

**2007 Arkansas**



**UofA** UNIVERSITY OF ARKANSAS  
DIVISION OF AGRICULTURE  
Cooperative Extension Service

**U.S. Department of Agriculture  
and County Governments Cooperating**

The Wheat Research Verification Program  
is funded by Arkansas wheat producers  
through checkoff monies administered by  
the Arkansas Wheat Promotion Board.

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## 2007 Wheat Research Verification Program

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Acknowledgements:

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### **Special acknowledgement to the members of the Arkansas Wheat Promotion Board:**

Mr. Morris Crandall	Mr. Terry Dabbs	Mr. Danny Smith
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## Abstract

The 2007 Wheat Research Verification Program (WRVP) was implemented by the University of Arkansas Cooperative Extension Service on 14 producer fields located in eastern Arkansas. Cooperators from the counties above selected 11 varieties from a short list provided by the agent and research verification coordinator. These varieties were selected based upon performance and characteristics determined by the University of Arkansas variety tests. Soil types ranged from sandy loam to clay, with previous crops of soybean, rice, and summer fallow. Seeding dates ranged from October 5 through November 28, with seeding rates varying from 100 to 180 lbs/ac. Nine fields were drill seeded and three were broadcast seeded. Cooperators in Arkansas, Desha, Prairie, and Woodruff Counties utilized a bedded seedbed to provide multiple drain furrows that became critical in periods of heavy precipitation. Eight of the 14 fields in the WRVP were treated with herbicides. Fungicides were not used in any of the 2007 WRVP due to minimal disease pressure. Insects were also not a factor throughout the season; however, many fields showed the typical minor symptoms of barley yellow dwarf virus (BYDV), which is vectored by aphids. Growing conditions were favorable for most of the growing season, although fields planted in late November struggled until early spring. The heavy freeze that occurred in early April took its toll on most fields in the WRVP. The exceptions were those located in the southeast corner of the state in addition to those planted in late November. Unseasonably warm weather in March accelerated wheat growth and development causing fields at Feekes' growth stage 9 or later to be significantly affected. Harvest dates ranged from May 25 through June 15. Average yield for the WRVP was 52.7 bu/ac, compared to an estimated state average yield of 41.0 bu/ac. Yields ranged from 11.6 bu/ac in Lonoke County to 88.1 bu/ac in Chicot County. Dry conditions during harvest improved test weight, and the average test weight was 58.9 lb/bu this year. Only two fields, Lonoke and Phillips County, had yields that were severely affected by the freeze. As with most fields affected by the freeze, these fields were planted to varieties most affected due to planting date and heading date. Most fields in the program were moderately affected and saw at least a 15 bu/ac decrease in yield. The economic impact of the freeze was evident in the economic analysis of these fields. Economic analysis was conducted using a budget generator to estimate specific costs of production for each field. Only five of the 14 WRVP fields resulted in a positive net return. Returns ranged from (\$141.45) in Lonoke Co. to \$118.43 in Desha Co. The Wheat Research Verification Program continues to demonstrate that Extension's research-based recommendations can produce profitable, high yielding wheat across a wide range of conditions and soil types. Over a 21-year period, the WRVP has averaged 13 bu/ac greater than the state average yield. The program is funded by the wheat checkoff dollars and administered through the Arkansas Wheat Promotion Board.

## **Introduction**

The Wheat Research Verification Program (WRVP) represents an interdisciplinary effort of farmers, county Extension agents, Extension specialists, and researchers committed to improving the profitability of wheat production in Arkansas. The WRVP program began in 1986 under the direction of the University of Arkansas Cooperative Extension Service. The Arkansas Wheat Promotion Board has allocated the funding necessary for the WRVP program each year since its inception.

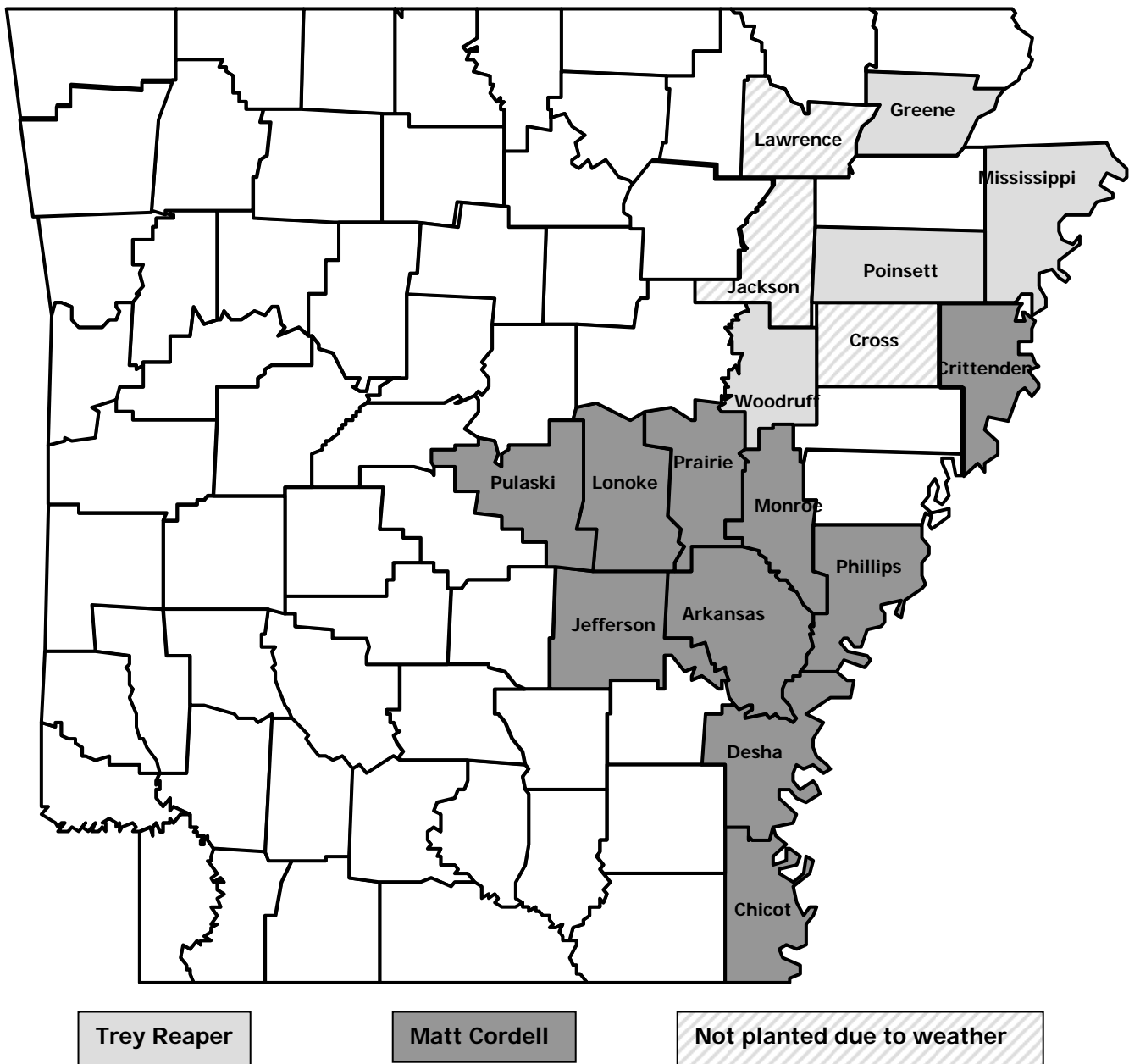
The WRVP program is designed as on-farm demonstrations of all the research-based recommendations required to grow wheat profitably in Arkansas. The WRVP program is part of the University of Arkansas Extension Service's goal of helping wheat producers make economically, agronomically, and environmentally sound decisions on their farms. The specific objectives of the program are:

1. To verify research-based recommendations for profitable wheat production in all wheat producing areas of Arkansas.
2. To develop a database for economic analysis of all aspects of wheat production.
3. To demonstrate that consistently high yields of wheat can be produced economically with the use of available technology and inputs.
4. To identify specific problems and opportunities in Arkansas wheat production for further investigation.
5. To promote timely cultural and management practices among all wheat farmers.
6. To provide training and assistance to county agents with limited expertise in wheat production.

## 2007 Wheat Research Verification Program Fields

Fourteen farms enrolled a field in the Wheat Research Verification Program in the fall of 2006. The fields were located on commercial wheat farms and ranged in size from 35 to 110 acres. The locations of the WRVP fields are shown in Figure 1, designated according to the WRVP coordinator responsible for each field.

**Figure 1. Location of the 2007 WRVP Fields**



The program is conducted for two consecutive years with each grower/cooperator. When an interested cooperator was identified, the cooperator, county agent, and specialist selected a field to enroll in the program in the fall of 2006. Prospective fields are required to meet the following criteria specified by the WRVP advisory committee:

1. Field size of at least 15 acres.
2. A yield potential equal to or greater than the county average.
3. A soil pH above 5.6.
4. A previous crop of corn, sorghum, soybeans, summer fallow, rice, or pasture.
5. The potential for good surface drainage.

A representative soil sample of the field was analyzed and the field was inspected by the coordinator and county agent. When the soil test results were obtained, the county agent, cooperator, and coordinator met to discuss recommended practices for seedbed preparation, wheat variety selection, and fertilization. All management decisions were made based on current Extension recommendations.

For situations where there were no specific recommendations included in the field plan, a member of the Wheat Verification Committee was consulted. As often as practical, members of the committee were consulted and updated on the condition of the fields. Once seedbed preparation began, the day-to-day management decisions were made by the county agent and coordinator with assistance from appropriate specialists and researchers as conditions warranted. Data were collected on stand counts, growth stage, tillering, heads per square foot, diseases, weeds, and insects during the course of the growing season. Grain yields and test weights were determined by elevator weigh tickets on all WRVP fields.

An economic analysis of each field was conducted by an Extension economist and is included in the appendix of this report. To facilitate comparisons among fields and to allow year-to-year comparisons, average costs of certain operations are computed and used to generate the budgets in this report.

## Results and Discussion

The variety, field size and preplant fertilizer for each WRVP field are listed in Table 1. The average field size was 61.07 acres ranging from 35 to 110 acres.

**Table 1. Variety, Field Size, and Preplant Fertilizer, WRVP Fields 2007**

County	Variety	Field Size (Acres)	Preplant Fertilizer <sup>1</sup> (lbs/ac)
Arkansas	FFR 8302	46	None
Chicot	AgriPro Beretta	70	None
Crittenden	AgriPro Beretta	80	None
Desha	Croplan 8302	40	None
Greene	Dixie 989	60	1.5 T lime
Jefferson	Progeny 166	60	None
Lonoke	AgriPro/Coker 9553	75	0-70-0
Mississippi	Croplan 554W	110	None
Monroe	AgriPro Beretta	40	0-68-90
Phillips	USG 3209	80	9-23-0
Poinsett	Delta King 9577	60	0-60-60
Prairie	Armor 260Z	55	0-104-104
Pulaski	Delta Grow 1600	35	None
Woodruff	AgriPro Beretta	50	30-75-110

<sup>1</sup>Nitrogen – Phosphorus – Potassium.

Coordinators of the Wheat Research Verification Program met with the Extension Wheat Agronomist to develop a short list of varieties suited to each potential verification field's environment. Initially, 17 WRVP fields were planned for the 2007 growing season. Unfortunately, a very dry summer and fall made for less than adequate soil moisture at planting time in much of the state. After a tough summer crop, an increase in prices of nitrogen fertilizer also lessened the interest in planting wheat. For those fields that were planted, the *Wheat Update*, a summary of variety trials conducted by the University of Arkansas Agricultural Experiment Station, was used to obtain yield, physiological, and disease data for certain varieties on a range of soil types. The producer made the final variety selection using those on the list provided by the county agent. The best overall disease resistance and yield history is sought in variety selection. Eleven varieties were planted in the WRVP in the fall of 2006, reflecting the specific needs of different soil types, geographic regions, and the overall management strategy employed by the cooperators.



Table 2 shows the soil classification for each WRVP field. These fields consisted of clay, sand, and silt loam soils. The range in soil types reflects the range of soils where wheat could be planted in Arkansas during the fall of 2006.

Good surface drainage is key to profitable wheat production, and each WRVP cooperator was encouraged to provide the best drainage possible. Drainage furrows were constructed at regular intervals to enhance surface drainage in all fields. Fields in Desha, Prairie and Woodruff counties were planted on raised beds allowing multiple drain furrows across the field with the option to furrow-irrigate double-cropped soybean. Additionally, growers were requested to monitor and maintain drainage from planting through harvest.

**Table 2. General Soil Information, WRVP Fields 2007**

<b>County</b>	<b>Soil Classification</b>
Arkansas	Stuttgart silt loam, DeWitt silt loam
Chicot	Robinsonville loam
Crittenden	Jeanerette silt loam
Desha	McGehee silt loam/Sharkey Desha clay
Greene	Dubbs/Tuckerman fine sandy loam
Jefferson	Portland silty clay/Roxana silt loam/Wabbaseka Latanier
Lonoke	Calhoun/Calloway/Loring silt loam
Mississippi	Dundee/Jeanerette silt loam, Bowdre/Tunica/Sharkey silty clay
Monroe	Crowley silt loam
Phillips	Foley silt loam
Poinsett	Calloway/Henry/Hillemann silt loam
Prairie	Calhoun/Loring/Calloway silt loam
Pulaski	Rilla silt loam, Perry clay
Woodruff	Henry/Calhoun/Calloway silt loam

The soil analysis results for each field are displayed in Table 3. These data were used to establish fall fertilization recommendations. Fields in Phillips and Woodruff Counties received supplemental fall nitrogen due to the previous crop of rice. All others received mixed fertilizer. In most cases, it is expedient and practical to apply fertilizer for both wheat and double-cropped soybeans in the fall. Thus, the fertilizer applied may not accurately reflect the needs of the wheat crop alone. This is especially true for the fields where large amounts of potash and phosphorus were applied. Furthermore, the

cost of preplant fertilizer was assigned to wheat according to the following schedule: 100% of nitrogen applied and 50% of phosphorus and potassium.

**Table 3. Fall 2006 Soil Test Results (Lbs/ac), WRVP**

<b>County</b>	<b>pH</b>	<b>P</b>	<b>K</b>	<b>Ca</b>	<b>Mg</b>	<b>Na</b>	<b>SO<sub>4</sub>-S</b>	<b>Fe</b>	<b>Mn</b>	<b>Cu</b>	<b>Zn</b>	<b>CEC</b>
Arkansas	6.9	48	90	1448	161	1.1	12	351	97	1.4	4.6	11
Chicot	6.7	80	388	5444	992	0.5	20	374	96	5.4	10.8	21
Crittenden		82	322	5184	920		36	884	192	5.6	4.0	
Desha	7.3	56	205	2395	478		30	306	100	1.0	7.8	19
Greene	4.6	97	218	384	61	0.5	16	222	126	0.6	3.2	8.8
Jefferson	5.9	46	100	916	153	3.0	13	331	134	1.6	5.4	9
Lonoke	5.1	48	122	2252	236	1.1	32	756	274	2.6	8.0	13
Mississippi	5.8	54	195	2800	461	0.4	12	292	93	3.2	11.8	24
Monroe	7.1	15	52	2071	385		16	309	255	1.1	0.9	16
Phillips	7.0	120	268	4313	1005	1.0	40	760	472	5.2	24.5	17
Poinsett	6.7	14	89	1521	267	1.1	20	295	215	1.5	2.4	13
Prairie	7.4	36	144	3122	476	3.3	32	724	250	2.6	13.4	12
Pulaski	5.2	38	214	2338	786	1.1	24	408	208	3.8	6.2	16
Woodruff	6.1	6	44	1326	167	1.4	18	349	180	1.1	1.3	12

Previous crop and tillage operations are listed in Table 4. Eleven fields were planted following soybean, two following rice, and one that was fallow the previous growing season. Fields following rice or corn generally require more tillage operations due to heavy crop residue. Conventional tillage operations were used for seedbed preparation in most fields with the exception of fields in Desha, Greene, Jefferson, Phillips, and Prairie County, which were planted in a no-till system.

**Table 4. Previous Crop and Preplant Tillage Operation for WRVP Fields, 2007.**

<b>County</b>	<b>Previous Crop</b>	<b>Tillage Operations</b>
Arkansas	Soybean	Disk, DMI (2X), Field Cultivate
Chicot	Soybean	Disk (2X), Field Cultivate
Crittenden	Soybean	Subsoil, Float, Field Cultivate
Desha	Soybean	No-till
Greene	Soybean	No-till
Jefferson	Soybean	No-till
Lonoke	Soybean	Disk, Field Cultivate-roll (2X), Corrugated Roller
Mississippi	Soybean	Disk

Monroe	Soybean	Disk, Harrow
Phillips	Rice	No-till
Poinsett	Soybean	Disk, Float, Field Cultivate
Prairie	Soybean	No-till
Pulaski	Fallow	Disk (2), Field Cultivate
Woodruff	Rice	Mow, Disk, Field Cultivate, Hip

The seeding date and rate for each county and variety are given in Table 5. The recommended planting dates for wheat are: North Arkansas - October 1 through October 30, Central Arkansas – October 10 through November 10, South Arkansas – October 15 through November 20. All fields were planted within the recommended seeding date for their region in 2006 except Greene and Poinsett County.

**Table 5. Variety, Seeding Date, Rate, Method, WRVP Fields, Fall, 2006.**

County	Variety	Seeding Date	Emerg. Date	Seeding Rate (lbs/ac)	Seeding Method
Arkansas	FFR 8302	30-Oct	9-Nov	150	Broadcast
Chicot	AgriPro Beretta	14-Oct	20-Oct	130	Broadcast
Crittenden	AgriPro Beretta	15-Oct	20-Oct	110	Drill
Desha	Croplan 8302	13-Oct	17-Oct	180	Drill
Greene	Dixie 989	28-Nov	5-Dec	135	Drill
Jefferson	Progeny 166	12-Oct	16-Oct	105	Drill
Lonoke	AgriPro/Coker 9553	10-Oct	16-Oct	120	Broadcast
Mississippi	Croplan 554W	27-Oct	15-Oct	115	Drill
Monroe	AgriPro Beretta	27-Oct	5-Nov	110	Broadcast
Phillips	USG 3209	20-Oct	25-Oct	100	Drill
Poinsett	Delta King 9577	27-Nov	5-Dec	120	Broadcast
Prairie	Armor 260Z	11-Oct	16-Oct	110	Drill
Pulaski	Delta Grow 1600	1-Nov	7-Nov	180	Broadcast
Woodruff	AgriPro Beretta	5-Oct	12-Oct	150	Drill

Seeding rates ranged from 100 to 180 pounds per acre. The recommended seeding rates vary according to seed size, seedbed conditions, anticipated germination, and seedling survival. Seeding rates are designed to achieve a final stand of 26 plants per square foot. Eight fields were drill seeded while six fields were broadcast seeded.

Data on spring nitrogen applications are displayed in Table 6 on the next page. Total applied nitrogen ranged from 116 lbs/acre on the Greene County field to 143 lbs/acre in Woodruff County. The average spring nitrogen rate was 124.7 lbs/acre.

Spring nitrogen application rates are based on soil texture, yield potential, and previous crop. On clay soils recommended spring nitrogen is 140 lb N/ ac, and 160 – 170 lb N/ ac when yield potential is greater than 70 bu/ ac.

On loamy soils with good drainage, 110 –120 pounds of nitrogen per acre is generally recommended for high yields. A single application at mid-tillering stage of wheat development may often satisfy the nitrogen requirements of the crop. However, heavy or frequent spring rainfall causes saturated soils and subsequent loss and/or leaching of nitrates outside the root zone. Thus, split applications of nitrogen are often required to avoid excessive nitrogen losses. In addition, standing water may cause nitrogen losses that can be corrected with supplemental fertilizer of 20 – 40 pounds of nitrogen per acre, according to Extension recommendations. Frequent rainfall, heavy rainfall, and standing water did not pose as a problem on WRVP fields in the spring. Spring nitrogen was applied in a timely manner in WRVP fields as well as the majority of wheat fields in Arkansas in 2007.

All 2007 WRVP fields received split applications of nitrogen, with Greene and Lonoke County receiving a three-way split application. Eight of the fourteen WRVP fields received sulfur with the first spring nitrogen application. Sulfur was applied due to low soil test sulfur rates of less than 30 lbs/ac (Table 3).

**Table 6. Spring Nitrogen, WRVP Fields, 2007.**

County	First Application		Second Application		Total lb N/A
	Date	Source	Date	Source	
Arkansas	21-Feb	75# urea + 75# A.S.	10-Mar	150# urea	120
Chicot	20-Feb	100# urea + 50# A.S.	6-Mar	150# urea	126
Crittenden	10-Feb	125# urea + 75# A.S.	7-Mar	100# urea	120
Desha	1-Mar	120# urea	13-Mar	150# urea	124
Greene	30-Jan	50# urea + 50# A.S. + 50# DAP	28-Feb <b>3rd App.:</b> 18-Mar	80# urea <b>3rd App.:</b> 80# urea	116
Jefferson	7-Feb	125# urea + 75# A.S.	8-Mar	150# urea	120

Lonoke	8-Feb	100# urea	1-Mar 3rd App.: 21-Mar	100# urea 3rd App.: 100# urea	138
Mississippi	20- Feb	74# urea + 30# A.S.	9-Mar	175# urea	120
Monroe	27- Feb	100# urea + 50# A.S.	15-Mar	150# urea	125
Phillips	8-Feb	100# urea +50# A.S.	6-Mar	150# urea	125
Poinsett	29- Jan	130# urea	9-Mar	130# urea	120
Prairie	9-Feb	130# urea	7-Mar	130# urea	120
Pulaski	70- 40-0- 20(S)	6-Feb	9-Mar	130# urea	130
Woodruff	5-Feb	160# urea	7-Mar	150# urea	143

The 2007 WRVP fields did not reach threshold level for diseases. Eight of the 14 fields in the WRVP were treated with herbicides. One was treated with an insecticide. A summary of pests and chemicals used is displayed in Table 7. Ryegrass was not a major problem in 2006. The Pulaski County field was treated with Osprey for ryegrass and other winter weeds. The new chemical provided good control of these pests. None of the fourteen WRVP fields were treated with Hoelon. Fungicides were not used in any of the 2007 WRVP fields. Only Mississippi County received an insecticide application; however, many fields showed the typical minor symptoms of barley yellow dwarf virus (BYDV), which is vectored by aphids.

**Table 7. Weed, Disease, and Insect Summary - WRVP, 2007**

<b>County</b>	<b>Pest Summary and Chemical Application</b>
Arkansas	None
Chicot	0.5 oz/ac Harmony Extra
Crittenden	None
Desha	None
Greene	1 qt/ac glyphosate PRE, 0.5 oz/ac Harmony Extra
Jefferson	0.5 oz/ac Harmony Extra + 10 oz/ac 2,4-D
Lonoke	None
Mississippi	0.5 oz/ac Harmony Extra (border); 1.6 oz/ac KarateZ
Monroe	0.6 oz/ac Harmony Extra
Phillips	None
Poinsett	8.2 oz/ac Axial (border), 1 pt/ac 2,4-D
Prairie	None
Pulaski	4.75 oz/ac Osprey

The harvest date, grain yield, test weight, and pounds of nitrogen per bushel are shown in Table 8. Growing conditions were favorable for most of the growing season, although fields planted in late November struggled until early spring. The heavy freeze that occurred in early April took its toll on most fields in the WRVP. The exceptions were those located in the southeast corner of the state in addition to those planted in late November. Unseasonably warm weather in March accelerated wheat growth and development causing fields at Feekes' growth stage 9 or later to be significantly affected. Harvest dates ranged from May 25 through June 15. Average yield for the WRVP was 52.7 bu/ac, compared to an estimated state average yield of 41.0 bu/ac. Yields ranged from 11.6 bu/ac in Lonoke County to 88.1 bu/ac in Chicot County. Only two fields, Lonoke and Phillips County, had yields that were severely affected by the freeze.

The WRVP attempts to avoid low test weights by planting varieties with good test weight characteristics and timely harvest. Dry conditions during harvest improved test weight, and the average test weight was 58.9 lb/bu this year

The pounds-of-nitrogen-per-bushel variable is a simple ratio of total applied nitrogen divided by the grain yield. It attempts to measure the efficiency of nitrogen fertilizer applications. The efficiency ranged from 1.43 lbs N/bu to 11.89 lbs N/bu and averaged 3.20 lb N/bu of wheat.

**Table 8. Harvest Date, Grain Yield, Test Weight for WRVP Fields, 2007**

County	Harvest Date	Test Weight (lb/bu)	Yield (bu/ac @ 13.5%)	Pounds N/bu
Arkansas	8-Jun	61.3	65.0	1.84
Chicot	26-May	58.7	88.1	1.43
Crittenden	7-Jun	59.0	49.7	2.41
Desha	25-May	60.3	85.4	1.45
Greene	13-Jun	57.1	50.5	2.29
Jefferson	2-Jun	59.0	47.8	2.51
Lonoke	2-Jun	60.0	11.6	11.89
Mississippi	12-Jun	60.0	45.5	2.64
Monroe	5-Jun	59.0	79.0	1.58
Phillips	10-Jun	58.0	21.0	5.95
Poinsett	7-Jun	58.3	44.5	2.70
Prairie	31-May	61.0	40.6	2.95

Pulaski	15-Jun	55.1	62.8	2.07
Woodruff	1-Jun	58.0	46.4	3.08
<b>WRVP Average:</b>				<b>52.7</b>
<b>Estimated State Yield Average:</b>				<b>41.0</b>

### **ECONOMIC ANALYSIS: 2007 WRVP**

This section provides information on the development of estimated production costs for the 2007 Wheat Research Verification Program. Records of field operations on each field provided the basis for estimating these costs (Appendix). The field records were compiled by participating county Extension faculty and the coordinators of the Wheat Research Verification Program. Presented in this analysis are specified operating and ownership costs for each trial. Not included are overhead labor costs, other overhead costs, insurance costs, and opportunity costs for management and unpaid family labor. Assuming a 25% share rent for each field incorporates land costs.

#### **Direct Expenses**

Direct expenses are those expenditures that would generally require annual cash outlays and would be included on an annual operating loan application. Actual quantities of all operating inputs as reported by the cooperators were used in this analysis. The prices used for these inputs were, for the most part, the same as those reported in the "2007 Cost of Production Estimates" published by the Cooperative Extension Service. If an input were used that did not have a published price, a price quote for that input was obtained from a supply dealer.

Fuel and repair costs for machinery were calculated using a budget generator based on parameters and standards published in the American Society of Agricultural Engineers 1993 Handbook. Therefore, the producers' actual machinery costs will vary from the machinery cost estimates that are presented in this report. However, the producers' actual field operations were used as a basis for calculations and his equipment size and type were matched as closely as possible to the existing data set used in the annual set of state crop budgets.

Direct expenses for the fourteen (14) WRVP fields range from \$127.92 per acre for Mississippi County to \$200.72 per acre for Woodruff County and averaged \$161.26 per acre. Direct expenses per bushel ranged from \$1.53 in Desha County to \$13.32 in Lonoke County and averaged \$4.23 per bushel.

## Fixed Expenses

The fixed expenses category in Table 1 represents the cost of owning and using farm equipment. These costs can vary greatly from one farm to another depending on the farm's size, management, and annual use of machinery. The fixed expenses presented in Table 1 include depreciation and interest. These costs are based on estimated initial cost and expected useful life of machinery similar to that used by the producer. Ownership costs were allocated on a per acre basis using estimated performance rates and hours of annual use. Calculations were made by using a budget generator based on parameters and standards published in the American Society of Agricultural Engineers 1993 Handbook.

Economic costs may differ from short-run tax based cash accounting figures for a particular year. The economic approach spreads these costs over the entire useful life of the machinery. In the long-run, the farm business must cover these costs to remain viable.

Fixed expenses for the fourteen fields ranged from \$13.84 per acre for Jefferson County to \$35.10 per acre for Woodruff County and averaged \$23.35 per acre. High fixed expenses can be the result of numerous trips across the field.

Using custom operators rather than owning equipment replaces fixed expenses with direct expenses (custom work). Cooperators with high fixed expenses but low custom work expenses typically use high-clearance sprayers for chemical applications and spreaders (buggies) for seeding and fertilizer applications instead of hiring aerial or ground custom applicators.

## Total Specified Expenses

Since fixed costs can be substituted for direct cost and vice-versa, total specified expense is calculated to give the true picture of expenses. Not included in the **total specified expenses** in Table 1 are charges for land, risk, overhead, and management. The overhead and management costs would be better addressed in a whole-farm analysis and will not be dealt with in this discussion. Total specified expenses per acre for the fourteen fields ranged from \$146.10 for Desha County to \$235.82 for Woodruff County and averaged \$184.61. Total specified expenses per bushel ranged from \$1.71 in Desha County to \$15.29 in Lonoke County and averaged \$4.86 for the fourteen fields.

## Land Costs

Land costs incurred by producers participating in the Wheat Research Verification Program would likely vary from land ownership, cash rent, or some form of crop share arrangement. Therefore, a comparison of these divergent cost structures



would contribute little to this analysis. For this reason, a 25 % crop share rental arrangement with no cost sharing was assumed. This is not meant to imply that this arrangement is normal or that it should be used in place of existing arrangements. It is simply a consistent measure to be used across all trials. There are many other tenancy arrangements that are in use.

Table 1 presents the cost of production per bushel after 25 % of the yield is given to the landlord. These break-even prices ranged from \$2.28 per bushel in Desha County to \$20.39 per bushel in Lonoke County. The average cost of production for the fourteen fields was \$6.48 per bushel.

### **Returns per Acre**

Break-even prices, such as those displayed in Table 1, are very useful information, especially for making marketing decisions. However, having the lowest break-even price does not guarantee the highest returns. The total yield available for sale still plays a key role in determining returns per acre. Per acre returns for each of the fourteen fields are presented in Table 2. Government payments and other sources of farm income, which contribute to overall farm income, have been ignored in this table. The wheat price used in Table 2 (\$4.13/bu.) is the 2006 – 07 marketing year average price received by Arkansas producers. This information was obtained from the USDA National Ag Statistics Service.

The most profitable field (returns over total expense and rent), Desha County had net returns of \$118.43 per acre. The least profitable field was Lonoke County losing \$141.45 per acre. The objective in any one year is to receive sufficient sales to at least cover direct expenses and rent. This allows the business to repay operating debts and farm again next year. Across several years, per acre returns over total expenses and rent in Table 2 need to be positive for the farm business to remain solvent.

The general trend in Table 2 shows that the higher yielding fields resulted in higher net returns. Arkansas, Chicot, Desha, and Monroe Counties were some of the highest yielding counties and all had positive net returns. Lonoke County had the lowest yield and suffered the most negative net return.

**Table 9. Estimated costs per acre and breakeven prices: 2007 Wheat Research Verification Program.**

	Arkansas	Chicot	Crittenden	Desha	Greene	Jefferson	Lonoke	Mississippi	Monroe	Phillips	Poinsett	Prairie	Pulaski	Woodruff	W. Average	Total Acres
Acres	40	70	80	40	60	60	75	105	45	80	62	63	42	200	73	1022
Direct Exp.	(\$/acre)	(\$/acre)	(\$/acre)	(\$/acre)	(\$/acre)	(\$/acre)	(\$/acre)	(\$/acre)	(\$/acre)	(\$/acre)	(\$/acre)	(\$/acre)	(\$/acre)	(\$/acre)	(\$/acre)	
Custom Work	\$ 31.55	\$ 40.51	\$ 18.06	\$ 22.89	\$ 22.92	\$ 31.99	\$ 23.54	\$ 22.15	\$ 34.25	\$ 24.95	\$ 31.94	\$ 20.65	\$ 45.40	\$ 6.96	\$ 23.45	
Fertilizer <sup>9</sup>	\$ 55.88	\$ 58.75	\$ 85.11	\$ 53.97	\$ 57.78	\$ 65.55	\$ 77.50	\$ 54.17	\$ 90.26	\$ 66.38	\$ 64.97	\$ 85.56	\$ 67.95	\$ 99.01	\$ 74.03	
Herbicides+surfactants	\$ -	\$ 6.95	\$ -	\$ -	\$ 3.94	\$ 9.85	\$ -	\$ -	\$ 8.29	\$ -	\$ 2.91	\$ -	\$ 16.50	\$ 3.76	\$ 3.24	
Insecticide	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4.19	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Crop Seed	\$ 36.00	\$ 26.00	\$ 22.00	\$ 36.00	\$ 27.00	\$ 21.00	\$ 30.00	\$ 25.00	\$ 20.00	\$ 24.00	\$ 24.00	\$ 20.00	\$ 43.20	\$ 30.00	\$ 27.00	
Operator Labor	\$ 2.73	\$ 2.74	\$ 3.77	\$ 2.31	\$ 3.07	\$ 1.40	\$ 2.73	\$ 2.83	\$ 2.58	\$ 2.88	\$ 3.74	\$ 2.00	\$ 2.45	\$ 4.98	\$ 3.20	
Hand Labor	\$ -	\$ -	\$ 0.37	\$ 0.66	\$ 1.80	\$ 0.42	\$ -	\$ 1.07	\$ 0.66	\$ 0.74	\$ -	\$ 1.07	\$ -	\$ 1.10	\$ 0.66	
Diesel Fuel <sup>1</sup>	\$ 8.38	\$ 7.62	\$ 9.86	\$ 6.14	\$ 6.72	\$ 4.19	\$ 10.02	\$ 8.74	\$ 6.82	\$ 8.11	\$ 11.16	\$ 5.41	\$ 7.48	\$ 15.17	\$ 9.36	
Repairs & Maint.	\$ 4.55	\$ 4.44	\$ 6.00	\$ 3.55	\$ 4.94	\$ 3.64	\$ 4.56	\$ 5.41	\$ 4.12	\$ 5.35	\$ 5.12	\$ 3.91	\$ 4.31	\$ 8.62	\$ 5.50	
Interest on Op. Cap.	\$ 5.47	\$ 5.39	\$ 6.25	\$ 5.07	\$ 4.70	\$ 4.69	\$ 6.14	\$ 4.36	\$ 6.51	\$ 5.28	\$ 5.49	\$ 5.85	\$ 7.68	\$ 8.20	\$ 6.03	
<b>Total Direct Exp.<sup>2</sup></b>	<b>\$144.56</b>	<b>\$152.40</b>	<b>\$151.42</b>	<b>\$130.59</b>	<b>\$132.87</b>	<b>\$142.73</b>	<b>\$154.49</b>	<b>\$127.92</b>	<b>\$173.49</b>	<b>\$137.69</b>	<b>\$149.33</b>	<b>\$144.45</b>	<b>\$194.97</b>	<b>\$177.80</b>	<b>\$152.91</b>	
<b>Total Fixed Exp.<sup>3</sup></b>	<b>\$ 22.19</b>	<b>\$ 19.85</b>	<b>\$ 25.68</b>	<b>\$ 15.51</b>	<b>\$ 19.33</b>	<b>\$ 13.84</b>	<b>\$ 22.89</b>	<b>\$ 22.31</b>	<b>\$ 17.46</b>	<b>\$ 22.03</b>	<b>\$ 24.44</b>	<b>\$ 15.43</b>	<b>\$ 19.22</b>	<b>\$ 35.10</b>	<b>\$ 23.35</b>	
<b>Total Specified Exp.<sup>4</sup></b>	<b>\$166.75</b>	<b>\$172.25</b>	<b>\$177.10</b>	<b>\$146.10</b>	<b>\$152.20</b>	<b>\$156.57</b>	<b>\$177.38</b>	<b>\$150.23</b>	<b>\$190.95</b>	<b>\$159.72</b>	<b>\$173.77</b>	<b>\$159.88</b>	<b>\$214.19</b>	<b>\$12.90</b>	<b>\$176.26</b>	
Per Acre Yield <sup>5</sup>	65.0	88.1	49.7	85.4	50.5	47.8	11.6	45.0	79.0	21.0	44.5	40.6	62.8	46.4	49.0	
Breakeven Price Over:																
Direct Expenses <sup>6</sup>	\$2.22	\$1.73	\$3.05	\$1.53	\$2.63	\$2.99	\$13.32	\$2.84	\$2.20	\$6.56	\$3.36	\$3.56	\$3.10	\$3.83	\$4.01	
Total Expenses <sup>7</sup>	\$2.57	\$1.96	\$3.56	\$1.71	\$3.01	\$3.28	\$15.29	\$3.34	\$2.42	\$7.61	\$3.90	\$3.94	\$3.41	\$4.59	\$4.63	
Total Expenses and Rent <sup>8</sup>	\$3.42	\$2.61	\$4.75	\$2.28	\$4.02	\$4.37	\$20.39	\$4.45	\$3.22	\$10.14	\$5.21	\$5.25	\$4.55	\$6.12	\$6.18	

<sup>1</sup>Price of diesel was taken to be \$2.22 per gallon.

<sup>2</sup>Specified out-of-pocket expenses, such as seed, fertilizer, herbicides, operating interest, machinery repairs, labor, etc.

<sup>3</sup>Total ownership costs, which include charges for depreciation, taxes, and insurance.

<sup>4</sup>Total specified operation costs plus ownership costs.

<sup>5</sup>Yields adjusted to 13.5%.

<sup>6</sup>Price per bushel required by the farmer to equal total specified operating costs. Does not include land, overhead, risk, and management costs.

<sup>7</sup>Price per bushel required by the farmer to equal total specified operating and ownership costs. Does not include land, risk, and management costs.

<sup>8</sup>Price per bushel required by the farmer to equal total specified operating, ownership, and land costs. Does not include land, risk, and management costs.

<sup>9</sup>Only one half of all P & K is charged to wheat crop. The other half is charged to soybeans.

**Table 10. Estimated Returns per acre: 2007 Wheat Research Verification Program.**

	Arkansas	Chicot	Crittenden	Desha	Greene	Jefferson	Lonoke	Mississippi	Monroe	Phillips	Poinsett	Prairie	Pulaski	Woodruff	W. Average	Total Acres
Acres	40	70	80	40	60	60	75	105	45	80	62	63	42	200	73	1022
Per Acre Yield <sup>1</sup>	65.0	88.1	49.7	85.4	50.5	47.8	11.6	45.0	79.0	21.0	44.5	40.6	62.8	46.4	49.0	
Sales Price <sup>2</sup>	\$4.13	\$4.13	\$4.13	\$4.13	\$4.13	\$4.13	\$4.13	\$4.13	\$4.13	\$4.13	\$4.13	\$4.13	\$4.13	\$4.13	\$4.13	
Sales	\$268.45	\$363.85	\$205.26	\$352.70	\$208.57	\$197.41	\$47.91	\$185.85	\$326.27	\$86.73	\$183.79	\$167.68	\$259.36	\$191.63	\$202.55	
Total Direct Exp. <sup>3</sup>	\$144.56	\$152.40	\$151.42	\$130.59	\$132.87	\$142.73	\$154.49	\$127.92	\$173.49	\$137.69	\$149.33	\$144.45	\$194.97	\$177.80	\$152.91	
Returns over Dir. Exp.	\$123.89	\$211.45	\$53.84	\$222.11	\$75.70	\$54.68	\$106.58	\$57.93	\$152.78	-\$50.96	\$34.46	\$23.23	\$64.39	\$13.83	\$49.64	
Total Specified Exp. <sup>4</sup>	\$166.75	\$172.25	\$177.10	\$146.10	\$152.20	\$156.57	\$177.38	\$150.23	\$190.95	\$159.72	\$173.77	\$159.88	\$214.19	\$212.90	\$176.26	
Returns over Total Exp.	\$101.70	\$191.60	\$28.16	\$206.60	\$56.37	\$40.84	\$129.47	\$35.62	\$135.32	-\$72.99	\$10.02	\$7.80	\$45.17	-\$21.27	\$26.29	
Rent (25% share) <sup>5</sup>	\$67.11	\$90.96	\$51.32	\$88.18	\$52.14	\$49.35	\$11.98	\$46.46	\$81.57	\$21.68	\$45.95	\$41.92	\$64.84	\$47.91	\$50.64	
Returns over Total Exp. and Rent	\$34.59	\$100.64	-\$23.15	\$118.43	\$4.22	-\$8.51	\$141.45	-\$10.84	\$53.75	-\$94.67	-\$35.93	-\$34.12	-\$19.67	-\$69.18	-\$24.35	

<sup>1</sup>Yields adjusted to 13.5%.

<sup>2</sup>Sales Price is the higher of average Arkansas market price July through June or CCC Loan Price.

<sup>3</sup>Specified out-of-pocket expenses, such as seed, fertilizer, herbicides, operating interest, machinery repairs, labor, etc.

<sup>4</sup>Total specified operating costs plus ownership costs which include charges for depreciation, taxes, and insurance.

<sup>5</sup>A 25% crop share rent was assumed as a land charge for a renter situation. No cost sharing was assumed.

## **Appendix**

### **Economic Analysis by County**

Estimated operating expenses and crop input costs

Table 1.A Estimated resource use and costs for field operations, per acre  
Arkansas County  
University of Arkansas

OPERATION/ OPERATING INPUT	SIZE/ UNIT	POWER UNIT SIZE	PERF RATE	TIMES OVER	MTH	POWER UNIT COST		EQUIPMENT COST		ALLOC LABOR		OPERATING/DURABLE INPUT			TOTAL COST
						DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	AMOUNT	PRICE	COST	
						-----dollars-----				dollars		-----dollars-----			
Disk Harrow	32'	MFWD 225	0.061	1.00	Oct	1.83	1.90	0.55	1.46	0.06	0.55				6.29
Field Cultivate	32'	MFWD 225	0.046	2.00	Oct	2.77	2.89	0.62	3.28	0.09	0.84				10.40
Cstm Ap Grd Seed	acre			1.00	Oct							1.0000	5.00	5.00	5.00
Wheat Seed Public	lb											180.0000	0.20	36.00	36.00
Field Cultivate	32'	4WD 300	0.046	1.00	Oct	1.82	1.73	0.31	1.64	0.04	0.42				5.92
Cstm Ap Air Fert	lb			1.00	Feb							150.0000	0.05	8.40	8.40
Urea, Solid (46% N)	lb											75.0000	0.21	16.13	16.13
Amm Sulfate (21% N)	lb											75.0000	0.10	7.50	7.50
Cstm Ap Air Fert	lb			1.00	Mar							150.0000	0.05	8.40	8.40
Urea, Solid (46% N)	lb											150.0000	0.21	32.25	32.25
Header Wheat/Sorghum	25' Rigid	240hp	0.102	1.00	Jun	4.56	8.41	0.47	0.88	0.10	0.92				15.24
Cstm Haul Wheat	bu											65.0000	0.15	9.75	9.75
TOTALS						10.98	14.93	1.95	7.26	0.30	2.73			123.43	161.28
INTEREST ON OPERATING CAPITAL															5.47
UNALLOCATED LABOR															0.00
TOTAL SPECIFIED COST															166.75

Table 1.F Estimated costs per acre  
Arkansas County  
University of Arkansas

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		dollars		dollars	
DIRECT EXPENSES					
FERTILIZERS					
Urea, Solid (46% N)	lb	0.21	225.0000	48.38	_____
Amm Sulfate (21% N)	lb	0.10	75.0000	7.50	_____
CROP SEED					
Wheat Seed Public	lb	0.20	180.0000	36.00	_____
CUSTOM HIRE					
Cstm Ap Grd Seed	acre	5.00	1.0000	5.00	_____
Cstm Ap Air Fert	lb	0.05	300.0000	16.80	_____
Cstm Haul Wheat	bu	0.15	65.0000	9.75	_____
OPERATOR LABOR					
Tractors	hour	9.00	0.2013	1.81	_____
Harvesters	hour	9.00	0.1021	0.92	_____
DIESEL FUEL					
Tractors	gal	2.22	2.5121	5.58	_____
Harvesters	gal	2.22	1.2617	2.80	_____
REPAIR & MAINTENANCE					
Implements	acre	1.95	1.0000	1.95	_____
Tractors	acre	0.84	1.0000	0.84	_____
Harvesters	acre	1.76	1.0000	1.76	_____
INTEREST ON OP. CAP.	acre	5.47	1.0000	5.47	_____
TOTAL DIRECT EXPENSES				144.56	_____
FIXED EXPENSES					
Implements	acre	7.26	1.0000	7.26	_____
Tractors	acre	6.52	1.0000	6.52	_____
Harvesters	acre	8.41	1.0000	8.41	_____
TOTAL FIXED EXPENSES				22.19	_____
TOTAL SPECIFIED EXPENSES				166.75	_____

Table 2.A Estimated resource use and costs for field operations, per acre  
 Chicot County  
 University of Arkansas

OPERATION/ OPERATING INPUT	SIZE/ UNIT	POWER UNIT SIZE	PERF RATE	TIMES OVER	MTH	POWER UNIT COST		EQUIPMENT COST		ALLOC LABOR		OPERATING/DURABLE INPUT			TOTAL COST
						DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	AMOUNT	PRICE	COST	
						-----dollars-----				dollars		-----dollars-----			
Disk Harrow	28'	MFWD 225	0.070	2.00	Oct	4.17	4.34	1.15	3.03	0.14	1.26				13.95
Field Cultivate	24'	MFWD 170	0.062	1.00	Oct	1.43	1.72	0.28	1.47	0.06	0.56				5.46
Cstm Ap Grd Seed	acre			1.00	Oct							1.0000	5.00	5.00	5.00
Wheat Seed Public	lb											130.0000	0.20	26.00	26.00
Cstm Ap Air Fert	lb			1.00	Feb							150.0000	0.05	8.40	8.40
Urea, Solid (46% N)	lb											100.0000	0.21	21.50	21.50
Amm Sulfate (21% N)	lb											50.0000	0.10	5.00	5.00
Cstm Ap Air Fert	lb			1.00	Mar							150.0000	0.05	8.40	8.40
Urea, Solid (46% N)	lb											150.0000	0.21	32.25	32.25
Cstm Ap Air - 5 gal	appl			1.00	Mar							1.0000	5.50	5.50	5.50
Harmony Extra	oz											0.5000	13.40	6.70	6.70
Surfactant (80-20)	pt											0.2000	1.25	0.25	0.25
Header Wheat/Sorghum	25' Rigid	240hp	0.102	1.00	May	4.56	8.41	0.47	0.88	0.10	0.92				15.24
Cstm Haul Wheat	bu											88.1000	0.15	13.21	13.21
TOTALS						10.16	14.47	1.90	5.38	0.30	2.74			132.21	166.86
INTEREST ON OPERATING CAPITAL															5.39
UNALLOCATED LABOR															0.00
TOTAL SPECIFIED COST															172.25

Table 2.F Estimated costs per acre  
 Chicot County  
 University of Arkansas

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		dollars		dollars	
DIRECT EXPENSES					
FERTILIZERS					
Urea, Solid (46% N)	lb	0.21	250.0000	53.75	_____
Amm Sulfate (21% N)	lb	0.10	50.0000	5.00	_____
HERBICIDES					
Harmony Extra	oz	13.40	0.5000	6.70	_____
CROP SEED					
Wheat Seed Public	lb	0.20	130.0000	26.00	_____
ADJUVANTS					
Surfactant (80-20)	pt	1.25	0.2000	0.25	_____
CUSTOM HIRE					
Cstm Ap Grd Seed	acre	5.00	1.0000	5.00	_____
Cstm Ap Air Fert	lb	0.05	300.0000	16.80	_____
Cstm Ap Air - 5 gal	appl	5.50	1.0000	5.50	_____
Cstm Haul Wheat	bu	0.15	88.1000	13.21	_____
OPERATOR LABOR					
Tractors	hour	9.00	0.2025	1.82	_____
Harvesters	hour	9.00	0.1021	0.92	_____
DIESEL FUEL					
Tractors	gal	2.22	2.1693	4.82	_____
Harvesters	gal	2.22	1.2617	2.80	_____
REPAIR & MAINTENANCE					
Implements	acre	1.90	1.0000	1.90	_____
Tractors	acre	0.78	1.0000	0.78	_____
Harvesters	acre	1.76	1.0000	1.76	_____
INTEREST ON OP. CAP.	acre	5.39	1.0000	5.39	_____
TOTAL DIRECT EXPENSES				152.40	_____
FIXED EXPENSES					
Implements	acre	5.38	1.0000	5.38	_____
Tractors	acre	6.06	1.0000	6.06	_____
Harvesters	acre	8.41	1.0000	8.41	_____
TOTAL FIXED EXPENSES				19.85	_____
TOTAL SPECIFIED EXPENSES				172.25	_____



Table 3.A Estimated resource use and costs for field operations, per acre  
 Crittenden County  
 University of Arkansas

OPERATION/ OPERATING INPUT	SIZE/ UNIT	POWER UNIT SIZE	PERF RATE	TIMES OVER	MTH	POWER UNIT COST		EQUIPMENT COST		ALLOC LABOR		OPERATING/DURABLE INPUT			TOTAL COST
						DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	AMOUNT	PRICE	COST	
						-----dollars-----				dollars		-----dollars-----			
Subsoiler	5 shank	MFWD 170	0.122	1.00	Oct	2.82	3.39	0.25	0.81	0.12	1.10				8.37
Land Float	18'x50'	MFWD 170	0.071	1.00	Oct	1.65	1.98	0.12	0.40	0.07	0.64				4.79
Field Cultivate	32'	4WD 300	0.046	1.00	Oct	1.82	1.73	0.31	1.64	0.04	0.42				5.92
Spin Spreader	5 ton	2WD 105	0.042	1.00	Oct	0.57	0.44	0.26	0.64	0.08	0.71				2.62
DAP 18-46-0	lb											100.0000	0.15	15.25	15.25
Urea, Solid (46% N)	lb											65.0000	0.21	13.98	13.98
Grain Drill - Air	7.5"x40'	MFWD 225	0.050	1.00	Oct	1.51	1.57	1.78	4.31	0.05	0.50				9.67
Wheat Seed Public	lb											110.0000	0.20	22.00	22.00
Cstm Ap Grd Fert	acre			1.00	Feb							1.0000	5.00	5.00	5.00
Urea, Solid (46% N)	lb											125.0000	0.21	26.88	26.88
Amm Sulfate (21% N)	lb											75.0000	0.10	7.50	7.50
Cstm Ap Air Fert	acre			1.00	Mar							1.0000	5.60	5.60	5.60
Urea, Solid (46% N)	lb											100.0000	0.21	21.50	21.50
Header Wheat/Sorghum	30' Rigid	275hp	0.085	1.00	Jun	4.33	7.94	0.44	0.83	0.08	0.77				14.31
Cstm Haul Wheat	bu											49.7000	0.15	7.46	7.46
TOTALS						12.70	17.05	3.16	8.63	0.46	4.14			125.17	170.85
INTEREST ON OPERATING CAPITAL															6.25
UNALLOCATED LABOR															0.00
TOTAL SPECIFIED COST															177.10

Table 3.F Estimated costs per acre  
 Crittenden County  
 University of Arkansas

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		dollars		dollars	
DIRECT EXPENSES					
FERTILIZERS					
DAP 18-46-0	lb	0.15	100.0000	15.25	_____
Urea, Solid (46% N)	lb	0.21	290.0000	62.35	_____
Amm Sulfate (21% N)	lb	0.10	75.0000	7.50	_____
CROP SEED					
Wheat Seed Public	lb	0.20	110.0000	22.00	_____
CUSTOM HIRE					
Cstm Ap Grd Fert	acre	5.00	1.0000	5.00	_____
Cstm Ap Air Fert	acre	5.60	1.0000	5.60	_____
Cstm Haul Wheat	bu	0.15	49.7000	7.46	_____
OPERATOR LABOR					
Tractors	hour	9.00	0.3334	3.00	_____
Harvesters	hour	9.00	0.0851	0.77	_____
HAND LABOR					
Implements	hour	7.80	0.0471	0.37	_____
DIESEL FUEL					
Tractors	gal	2.22	3.2332	7.19	_____
Harvesters	gal	2.22	1.2047	2.67	_____
REPAIR & MAINTENANCE					
Implements	acre	3.16	1.0000	3.16	_____
Tractors	acre	1.18	1.0000	1.18	_____
Harvesters	acre	1.66	1.0000	1.66	_____
INTEREST ON OP. CAP.	acre	6.25	1.0000	6.25	_____
TOTAL DIRECT EXPENSES				151.42	_____
FIXED EXPENSES					
Implements	acre	8.63	1.0000	8.63	_____
Tractors	acre	9.11	1.0000	9.11	_____
Harvesters	acre	7.94	1.0000	7.94	_____
TOTAL FIXED EXPENSES				25.68	_____
TOTAL SPECIFIED EXPENSES				177.10	_____

Table 4.A Estimated resource use and costs for field operations, per acre  
 Desha County  
 University of Arkansas

OPERATION/ OPERATING INPUT	SIZE/ UNIT	POWER UNIT SIZE	PERF TIMES		MTH	POWER UNIT COST		EQUIPMENT COST		ALLOC LABOR		OPERATING/DURABLE INPUT			TOTAL COST	
			RATE	OVER		DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	AMOUNT	PRICE	COST		
						-----dollars-----				dollars		-----dollars-----				
Cstm Ap Air Seed	lb			1.00	Oct								180.0000	0.05	10.08	10.08
Wheat Seed Public	lb												180.0000	0.20	36.00	36.00
Disk Bed (Hipper)	8R-40	2WD 190	0.070	1.00	Oct	1.76	1.83	0.28	0.93	0.07	0.63					5.43
Spin Spreader	5 ton	2WD 190	0.042	1.00	Feb	1.05	1.09	0.26	0.64	0.08	0.71					3.75
Urea, Solid (46% N)	lb											125.0000	0.21	26.88	26.88	
Spin Spreader	5 ton	2WD 190	0.042	1.00	Mar	1.05	1.09	0.26	0.64	0.08	0.71					3.75
Urea, Solid (46% N)	lb											126.0000	0.21	27.09	27.09	
Header Wheat/Sorghum	25' Rigid	240hp	0.102	1.00	May	4.56	8.41	0.47	0.88	0.10	0.92					15.24
Cstm Haul Wheat	bu											85.4000	0.15	12.81	12.81	
TOTALS						8.42	12.42	1.27	3.09	0.34	2.97				112.86	141.03
INTEREST ON OPERATING CAPITAL																5.07
UNALLOCATED LABOR																0.00
TOTAL SPECIFIED COST																146.10

Table 4.F Estimated costs per acre  
 Desha County  
 University of Arkansas

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		dollars		dollars	
DIRECT EXPENSES					
FERTILIZERS					
Urea, Solid (46% N)	lb	0.21	251.0000	53.97	_____
CROP SEED					
Wheat Seed Public	lb	0.20	180.0000	36.00	_____
CUSTOM HIRE					
Cstm Ap Air Seed	lb	0.05	180.0000	10.08	_____
Cstm Haul Wheat	bu	0.15	85.4000	12.81	_____
OPERATOR LABOR					
Tractors	hour	9.00	0.1544	1.39	_____
Harvesters	hour	9.00	0.1021	0.92	_____
HAND LABOR					
Implements	hour	7.80	0.0841	0.66	_____
DIESEL FUEL					
Tractors	gal	2.22	1.5100	3.34	_____
Harvesters	gal	2.22	1.2617	2.80	_____
REPAIR & MAINTENANCE					
Implements	acre	1.27	1.0000	1.27	_____
Tractors	acre	0.52	1.0000	0.52	_____
Harvesters	acre	1.76	1.0000	1.76	_____
INTEREST ON OP. CAP.	acre	5.07	1.0000	5.07	_____
TOTAL DIRECT EXPENSES				130.59	_____
FIXED EXPENSES					
Implements	acre	3.09	1.0000	3.09	_____
Tractors	acre	4.01	1.0000	4.01	_____
Harvesters	acre	8.41	1.0000	8.41	_____
TOTAL FIXED EXPENSES				15.51	_____
TOTAL SPECIFIED EXPENSES				146.10	_____

Table 5.A Estimated resource use and costs for field operations, per acre  
 Greene County  
 University of Arkansas

OPERATION/ OPERATING INPUT	SIZE/ UNIT	POWER UNIT SIZE	PERF RATE	TIMES OVER	MTH	POWER UNIT COST		EQUIPMENT COST		ALLOC	LABOR	OPERATING/DURABLE INPUT			TOTAL COST
						DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	AMOUNT	PRICE	COST	
						-----dollars-----				dollars		-----dollars-----			
Grain Drill	20'	2WD 130	0.094	1.00	Nov	1.61	1.60	1.12	2.69	0.18	1.59				8.61
Wheat Seed Public	lb											135.0000	0.20	27.00	27.00
Sprayer( 300-450Gal)		60'	0.017	1.00	Nov	0.29	0.58			0.02	0.23				1.10
Glyphosate Plus	pt											2.0000	1.97	3.94	3.94
Spin Spreader	5 ton	2WD 130	0.042	1.00	Jan	0.73	0.71	0.26	0.64	0.08	0.71				3.05
Urea, Solid (46% N)	lb											50.0000	0.21	10.75	10.75
DAP 18-46-0	lb											50.0000	0.15	7.63	7.63
Amm Sulfate (21% N)	lb											50.0000	0.10	5.00	5.00
Spin Spreader	5 ton	2WD 130	0.042	1.00	Feb	0.73	0.71	0.26	0.64	0.08	0.71				3.05
Urea, Solid (46% N)	lb											80.0000	0.21	17.20	17.20
Spin Spreader	5 ton	2WD 130	0.042	1.00	Mar	0.73	0.71	0.26	0.64	0.08	0.71				3.05
Urea, Solid (46% N)	lb											80.0000	0.21	17.20	17.20
Cstm Lime (Spread)	ton			0.33	Mar							0.4950	31.00	15.35	15.35
Header Wheat/Sorghum	25' Rigid	275hp	0.102	1.00	Jun	5.20	9.53	0.47	0.88	0.10	0.92				17.00
Cstm Haul Wheat	bu											50.5000	0.15	7.57	7.57
TOTALS						9.29	13.84	2.37	5.49	0.56	4.87			111.64	147.50
INTEREST ON OPERATING CAPITAL															4.70
UNALLOCATED LABOR															0.00
TOTAL SPECIFIED COST															152.20

Table 5.F Estimated costs per acre  
 Greene County  
 University of Arkansas

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		dollars		dollars	
DIRECT EXPENSES					
FERTILIZERS					
Urea, Solid (46% N)	lb	0.21	210.0000	45.15	_____
DAP 18-46-0	lb	0.15	50.0000	7.63	_____
Amm Sulfate (21% N)	lb	0.10	50.0000	5.00	_____
HERBICIDES					
Glyphosate Plus	pt	1.97	2.0000	3.94	_____
CROP SEED					
Wheat Seed Public	lb	0.20	135.0000	27.00	_____
CUSTOM HIRE					
Cstm Lime (Spread)	ton	31.00	0.4950	15.35	_____
Cstm Haul Wheat	bu	0.15	50.5000	7.57	_____
OPERATOR LABOR					
Tractors	hour	9.00	0.2205	1.99	_____
Harvesters	hour	9.00	0.1021	0.92	_____
Self-Propelled	hour	9.00	0.0176	0.16	_____
HAND LABOR					
Implements	hour	7.80	0.2205	1.73	_____
Self-Propelled	hour	7.80	0.0088	0.07	_____
DIESEL FUEL					
Tractors	gal	2.22	1.4758	3.29	_____
Harvesters	gal	2.22	1.4457	3.21	_____
Self-Propelled	gal	2.22	0.0998	0.22	_____
REPAIR & MAINTENANCE					
Implements	acre	2.37	1.0000	2.37	_____
Tractors	acre	0.51	1.0000	0.51	_____
Harvesters	acre	1.99	1.0000	1.99	_____
Self-Propelled	acre	0.07	1.0000	0.07	_____
INTEREST ON OP. CAP.	acre	4.70	1.0000	4.70	_____
				-----	
TOTAL DIRECT EXPENSES				132.87	_____
FIXED EXPENSES					
Implements	acre	5.49	1.0000	5.49	_____
Tractors	acre	3.73	1.0000	3.73	_____
Harvesters	acre	9.53	1.0000	9.53	_____
Self-Propelled	acre	0.58	1.0000	0.58	_____
				-----	
TOTAL FIXED EXPENSES				19.33	_____
				-----	
TOTAL SPECIFIED EXPENSES				152.20	_____

Table 6.A Estimated resource use and costs for field operations, per acre  
 Jefferson County  
 University of Arkansas

OPERATION/ OPERATING INPUT	SIZE/ UNIT	POWER UNIT SIZE	PERF RATE	TIMES OVER	MTH	POWER UNIT COST		EQUIPMENT COST		ALLOC LABOR		OPERATING/DURABLE INPUT			TOTAL COST
						DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	AMOUNT	PRICE	COST	
						-----dollars-----				dollars		-----dollars-----			
Grain Drill	35'	MFWD 225	0.053	1.00	Oct	1.61	1.67	1.19	2.88	0.10	0.90				8.25
Wheat Seed Public	lb											105.0000	0.20	21.00	21.00
Cstm Ap Air Fert	lb			1.00	Feb							195.0000	0.05	10.92	10.92
Urea, Solid (46% N)	lb											120.0000	0.21	25.80	25.80
Amm Sulfate (21% N)	lb											75.0000	0.10	7.50	7.50
Cstm Ap Air - 5 gal	appl			1.00	Mar							1.0000	5.50	5.50	5.50
Harmony Extra	oz											0.5000	13.40	6.70	6.70
Surfactant (80-20)	pt											0.2000	1.25	0.25	0.25
Barrage (2, 4-D)	oz											10.0000	0.29	2.90	2.90
Cstm Ap Air Fert	lb			1.00	Mar							150.0000	0.05	8.40	8.40
Urea, Solid (46% N)	lb											150.0000	0.21	32.25	32.25
Header Wheat/Sorghum	25' Rigid	240hp	0.102	1.00	Jun	4.56	8.41	0.47	0.88	0.10	0.92				15.24
Cstm Haul Wheat	bu											47.8000	0.15	7.17	7.17
TOTALS						6.17	10.08	1.66	3.76	0.20	1.82			128.39	151.88
INTEREST ON OPERATING CAPITAL															4.69
UNALLOCATED LABOR															0.00
TOTAL SPECIFIED COST															156.57

Table 6.F Estimated costs per acre  
 Jefferson County  
 University of Arkansas

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		dollars		dollars	
DIRECT EXPENSES					
FERTILIZERS					
Urea, Solid (46% N)	lb	0.21	270.0000	58.05	_____
Amm Sulfate (21% N)	lb	0.10	75.0000	7.50	_____
HERBICIDES					
Harmony Extra	oz	13.40	0.5000	6.70	_____
Barrage (2, 4-D)	oz	0.29	10.0000	2.90	_____
CROP SEED					
Wheat Seed Public	lb	0.20	105.0000	21.00	_____
ADJUVANTS					
Surfactant (80-20)	pt	1.25	0.2000	0.25	_____
CUSTOM HIRE					
Cstm Ap Air Fert	lb	0.05	345.0000	19.32	_____
Cstm Ap Air - 5 gal	appl	5.50	1.0000	5.50	_____
Cstm Haul Wheat	bu	0.15	47.8000	7.17	_____
OPERATOR LABOR					
Tractors	hour	9.00	0.0538	0.48	_____
Harvesters	hour	9.00	0.1021	0.92	_____
HAND LABOR					
Implements	hour	7.80	0.0538	0.42	_____
DIESEL FUEL					
Tractors	gal	2.22	0.6240	1.39	_____
Harvesters	gal	2.22	1.2617	2.80	_____
REPAIR & MAINTENANCE					
Implements	acre	1.66	1.0000	1.66	_____
Tractors	acre	0.22	1.0000	0.22	_____
Harvesters	acre	1.76	1.0000	1.76	_____
INTEREST ON OP. CAP.	acre	4.69	1.0000	4.69	_____
TOTAL DIRECT EXPENSES				142.73	_____
FIXED EXPENSES					
Implements	acre	3.76	1.0000	3.76	_____
Tractors	acre	1.67	1.0000	1.67	_____
Harvesters	acre	8.41	1.0000	8.41	_____
TOTAL FIXED EXPENSES				13.84	_____
TOTAL SPECIFIED EXPENSES				156.57	_____



Table 7.A Estimated resource use and costs for field operations, per acre  
 Lonoke County  
 University of Arkansas

OPERATION/ OPERATING INPUT	SIZE/ UNIT	POWER UNIT SIZE	PERF RATE	TIMES OVER	MTH	POWER UNIT COST		EQUIPMENT COST		ALLOC	LABOR	OPERATING/DURABLE INPUT			TOTAL COST
						DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	AMOUNT	PRICE	COST	
						-----dollars-----				dollars		-----dollars-----			
Disk Harrow	32'	4WD 400	0.061	1.00	Oct	3.21	3.11	0.55	1.46	0.06	0.55				8.88
Field Cultivate	32'	4WD 300	0.046	2.00	Oct	3.65	3.46	0.62	3.28	0.09	0.84				11.85
Cstm Ap Grd Seed	acre			1.00	Oct							1.0000	5.00	5.00	5.00
Phoshate (0-46-0)	lb											100.0000	0.13	13.00	13.00
Wheat Seed Public	lb											150.0000	0.20	30.00	30.00
Roller	32' -12R30	MFWD 225	0.046	1.00	Oct	1.39	1.44	0.12	0.84	0.04	0.42				4.21
Ditcher		MFWD 225	0.020	0.01	Oct	0.01	0.01			0.00					0.02
Cstm Ap Air Fert	acre			1.00	Feb							1.0000	5.60	5.60	5.60
Urea, Solid (46% N)	lb											100.0000	0.21	21.50	21.50
Cstm Ap Air Fert	acre			1.00	Mar							1.0000	5.60	5.60	5.60
Urea, Solid (46% N)	lb											100.0000	0.21	21.50	21.50
Cstm Ap Air Fert	acre			1.00	Mar							1.0000	5.60	5.60	5.60
Urea, Solid (46% N)	lb											100.0000	0.21	21.50	21.50
Header Wheat/Sorghum	25' Rigid	240hp	0.102	1.00	Jun	4.56	8.41	0.47	0.88	0.10	0.92				15.24
Cstm Haul Wheat	bu											11.6000	0.15	1.74	1.74
TOTALS						12.82	16.43	1.76	6.46	0.30	2.73			131.04	171.24
INTEREST ON OPERATING CAPITAL															6.14
UNALLOCATED LABOR															0.00
TOTAL SPECIFIED COST															177.38

Table 7.F Estimated costs per acre  
 Lonoke County  
 University of Arkansas

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		dollars		dollars	
DIRECT EXPENSES					
FERTILIZERS					
Phoshate (0-46-0)	lb	0.13	100.0000	13.00	_____
Urea, Solid (46% N)	lb	0.21	300.0000	64.50	_____
CROP SEED					
Wheat Seed Public	lb	0.20	150.0000	30.00	_____
CUSTOM HIRE					
Cstm Ap Grd Seed	acre	5.00	1.0000	5.00	_____
Cstm Ap Air Fert	acre	5.60	3.0000	16.80	_____
Cstm Haul Wheat	bu	0.15	11.6000	1.74	_____
OPERATOR LABOR					
Tractors	hour	9.00	0.2015	1.81	_____
Harvesters	hour	9.00	0.1021	0.92	_____
DIESEL FUEL					
Tractors	gal	2.22	3.2475	7.22	_____
Harvesters	gal	2.22	1.2617	2.80	_____
REPAIR & MAINTENANCE					
Implements	acre	1.76	1.0000	1.76	_____
Tractors	acre	1.04	1.0000	1.04	_____
Harvesters	acre	1.76	1.0000	1.76	_____
INTEREST ON OP. CAP.	acre	6.14	1.0000	6.14	_____
TOTAL DIRECT EXPENSES				154.49	_____
FIXED EXPENSES					
Implements	acre	6.46	1.0000	6.46	_____
Tractors	acre	8.02	1.0000	8.02	_____
Harvesters	acre	8.41	1.0000	8.41	_____
TOTAL FIXED EXPENSES				22.89	_____
TOTAL SPECIFIED EXPENSES				177.38	_____

Table 8.A Estimated resource use and costs for field operations, per acre  
 Mississippi County  
 University of Arkansas

OPERATION/ OPERATING INPUT	SIZE/ UNIT	POWER UNIT SIZE	PERF RATE	TIMES OVER	MTH	POWER UNIT COST		EQUIPMENT COST		ALLOC LABOR		OPERATING/DURABLE INPUT			TOTAL COST
						DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	AMOUNT	PRICE	COST	
						-----dollars-----				dollars		-----dollars-----			
Disk Harrow	32'	MFWD 225	0.061	1.00	Oct	1.83	1.90	0.55	1.46	0.06	0.55				6.29
Grain Drill	20'	2WD 190	0.094	1.00	Oct	2.37	2.45	1.12	2.69	0.18	1.59				10.22
Wheat Seed Public	lb											125.0000	0.20	25.00	25.00
Spin Spreader	5 ton	2WD 190	0.042	1.00	Feb	1.05	1.09	0.26	0.64	0.08	0.71				3.75
Urea, Solid (46% N)	lb											52.5000	0.21	11.29	11.29
Amm Sulfate (21% N)	lb											52.5000	0.10	5.25	5.25
Cstm Ap Air Fert	lb			1.00	Mar							175.0000	0.05	9.80	9.80
Urea, Solid (46% N)	lb											175.0000	0.21	37.63	37.63
Cstm Ap Air Insect	acre			1.00	Mar							1.0000	5.60	5.60	5.60
Karate Z	oz											1.6000	2.62	4.19	4.19
Header Wheat/Sorghum	30' Rigid	370hp	0.085	1.00	Jun	5.69	10.01	0.44	0.83	0.08	0.77				17.74
Wheat Grain Cart	500 bu	MFWD 225	0.031	1.00	Jun	0.72	0.96	0.12	0.28	0.03	0.28				2.36
Cstm Haul Wheat	bu			1.00	Jun							45.0000	0.15	6.75	6.75
TOTALS						11.66	16.41	2.49	5.90	0.45	3.90			105.51	145.87
INTEREST ON OPERATING CAPITAL															4.36
UNALLOCATED LABOR															0.00
TOTAL SPECIFIED COST															150.23

Table 8.F Estimated costs per acre  
 Mississippi County  
 University of Arkansas

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		dollars		dollars	
DIRECT EXPENSES					
FERTILIZERS					
Urea, Solid (46% N)	lb	0.21	227.5000	48.91	_____
Amm Sulfate (21% N)	lb	0.10	52.5000	5.25	_____
INSECTICIDES					
Karate Z	oz	2.62	1.6000	4.19	_____
CROP SEED					
Wheat Seed Public	lb	0.20	125.0000	25.00	_____
CUSTOM HIRE					
Cstm Ap Air Fert	lb	0.05	175.0000	9.80	_____
Cstm Ap Air Insect	acre	5.60	1.0000	5.60	_____
Cstm Haul Wheat	bu	0.15	45.0000	6.75	_____
OPERATOR LABOR					
Tractors	hour	9.00	0.2287	2.06	_____
Harvesters	hour	9.00	0.0851	0.77	_____
HAND LABOR					
Implements	hour	7.80	0.1363	1.07	_____
DIESEL FUEL					
Tractors	gal	2.22	2.3138	5.14	_____
Harvesters	gal	2.22	1.6210	3.60	_____
REPAIR & MAINTENANCE					
Implements	acre	2.49	1.0000	2.49	_____
Tractors	acre	0.83	1.0000	0.83	_____
Harvesters	acre	2.09	1.0000	2.09	_____
INTEREST ON OP. CAP.	acre	4.36	1.0000	4.36	_____
				-----	
TOTAL DIRECT EXPENSES				127.92	_____
FIXED EXPENSES					
Implements	acre	5.90	1.0000	5.90	_____
Tractors	acre	6.40	1.0000	6.40	_____
Harvesters	acre	10.01	1.0000	10.01	_____
				-----	
TOTAL FIXED EXPENSES				22.31	_____
				-----	
TOTAL SPECIFIED EXPENSES				150.23	_____

Table 9.A Estimated resource use and costs for field operations, per acre  
 Monroe County  
 University of Arkansas

OPERATION/ OPERATING INPUT	SIZE/ UNIT	POWER UNIT SIZE	PERF RATE	TIMES OVER	MTH	POWER UNIT COST		EQUIPMENT COST		ALLOC	LABOR	OPERATING/DURABLE INPUT			TOTAL COST	
						DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	AMOUNT	PRICE	COST		
						-----dollars-----				dollars		-----dollars-----				
Disk Harrow	32'	4WD 225	0.061	1.00	Oct	1.86	2.16	0.55	1.46	0.06	0.55					6.58
Spin Spreader	5 ton	2WD 150	0.042	1.00	Oct	0.83	0.82	0.26	0.64	0.08	0.71					3.26
Potash (0-0-60)	lb											75.0000	0.11	8.63		8.63
DAP 18-46-0	lb											150.0000	0.15	22.88		22.88
Spin Spreader	5 ton	2WD 150	0.042	1.00	Oct	0.83	0.82	0.26	0.64	0.08	0.71					3.26
Wheat Seed Public	lb											100.0000	0.20	20.00		20.00
Harrow	40'	4WD 225	0.038	1.00	Oct	1.18	1.36	0.14	0.27	0.03	0.35					3.30
Cstm Ap Air Fert	lb			1.00	Feb							150.0000	0.05	8.40		8.40
Urea, Solid (46% N)	lb											100.0000	0.21	21.50		21.50
Amm Sulfate (21% N)	lb											50.0000	0.10	5.00		5.00
Cstm Ap Air Fert	lb			1.00	Mar							150.0000	0.05	8.40		8.40
Urea, Solid (46% N)	lb											150.0000	0.21	32.25		32.25
Cstm Ap Air Herb	acre			1.00	Mar							1.0000	5.60	5.60		5.60
Harmony Extra	oz											0.6000	13.40	8.04		8.04
Surfactant (80-20)	pt											0.2000	1.25	0.25		0.25
Header Wheat/Sorghum	25' Rigid	240hp	0.102	1.00	Jun	4.56	8.41	0.47	0.88	0.10	0.92					15.24
Cstm Haul Wheat	bu											79.0000	0.15	11.85		11.85
TOTALS						9.26	13.57	1.68	3.89	0.37	3.24			152.80		184.44
INTEREST ON OPERATING CAPITAL																6.51
UNALLOCATED LABOR																0.00
TOTAL SPECIFIED COST																190.95

Table 9.F Estimated costs per acre  
 Monroe County  
 University of Arkansas

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		dollars		dollars	
DIRECT EXPENSES					
FERTILIZERS					
Potash (0-0-60)	lb	0.11	75.0000	8.63	_____
DAP 18-46-0	lb	0.15	150.0000	22.88	_____
Urea, Solid (46% N)	lb	0.21	250.0000	53.75	_____
Amm Sulfate (21% N)	lb	0.10	50.0000	5.00	_____
HERBICIDES					
Harmony Extra	oz	13.40	0.6000	8.04	_____
CROP SEED					
Wheat Seed Public	lb	0.20	100.0000	20.00	_____
ADJUVANTS					
Surfactant (80-20)	pt	1.25	0.2000	0.25	_____
CUSTOM HIRE					
Cstm Ap Air Fert	lb	0.05	300.0000	16.80	_____
Cstm Ap Air Herb	acre	5.60	1.0000	5.60	_____
Cstm Haul Wheat	bu	0.15	79.0000	11.85	_____
OPERATOR LABOR					
Tractors	hour	9.00	0.1843	1.66	_____
Harvesters	hour	9.00	0.1021	0.92	_____
HAND LABOR					
Implements	hour	7.80	0.0841	0.66	_____
DIESEL FUEL					
Tractors	gal	2.22	1.8103	4.02	_____
Harvesters	gal	2.22	1.2617	2.80	_____
REPAIR & MAINTENANCE					
Implements	acre	1.68	1.0000	1.68	_____
Tractors	acre	0.68	1.0000	0.68	_____
Harvesters	acre	1.76	1.0000	1.76	_____
INTEREST ON OP. CAP.	acre	6.51	1.0000	6.51	_____
TOTAL DIRECT EXPENSES				173.49	_____
FIXED EXPENSES					
Implements	acre	3.89	1.0000	3.89	_____
Tractors	acre	5.16	1.0000	5.16	_____
Harvesters	acre	8.41	1.0000	8.41	_____
TOTAL FIXED EXPENSES				17.46	_____
TOTAL SPECIFIED EXPENSES				190.95	_____

Table 10.A Estimated resource use and costs for field operations, per acre  
 Phillips County  
 University of Arkansas

OPERATION/ OPERATING INPUT	SIZE/ UNIT	POWER UNIT SIZE	PERF RATE	TIMES OVER	MTH	POWER UNIT COST		EQUIPMENT COST		ALLOC LABOR		OPERATING/DURABLE INPUT			TOTAL COST
						DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	AMOUNT	PRICE	COST	
						-----dollars-----				dollars		-----dollars-----			
Disk Harrow	28'	4WD 225	0.070	2.00	Oct	4.25	4.93	1.15	3.03	0.14	1.26				14.62
Grain Drill	20'	MFWD 170	0.094	1.00	Oct	2.17	2.61	1.12	2.69	0.18	1.59				10.18
Wheat Seed Public	lb											120.0000	0.20	24.00	24.00
Cstm Ap Grd Fert	acre			1.00	Nov							1.0000	5.00	5.00	5.00
DAP 18-46-0	lb											50.0000	0.15	7.63	7.63
Cstm Ap Air Fert	lb			1.00	Feb							150.0000	0.05	8.40	8.40
Urea, Solid (46% N)	lb											100.0000	0.21	21.50	21.50
Amm Sulfate (21% N)	lb											50.0000	0.10	5.00	5.00
Cstm Ap Air Fert	lb			1.00	Mar							150.0000	0.05	8.40	8.40
Urea, Solid (46% N)	lb											150.0000	0.21	32.25	32.25
Header Wheat/Sorghum	30' Rigid	275hp	0.085	1.00	Jun	4.33	7.94	0.44	0.83	0.08	0.77				14.31
Cstm Haul Wheat	bu											21.0000	0.15	3.15	3.15
TOTALS						10.75	15.48	2.71	6.55	0.41	3.62			115.33	154.44
INTEREST ON OPERATING CAPITAL															5.28
UNALLOCATED LABOR															0.00
TOTAL SPECIFIED COST															159.72

Table 10.F Estimated costs per acre  
 Phillips County  
 University of Arkansas

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		dollars		dollars	
DIRECT EXPENSES					
FERTILIZERS					
DAP 18-46-0	lb	0.15	50.0000	7.63	_____
Urea, Solid (46% N)	lb	0.21	250.0000	53.75	_____
Amm Sulfate (21% N)	lb	0.10	50.0000	5.00	_____
CROP SEED					
Wheat Seed Public	lb	0.20	120.0000	24.00	_____
CUSTOM HIRE					
Cstm Ap Grd Fert	acre	5.00	1.0000	5.00	_____
Cstm Ap Air Fert	lb	0.05	300.0000	16.80	_____
Cstm Haul Wheat	bu	0.15	21.0000	3.15	_____
OPERATOR LABOR					
Tractors	hour	9.00	0.2345	2.11	_____
Harvesters	hour	9.00	0.0851	0.77	_____
HAND LABOR					
Implements	hour	7.80	0.0942	0.74	_____
DIESEL FUEL					
Tractors	gal	2.22	2.4499	5.44	_____
Harvesters	gal	2.22	1.2047	2.67	_____
REPAIR & MAINTENANCE					
Implements	acre	2.71	1.0000	2.71	_____
Tractors	acre	0.98	1.0000	0.98	_____
Harvesters	acre	1.66	1.0000	1.66	_____
INTEREST ON OP. CAP.	acre	5.28	1.0000	5.28	_____
TOTAL DIRECT EXPENSES				137.69	_____
FIXED EXPENSES					
Implements	acre	6.55	1.0000	6.55	_____
Tractors	acre	7.54	1.0000	7.54	_____
Harvesters	acre	7.94	1.0000	7.94	_____
TOTAL FIXED EXPENSES				22.03	_____
TOTAL SPECIFIED EXPENSES				159.72	_____



Table 11.A Estimated resource use and costs for field operations, per acre  
Poinsett County  
University of Arkansas

OPERATION/ OPERATING INPUT	SIZE/ UNIT	POWER UNIT SIZE	PERF RATE	TIMES OVER	MTH	POWER UNIT COST		EQUIPMENT COST		ALLOC LABOR		OPERATING/DURABLE INPUT			TOTAL COST	
						DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	AMOUNT	PRICE	COST		
						-----dollars-----				dollars		-----dollars-----				
Disk Harrow	28'	MFWD 225	0.070	2.00	Nov	4.17	4.34	1.15	3.03	0.14	1.26					13.95
Land Float	18'x50'	MFWD 225	0.071	2.00	Nov	4.25	4.43	0.24	0.79	0.14	1.29					11.00
Cstm Ap Grd Seed	acre			1.00	Nov							1.0000	5.00	5.00		5.00
Wheat Seed Public	lb											120.0000	0.20	24.00		24.00
Field Cultivate	32'	MFWD 225	0.046	1.00	Nov	1.39	1.44	0.31	1.64	0.04	0.42					5.20
Cstm Ap Grd Fert	acre			1.00	Jan							1.0000	5.00	5.00		5.00
57-30-30-12	acre											1.0000	37.02	37.02		37.02
Cstm Ap Grd. Herb	acre			0.33	Mar							0.3300	6.00	1.98		1.98
Axial	oz												2.7060			
Cstm Ap Air Fert	lb			1.00	Mar							130.0000	0.05	7.28		7.28
Urea, Solid (46% N)	lb											130.0000	0.21	27.95		27.95
Cstm Ap Grd. Herb	acre			1.00	Mar							1.0000	6.00	6.00		6.00
2,4-D Amine	pt											1.0000	1.77	1.77		1.77
Cstm Ap Grd. Herb	acre			1.00	Mar								6.00			
Express	oz												0.0900	12.69	1.14	1.14
Header Wheat/Sorghum	30' Rigid	275hp	0.085	1.00	Jun	4.33	7.94	0.44	0.83	0.08	0.77					14.31
Cstm Haul Wheat	bu											44.5000	0.15	6.68		6.68
TOTALS						14.14	18.15	2.14	6.29	0.41	3.74			123.82		168.28
INTEREST ON OPERATING CAPITAL																5.49
UNALLOCATED LABOR																0.00
TOTAL SPECIFIED COST																173.77

Table 11.F Estimated costs per acre  
Poinsett County  
University of Arkansas

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		dollars		dollars	
DIRECT EXPENSES					
FERTILIZERS					
57-30-30-12	acre	37.02	1.0000	37.02	_____
Urea, Solid (46% N)	lb	0.21	130.0000	27.95	_____
HERBICIDES					
2,4-D Amine	pt	1.77	1.0000	1.77	_____
Express	oz	12.69	0.0900	1.14	_____
CROP SEED					
Wheat Seed Public	lb	0.20	120.0000	24.00	_____
CUSTOM HIRE					
Cstm Ap Grd Seed	acre	5.00	1.0000	5.00	_____
Cstm Ap Grd Fert	acre	5.00	1.0000	5.00	_____
Cstm Ap Grd. Herb	acre	6.00	1.3300	7.98	_____
Cstm Ap Air Fert	lb	0.05	130.0000	7.28	_____
Cstm Haul Wheat	bu	0.15	44.5000	6.68	_____
OPERATOR LABOR					
Tractors	hour	9.00	0.3301	2.97	_____
Harvesters	hour	9.00	0.0851	0.77	_____
DIESEL FUEL					
Tractors	gal	2.22	3.8239	8.49	_____
Harvesters	gal	2.22	1.2047	2.67	_____
REPAIR & MAINTENANCE					
Implements	acre	2.14	1.0000	2.14	_____
Tractors	acre	1.32	1.0000	1.32	_____
Harvesters	acre	1.66	1.0000	1.66	_____
INTEREST ON OP. CAP.	acre	5.49	1.0000	5.49	_____
TOTAL DIRECT EXPENSES				149.33	_____
FIXED EXPENSES					
Implements	acre	6.29	1.0000	6.29	_____
Tractors	acre	10.21	1.0000	10.21	_____
Harvesters	acre	7.94	1.0000	7.94	_____
TOTAL FIXED EXPENSES				24.44	_____
TOTAL SPECIFIED EXPENSES				173.77	_____

Table 12.A Estimated resource use and costs for field operations, per acre  
 Prairie County  
 University of Arkansas

OPERATION/ OPERATING INPUT	SIZE/ UNIT	POWER UNIT SIZE	PERF RATE	TIMES OVER	MTH	POWER UNIT COST		EQUIPMENT COST		ALLOC LABOR		OPERATING/DURABLE INPUT			TOTAL COST
						DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	AMOUNT	PRICE	COST	
						-----dollars-----				dollars		-----dollars-----			
Grain Drill	20'	2WD 170	0.094	1.00	Oct	2.10	2.10	1.12	2.69	0.18	1.59				9.60
Wheat Seed Public	1b											100.0000	0.20	20.00	20.00
Spin Spreader	5 ton	MFWD 190	0.042	1.00	Oct	1.07	1.23	0.26	0.64	0.08	0.71				3.91
0-26-26	1b											200.0000	0.12	24.66	24.66
Amm Sulfate (21% N)	1b											50.0000	0.10	5.00	5.00
Cstm Ap Air Fert	1b			1.00	Feb							130.0000	0.05	7.28	7.28
Urea, Solid (46% N)	1b											130.0000	0.21	27.95	27.95
Cstm Ap Air Fert	1b			1.00	Mar							130.0000	0.05	7.28	7.28
Urea, Solid (46% N)	1b											130.0000	0.21	27.95	27.95
Header Wheat/Sorghum	30' Rigid	275hp	0.085	1.00	May	4.33	7.94	0.44	0.83	0.08	0.77				14.31
Cstm Haul Wheat	bu											40.6000	0.15	6.09	6.09
TOTALS						7.50	11.27	1.82	4.16	0.35	3.07			126.21	154.03
INTEREST ON OPERATING CAPITAL															5.85
UNALLOCATED LABOR															0.00
TOTAL SPECIFIED COST															159.88

Table 12.F Estimated costs per acre  
 Prairie County  
 University of Arkansas

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		dollars		dollars	
DIRECT EXPENSES					
FERTILIZERS					
0-26-26	lb	0.12	200.0000	24.66	_____
Amm Sulfate (21% N)	lb	0.10	50.0000	5.00	_____
Urea, Solid (46% N)	lb	0.21	260.0000	55.90	_____
CROP SEED					
Wheat Seed Public	lb	0.20	100.0000	20.00	_____
CUSTOM HIRE					
Cstm Ap Air Fert	lb	0.05	260.0000	14.56	_____
Cstm Haul Wheat	bu	0.15	40.6000	6.09	_____
OPERATOR LABOR					
Tractors	hour	9.00	0.1363	1.23	_____
Harvesters	hour	9.00	0.0851	0.77	_____
HAND LABOR					
Implements	hour	7.80	0.1363	1.07	_____
DIESEL FUEL					
Tractors	gal	2.22	1.2366	2.74	_____
Harvesters	gal	2.22	1.2047	2.67	_____
REPAIR & MAINTENANCE					
Implements	acre	1.82	1.0000	1.82	_____
Tractors	acre	0.43	1.0000	0.43	_____
Harvesters	acre	1.66	1.0000	1.66	_____
INTEREST ON OP. CAP.	acre	5.85	1.0000	5.85	_____
TOTAL DIRECT EXPENSES				144.45	_____
FIXED EXPENSES					
Implements	acre	4.16	1.0000	4.16	_____
Tractors	acre	3.33	1.0000	3.33	_____
Harvesters	acre	7.94	1.0000	7.94	_____
TOTAL FIXED EXPENSES				15.43	_____
TOTAL SPECIFIED EXPENSES				159.88	_____

Table 13.A Estimated resource use and costs for field operations, per acre  
Pulaski County  
University of Arkansas

OPERATION/ OPERATING INPUT	SIZE/ UNIT	POWER UNIT SIZE	PERF RATE	TIMES OVER	MTH	POWER UNIT COST		EQUIPMENT COST		ALLOC LABOR		OPERATING/DURABLE INPUT			TOTAL COST
						DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	AMOUNT	PRICE	COST	
						-----dollars-----				dollars		-----dollars-----			
Disk Harrow	28'	MFWD 225	0.070	2.00	Sep	4.17	4.34	1.15	3.03	0.14	1.26				13.95
Cstm Ap Air Seed	lb			1.00	Oct							180.0000	0.05	10.08	10.08
Wheat Seed Public	lb											180.0000	0.20	36.00	36.00
Field Cultivate	32'	MFWD 225	0.046	1.00	Oct	1.39	1.44	0.31	1.64	0.04	0.42				5.20
Cstm Ap Air Seed	lb			0.60	Nov							36.0000	0.05	2.02	2.02
Wheat Seed Public	lb											36.0000	0.20	7.20	7.20
Cstm Ap Air - 3 gal	appl			1.00	Jan							1.0000	5.10	5.10	5.10
Osprey 4.5 WDG	oz											4.6340	3.56	16.50	16.50
Cstm Ap Air Fert. b	lb			1.00	Feb							250.0000	0.04	11.50	11.50
70-40-0-20	acre											1.0000	40.00	40.00	40.00
Cstm Ap Air Fert	lb			1.00	Mar							130.0000	0.05	7.28	7.28
Urea, Solid (46% N)	lb											130.0000	0.21	27.95	27.95
Header Wheat/Sorghum	30' Rigid	275hp	0.085	1.00	Jun	4.33	7.94	0.44	0.83	0.08	0.77				14.31
Cstm Haul Wheat	bu											62.8000	0.15	9.42	9.42
TOTALS						9.89	13.72	1.90	5.50	0.27	2.45			173.05	206.51
INTEREST ON OPERATING CAPITAL															7.68
UNALLOCATED LABOR															0.00
TOTAL SPECIFIED COST															214.19

Table 13.F Estimated costs per acre  
Pulaski County  
University of Arkansas

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		dollars		dollars	
DIRECT EXPENSES					
FERTILIZERS					
70-40-0-20	acre	40.00	1.0000	40.00	_____
Urea, Solid (46% N)	lb	0.21	130.0000	27.95	_____
HERBICIDES					
Osprey 4.5 WDG	oz	3.56	4.6340	16.50	_____
CROP SEED					
Wheat Seed Public	lb	0.20	216.0000	43.20	_____
CUSTOM HIRE					
Cstm Ap Air Seed	lb	0.05	216.0000	12.10	_____
Cstm Ap Air - 3 gal	appl	5.10	1.0000	5.10	_____
Cstm Ap Air Fert. b	lb	0.04	250.0000	11.50	_____
Cstm Ap Air Fert	lb	0.05	130.0000	7.28	_____
Cstm Haul Wheat	bu	0.15	62.8000	9.42	_____
OPERATOR LABOR					
Tractors	hour	9.00	0.1869	1.68	_____
Harvesters	hour	9.00	0.0851	0.77	_____
DIESEL FUEL					
Tractors	gal	2.22	2.1652	4.81	_____
Harvesters	gal	2.22	1.2047	2.67	_____
REPAIR & MAINTENANCE					
Implements	acre	1.90	1.0000	1.90	_____
Tractors	acre	0.75	1.0000	0.75	_____
Harvesters	acre	1.66	1.0000	1.66	_____
INTEREST ON OP. CAP.	acre	7.68	1.0000	7.68	_____
TOTAL DIRECT EXPENSES				194.97	_____
FIXED EXPENSES					
Implements	acre	5.50	1.0000	5.50	_____
Tractors	acre	5.78	1.0000	5.78	_____
Harvesters	acre	7.94	1.0000	7.94	_____
TOTAL FIXED EXPENSES				19.22	_____
TOTAL SPECIFIED EXPENSES				214.19	_____

Table 14.A Estimated resource use and costs for field operations, per acre  
 Woodruff County  
 University of Arkansas

OPERATION/ OPERATING INPUT	SIZE/ UNIT	POWER UNIT SIZE	PERF RATE	TIMES OVER	MTH	POWER UNIT COST		EQUIPMENT COST		ALLOC	LABOR	OPERATING/DURABLE INPUT			TOTAL COST	
						DIRECT	FIXED	DIRECT	FIXED	HOURS	COST	AMOUNT	PRICE	COST		
						-----dollars-----				dollars		-----dollars-----				
Rotary Cutter-Flex	15'	MFWD 225	0.078	1.00	Sep	2.33	2.43	0.86	0.76	0.07	0.71					7.09
Disk Harrow	32'	4WD 400	0.061	1.00	Sep	3.21	3.11	0.55	1.46	0.06	0.55					8.88
Field Cultivate	24'	MFWD 225	0.062	1.00	Sep	1.85	1.93	0.28	1.47	0.06	0.56					6.09
Spin Spreader	5 ton	MFWD 190	0.042	1.00	Oct	1.07	1.23	0.26	0.64	0.08	0.71					3.91
Urea, Solid (46% N)	1b											50.0000	0.21	10.75		10.75
DAP 18-46-0	1b											70.0000	0.15	10.68		10.68
Potash (0-0-60)	1b											95.0000	0.11	10.93		10.93
Disk Bed (Hipper)	8R-40	MFWD 225	0.070	1.00	Oct	2.09	2.17	0.28	0.93	0.07	0.63					6.10
Grain Drill - Air	7.5"x40'	MFWD 225	0.050	1.00	Oct	1.51	1.57	1.78	4.31	0.05	0.50					9.67
Wheat Seed Public	1b											150.0000	0.20	30.00		30.00
Sprayer( 300-450Gal)		60'	0.017	1.00	Oct	0.29	0.58			0.02	0.23					1.10
Sencor DF	1b											0.2500	15.04	3.76		3.76
Spin Spreader	5 ton	MFWD 190	0.042	1.00	Jan	1.07	1.23	0.26	0.64	0.08	0.71					3.91
Urea, Solid (46% N)	1b											160.0000	0.21	34.40		34.40
Spin Spreader	5 ton	MFWD 190	0.042	1.00	Feb	1.07	1.23	0.26	0.64	0.08	0.71					3.91
Urea, Solid (46% N)	1b											150.0000	0.21	32.25		32.25
Header Wheat/Sorghum	30' Rigid	275hp	0.085	1.00	Jun	4.33	7.94	0.44	0.83	0.08	0.77					14.31
Cstm Haul Wheat	bu											46.4000	0.15	6.96		6.96
TOTALS						18.82	23.42	4.97	11.68	0.69	6.08			139.73		204.70
INTEREST ON OPERATING CAPITAL																8.20
UNALLOCATED LABOR																0.00
TOTAL SPECIFIED COST																212.90

Table 14.F Estimated costs per acre  
 Woodruff County  
 University of Arkansas

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		dollars		dollars	
DIRECT EXPENSES					
FERTILIZERS					
Urea, Solid (46% N)	lb	0.21	360.0000	77.40	_____
DAP 18-46-0	lb	0.15	70.0000	10.68	_____
Potash (0-0-60)	lb	0.11	95.0000	10.93	_____
HERBICIDES					
Sencor DF	lb	15.04	0.2500	3.76	_____
CROP SEED					
Wheat Seed Public	lb	0.20	150.0000	30.00	_____
CUSTOM HIRE					
Cstm Haul Wheat	bu	0.15	46.4000	6.96	_____
OPERATOR LABOR					
Tractors	hour	9.00	0.4494	4.05	_____
Harvesters	hour	9.00	0.0851	0.77	_____
Self-Propelled	hour	9.00	0.0176	0.16	_____
HAND LABOR					
Implements	hour	7.80	0.1313	1.03	_____
Self-Propelled	hour	7.80	0.0088	0.07	_____
DIESEL FUEL					
Tractors	gal	2.22	5.5304	12.28	_____
Harvesters	gal	2.22	1.2047	2.67	_____
Self-Propelled	gal	2.22	0.0998	0.22	_____
REPAIR & MAINTENANCE					
Implements	acre	4.97	1.0000	4.97	_____
Tractors	acre	1.92	1.0000	1.92	_____
Harvesters	acre	1.66	1.0000	1.66	_____
Self-Propelled	acre	0.07	1.0000	0.07	_____
INTEREST ON OP. CAP.	acre	8.20	1.0000	8.20	_____
				-----	
TOTAL DIRECT EXPENSES				177.80	_____
FIXED EXPENSES					
Implements	acre	11.68	1.0000	11.68	_____
Tractors	acre	14.90	1.0000	14.90	_____
Harvesters	acre	7.94	1.0000	7.94	_____
Self-Propelled	acre	0.58	1.0000	0.58	_____
				-----	
TOTAL FIXED EXPENSES				35.10	_____
				-----	
TOTAL SPECIFIED EXPENSES				212.90	_____