhead labor expense was estimated to be $10 per acre.

Of the 42 producers surveyed, 29 rented the selected field. Ten cash rents ranged from $15 to $50, and 19 rents were share based. One producer said that the crop was grown on Class I soil, 18 on Class II soils, and 23 on Class III soils. Soil tests were performed on 10 operations. Twenty-eight plan to lime in the future. The most common application rate was 1 ton per acre every 3 years. Only one producer in the survey doublecropped.

Wheat Costs and Returns

In Table 15 the results for wheat production in Mississippi show that the weighted mean size of the total operation was 2,129 acres, with 1,977 acres in cropland. About 62% of the total cropland was rented. On average, there were 470 acres of wheat planted on the sampled farms. The weighted mean wheat yield was 48 bushels per acre. The average revenue was $168 per acre, the average total specified cost of production was $161 per acre, and the average net revenue was $7 per acre. The fertilizer category was the largest variable cost item, followed by seed. Operator and overhead labor expense was estimated to be $6 per acre.

Of the 37 producers surveyed, 24 rented the selected fields. Twenty-one cash rents ranged from $15 to $80, and two rents were share based (one producer refused to divulge this information). Two producers said that the crop was grown on Class I soils, 22 on Class II soils, 11 on Class III soils, and 2 on Class IV soils. Soil tests were performed on eight operations. Nine producers plan to lime in the future. The most common planting system was doublecropping, which was used by 34 producers. The most common rotation was soybeans-wheat-soybeans.

Conclusions

Revenues from crop sales, selected production costs, and net revenues were estimated for a sample of farms that produced a major crop in 1997. 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 1997 were soybeans and wheat. The next least expensive crop to produce was corn, followed by rice and cotton. However, cotton and rice had the highest average net revenues. In 1997, 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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