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CORN & GRAIN SORGHUM RESEARCH VERIFICATION PROGRAM, 2007

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INTRODUCTION

The 2007 growing season was the eighth year for the Corn and Grain Sorghum Research Verification Program (CGSRVP). The CGSRVP is an interdisciplinary effort between growers, county Extension agents, Extension specialists, and researchers. The CGSRVP is an on-farm demonstration of all the research-based recommendations required to grow corn and grain sorghum profitably in Arkansas. The specific objectives of the program are:

1. To verify research-based recommendations for profitable corn and grain sorghum production in all corn and grain sorghum producing areas of Arkansas.

2. To develop a database for economic analysis of all aspects of corn and grain sorghum production.

3. To demonstrate that consistently high yields of corn and grain sorghum can be produced economically with the use of available technology and inputs.

4. To identify specific problems and opportunities in Arkansas corn and grain sorghum production for further investigation.

5. To promote timely implementation of cultural and management practices among corn and grain sorghum growers.

6. To provide training and assistance to county agents with limited expertise in corn and grain sorghum production.

Each CGSRVP field and cooperator was selected prior to planting. Cooperators agreed to pay production expenses, provide crop expense data for economic analysis and implement the recommended production practices in a timely manner from seedbed preparation to harvest. Eight growers were enrolled in the CGSRVP in the spring of 2007, five corn and three grain sorghum fields. The fields were located on commercial farms ranging in size from 59.5 to 128 acres for corn fields, and 8 to 58 for grain sorghum fields. The average field size was 82.5 and 30.1 acres for the corn and grain sorghum fields, respectively.

The 2007 CGSRVP corn fields were conducted in Crittenden, Desha, Monroe, Pulaski and Randolph Counties; and three grain sorghum fields in Lawrence, Poinsett and Prairie Counties. Five different corn hybrids (Asgrow 715, DeKalb DK64-10, DeKalb DK66-23, Dyna-Gro 58P59 and Terral TV26BR61) and two grain sorghum varieties (FFR 318 and Pioneer 84G62) were planted. Management decisions were based on field history, soil test results, hybrids, and data collected form each individual field during the growing season.

ECONOMIC ANALYSIS

This section provides information on the development of estimated production costs for the 2007 CGSRVP. Records of field operations on each field provided the basis for estimating these costs. The field records were compiled by the CGSRVP coordinator, county Extension agents, and cooperators in the 2007 CGSRVP.

Using CGSRVP production data from the 8 fields (5 corn and 3 grain sorghum), operating costs, and net returns above total specified costs assuming a 25 percent land rent were estimated for each field. Break-even prices needed to cover total specified costs are also presented.

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, Table 3, for the CGSRVP corn fields ranged from $304.43 per acre for Desha County to $409.83 per acre for Pulaski County and averaged $360.54 per acre. The grain sorghum fields ranged from $152.77 per acre for Lawrence County to $204.03 per acre for Poinsett County and averaged $188.51 per acre. Direct expenses per bushel for the corn fields ranged from $1.52 in Desha County to $2.12 in Crittenden County and averaged $1.79 per bushel. Direct expenses per bushel for the grain sorghum fields ranged from $1.41 in Lawrence County to $1.93 in Prairie County and averaged $1.58 per bushel.

Fixed or Ownership Costs

Machinery ownership costs represent the capital replacement costs of owning and using equipment and can vary greatly from one farm to another depending on the farm's size, management skills, and annual use. Fixed or ownership costs presented in Table 3 include depreciation, interest, taxes, and insurance. These costs were based on the initial cost and expected useful life of the machinery and were allocated on a per acre basis using estimated performance rates and hours of annual use.

These are economic costs and 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 costs ranged from $51.08 to $115.99 per acre for the corn fields and $33.37 to $100.46 per acre for the grain sorghum fields, with an average of $80.93 and $79.85 per acre for the corn and grain sorghum fields, respectively.

Total Costs (Direct and Fixed Costs)

Total direct and fixed costs presented in Table 3 are the summation of direct expenses and fixed or ownership costs. Not included in these costs 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 direct costs plus ownership costs ranged from $355.51 to $477.91 per acre for the corn fields and $186.14 to $253.01 per acre for the grain sorghum fields, with an average of $441.47 and $268.35 per acre for the corn and grain sorghum fields, respectively.

Break-even prices needed to cover total direct costs plus fixed costs ranged from $1.78 to $2.79 per bushel for the corn fields and $1.72 to $2.66 per bushel for the grain sorghum fields, with an average of $2.19 and $2.23 per bushel for the corn and grain sorghum fields, respectively.

Land Costs

Land costs incurred by producers participating in the CGSRVP 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 percent crop share rental arrangement, with no cost sharing was assumed to provide a consistent standard for comparison (Table 3). This is not meant to imply that this arrangement is normal or that is should be used in place of existing arrangements. It is simply a constant measure to be used across all CGSRVP fields.

Net Returns Per Acre

Table 3 also presents estimated returns per acre above Total Costs plus a 25 percent crop share rent assuming a corn price of $3.19 per bushel and a grain sorghum price of $3.47 per bushel. The corn price used was obtained from the Grain Market Newsletter (August 1 – October 25, 2007). The grain sorghum price was the average cash price reported in the USDA, NASS reports from August, 2007 through October, 2007. Net returns ranged from -$68.79 to $122.99 per acre for corn and -$5.77 to $94.93 per acre for grain sorghum. Cost for risk, overhead, and management have also not been included. These costs must be accounted for in any further interpretation of this data.

Estimated Direct Costs

Tables 4 and 5 lists estimated direct costs per acre by field for corn and grain sorghum production. The largest specified operating cost for the corn and grain sorghum fields was the fertilization cost, averaging $141.59 and $81.84 per acre for the corn and grain sorghum fields, respectively. Seed, fertilizer, and diesel cost account for approximately 70% of input costs for corn, 63% for irrigated grain sorghum, and 67% of non-irrigated grain sorghum in the 2007 CGSRVP

CORN FIELD REVIEWS

Crittenden County

The Crittenden County corn research verification field was located in the east central part of the county just northeast of Marion. The producer for this field was Mr. Bart Turner and the county agent was Mr. Jason Osborn. The field was 61.2 acres and the previous crop was cotton. The soil type was a combination of Dubbs silt loam and Bowdre silty clay. In early March the field was disked, cultivated and hipped. A preplant fertilizer of 100-60-90 was applied and the field planted on March 15. The corn was 2.5 inches tall with a population of 27,500 plants/acre when the Easter freeze hit. After a week of cold rainy weather, it was determined that the field was not going to make it. The beds were knocked down on April 17 and the field replanted on April 20. The seeding rate on the replant was 32,000 seeds/acre with a plant stand of 30,900. The field was planted in two hybrids. The north side of the field was Asgrow 715 and the south side was DeKalb 64-10. On May 5 the field was sprayed with Roundup and Atrazine for weed control. There was a high wind storm that came through the field on May 15. The field was scouted on May 17 and there were several corn stalks that were snapped off at the ground. After a closer look it was determined that the Asgrow 715 variety had suffered low levels of green snap from the high winds. A new plant stand was taken and the stand was brought down to the final plant stand of 30,200 plants/acre. UAN was applied on May 17 at a rate of 26 gallons per acre. Roundup and Atrazine was applied again on May 22 to control pigweed, grass, morningglory and sicklepod. Pivot irrigation was started on May 28. The pivot made a “windshield wiper” type pass and it was considered one irrigation when the pivot went across and back. The pivot put out approximately 0.75 inches and the field was irrigated 5 times. A pre-tassel application of 100 lbs of Urea was applied on June 10 at the V12 stage. The total fertilizer applied to this field was 238-60-90. The field was harvested on August 15 and yielded 171 bu/acre adjusted to 15.5% moisture. The average moisture at harvest was 15.6%.

Desha County

The Desha County corn research verification field was located in the north part of the county just southeast of Watson. The producer for this field was Mr. Larry Hundley and the county agent was Mr. Wes Kirkpatrick. The field was 71.5 acres and followed soybeans. The soil type of the field was a combination of Sharkey and Desha clays. A burndown application of Roundup was applied on March 17. The field was still bedded up from the previous soybean crop. Urea was applied at a rate of 100 lbs per acre and the field planted on March 17. The field was planted in Terral TV26BR61 at a rate of 30,000 seeds per acre. The final plant stand was 29,700 plants per acre. Urea was applied at the rate of 300 lbs per acre on April 3. The corn was approximately 4 inches tall when the Easter freeze hit. The west 25% of the field was damaged more than the other 75% of the field. There was a concern on how well this end of the field would recover. A decision was made to go with what was there and see how the field would respond. As the year went along, this area did recover and by harvest it was hard to see the difference in it and the rest of the field. An herbicide application of Roundup and Atrazine was applied on April 27 for moringglories and grass. Another flush of morningglories came up later in the season and they were bad enough that another herbicide decision had to be made. An application of Roundup and Dicamba was applied on May 15 using drop nozzles. Furrow irrigation was started on May 26. The field was only irrigated 3 times during the year thanks to some very timely rains later in the season. A pre-tassel application of 100 lbs of Urea was applied on June 5 when the corn was at the V15 stage. The total fertilizer applied to this field was 230-0-0. The field was harvested on September 17 and yielded 200 bu/acre adjusted to 15.5% moisture. Average harvest moisture was 12%.

Monroe County

The Monroe County corn research verification field was located in the south part of the county just southeast of Holly Grove. The producer for this field was Mr. Kevin Gerlach and the county agent was Mr. Van Dawson. The field was 92.3 acres following cotton. The major soil type of the field was Dubbs silt loam with some Amagon silt loam in the north part of the field. In March the field was disked and conditioned then a few days later the field was bedded and rolled. On April 9, 18 gallons of UAN was applied followed by 50 lbs of Ammonium Sulfate. The field was planted on April 16 in Asgrow 715 at a rate of 31,000 seed per acre. The final plant population was 27,900 plants per acre. The field was fertilized on May 3 with 335 lbs of Urea per acre. The field didn't receive a rain after that for 12 days. The producer waited on a rain instead of irrigating in the Urea, so some of the nitrogen was lost from this field. Roundup, Atrazine and Resolve was applied on May 3 followed by another application of Roundup and Atrazine on May 10. The main weed species for this field included sicklepod, grass and pigweeds. The first irrigation came on May 25. This field was furrow irrigated and received seven irrigations. On June 6, a pre-tassel shot of 100 lbs of Urea was applied at the V12 stage. The total fertilize for this field was 274-0-0-24. On June 21, a 6 oz application of Headline was applied to the corn. The field was harvested on September 21 and yielded 197.23 bu/acre adjusted to 15.5% moisture. The average harvest moisture was 12.5%.

Pulaski County

The Pulaski County corn research verification field was located in southeast part of the county at Bredlow Corner. The producer for this field was Mr. Dudley Webb and the county agent was Mr. Allan Beuerman. The field was 59.5 acres and followed soybeans. The field was Perry clay and Keo silt loam. The field was disked, ripped and bedded/rolled in March. The field had a pre-plant fertilizer of 100-72-100-12 applied on March 19. The field was planted on March 26 in DeKalb 66-23 at a rate of 32,000 seeds per acre. The field was emerged by April 2 and the spiked plants went through the Easter freeze without a problem. The final plant population was 28,600 plants per acre. An application of Roundup and Atrazine was applied on April 28 for grass, pigweed and sicklepod. Urea was applied on May 2 at the rate of 300 lbs per acre. A pre-tassel application of 100 lbs of Urea was applied on June 1 at the V13 stage. The total fertilizer for this field was 284-72-100-12. Furrow irrigation started on June 4 and the field was irrigated 4 times. The first irrigation was delayed about a week as there was a problem getting the electricity turned on to the well. Later in the year the field did get Southern rust, but it was too late in the year to affect yield. The field was harvested on August 28 and averaged 215.7 bu/acre adjusted to 15.5% moisture. Average harvest moisture was 14.2%.

Randolph County

The Randolph County corn research verification field was located in the eastern part of the county east of Pocahontas. The producer for this field was Mr. Sonny Throesh and the county agent was Mr. Mike Andrews. The field was 128 acres and followed corn. The majority of the field was Bosket fine sandy loam with some Broseley loamy fine sand and Dundee silt loam. On April 3, 400 lbs of 19-19-19 fertilizer was applied pre-plant. The field was disked twice, cultivated then flat rolled in early April. The field was planted on April 14 in Dyna-Gro 58P59 at a rate of 30,000 seeds per acre. The field emerged good and had a final stand of 27,000 plants per acre. Roundup and Atrazine were applied on May 9 for sicklepod, moringglories, pigweed and grass. As the field was scouted, some sandy areas in the field showed a slight sulfur deficiency but as the year went along those spots came out of that and greened up. On April 14, 280 lbs of Urea was applied. The first irrigation was applied on May 27. The field was pivot irrigated and the pivot put out 0.75 inches. The field was irrigated seven times. A pre-tassel application of 100 lbs of Urea was applied on June 1 at the V12 stage. The total fertilizer for this field was 251-76-76. The field was harvested about September 10 and averaged 218 bushels per acre adjusted to 15.5% moisture.

GRAIN SORGHUM FIELD REVIEWS

Lawrence County

The Lawrence County grain sorghum research verification field was located in the north part of the county just west of Hoxie. The producer for this field was Mr. JD Beary and the county agent was Mr. Herb Ginn. The field was 24.4 acres following soybeans. The soil type of this field was a combination of Beulah sandy loam and McCrory fine sandy loam. The field was ripped and disked in early April. 150 lbs of 12-24-24 and 20 lbs of sulfur were applied preplant and was cultivated in on April 7. The field was planted on April 17 in FFR 318 at a rate of 6 lbs per acre. A pint of Parallel grass herbicide was applied pre-emerge. The field went almost 10 days without a rain. There was enough moisture to bring up the grain sorghum but there was low activity of the Parallel in the sandier parts of the field. Final plant population in the field was 61,300 plants per acre. Urea was applied at 200 lbs per acre on May 15 along with the herbicide application of Atrazine and oil. A rain followed the application of Urea and Atrazine incorporating them. The total fertilizer applied to this field was 110-36-36-20. As the field was scouted it was noticed that grass was escaping in the sandy areas of the field. After some discussion, the decision was made to cultivate the grassy parts of the field. This accounted for about five acres. This didn't get rid of all the grass, but did allow the grain sorghum to get more height on it and go on and make a head. If this hadn't have been plowed, that five acres would have been a total loss. The field was non-irrigated. Every time this field needed water, it got a timely rain. The field was scouted for insects later in the year, and a large number of rice stink bugs were noticed where the grass was. The number was as many as 20 per head around the grassy areas but only amounted to 1.5 per head across the field, which was below threshold and the stinkbugs were not treated. The field was harvested on August 17 and averaged 108.4 bushels per acre adjusted to 14.0% moisture. Average harvest moisture was 14.5%.

Poinsett County

The Poinsett County grain sorghum research verification field was located in the eastern part of Poinsett County just west of Trumann. The producer for this field was Mr. Terry Coots and the county agent was Mr. Rick Thompson. The field was 58 acres and followed cotton. The majority of the field was a Mhoon silt loam soil with some Sharkey clay and Hayti soils. The field was hipped in March and then re-hipped in April. It was then rolled and conditioned. A pre-plant fertilizer of 0-56-112 was applied on April 10 then the field hipped again. The field was planted on April 21 with Pioneer 84G62 at a rate of 8 lbs per acre. The final plant population was 98,300 plants per acre. Dual was put out at 1.5 pts per acre to control grass. On May 5, 45 gallons per acre of UAN was applied to the field followed by Atrazine and Oil. Total fertilizer for this field was 156-56-112. This field was pivot irrigated and the first irrigation was on May 25. The pivot made a "windshield wiper" type pass and it was considered one irrigation when the pivot went across and back. Each irrigation put out approximately 0.80 inches of water and the field was irrigated 6 times. The field was scouted for worms and midge, but thresholds were never met. The field was harvested on August 17 and averaged 128.04 bushels per acre adjusted to 14.0% moisture. Average harvest moisture was 13.3%.

Prairie County

The Prairie County grain sorghum research verification field was located in the northern part of the county north of Des Arc. The producer for this field was Mr. Jason Holloway and the county agent was Mr. Tony Richards. The field was 8 acres and followed soybeans. The majority of the field was a Crowley silt loam with some Calloway silt loam in the north end of the field. In March the field was disked and floated down. A pre-plant fertilizer of 54-92-60 was applied on April 23 and field cultivated in. The field was then bedded. The field was planted on April 24 in Pioneer 84G62 at the rate of 5 lbs per acre. Dual was applied pre-emerge at the rate of 1.3 pints per acre. The final stand count was 88,750 plants per acre. On May 10, 225 lbs of Urea was applied by air. The total fertilizer for this field was 158-92-60. A herbicide application of Atrazine and oil was put out for morninglories and pigweeds on May 25th. On June 1 the field was scouted and the height of the grain sorghum was 12.8 inches. The field looked healthy. The field was scouted again on June 5 and the height was 17.2 inches but the field had a pale green look to it. The field was looked at again on June 14, and it had only grown 2 inches and looked very sickly. After some discussion with the producer, it was determined that the local ag service had sprayed some of his fields with Synchrony herbicide. The field was also wet that few weeks that this all happened. The field finally started to come out of the symptoms. After a few weeks, it looked good again, but did show symptoms on the bottom leaf that looked like a nitrogen deficiency. Levees were pulled on June 6 and the first flood irrigation was applied on that same day. The field got some really timely rains and was only irrigated one more time. The field was harvested on August 23 and averaged 95.1 bushels per acre adjusted to 14.0% moisture. The average harvest moisture was 15.4%.

Table 1. County, Hybrid, Field Size, Total Fertilizer and Soil Information CGSRVP Fields 2007.

County	Planting Date	Row Spacing (inches)	Hybrid	Field Size (Acres)	Fertilizer (N-P-K-S-Zn pounds/acre)	Soil Classification
Corn						
Crittenden	3/15/07, 4/20/07	38	Asgrow 715 DeKalb 64-10	61.2	238-60-90	Dubbs Silt Loam/Bowdre Silty Clay
Desha	3/17/07	38	Terral 26BR61	71.5	230-0-0-0	Sharkey & Desha Clay
Monroe	4/16/07	30	Asgrow 715	92.3	274-0-0-24	Dubbs & Amagon Silt Loam
Pulaski	3/26/07	38	DeKalb 66-23	59.5	284-72-100-12	Perry Clay & Keo Silt Loam
Randolph	4/14/07	30	Dyna Gro 58P59	128	251-76-76	Bosket Fine Sandy Loam
Grain Sorghum						
Poinsett (Irrigated)	4/21/07	38	Pioneer 84G62	58	156-56-112	Mhoon Silt Loam & Sharkey Clay
Prairie (Irrigated)	4/24/07	30	Pioneer 84G62	8	158-92-60	Crowley & Calloway Silt Loam
Lawrence (Non-Irr.)	4/17/07	30	FFR 318	24.4	110-36-36-20	Beulah Sandy Loam & McCrory Fine Sandy Loam

Table 2. Herbicide Usage, Irrigation, Previous Crop and Yield, CGSRVP 2007.

County	Herbicide	Irrigation	Irrigation Type	Previous Crop	Yield (bu/a)
Corn					
Crittenden	22 oz Roundup + 1 qt Atrazine May 5 & May 21	5 times	Pivot	Cotton	171
Desha	1.5 pt Roundup + 1.5 pt Atrazine - April 27 1.5 pt Roundup + 6 oz Dicamba - May 15	3 times	Furrow	Soybeans	200
Monroe	1 qt Roundup + 1 qt Atrazine + ¾ oz Resolve - May 3 1 qt Roundup + 1 qt Atrazine May 10	7 times	Furrow	Cotton	197.2
Pulaski	1 qt Roundup + 2 qt Atrazine April 28	4 times	Furrow	Soybeans	215.7
Randolph	1 qt Roundup + 3 pt Atrazine – May 9	7 times	Pivot	Corn	218
Average Yield					**200.39**
Grain Sorghum					
Poinsett (Irrig.)	1.5 pt Dual at Planting, 1.6 qt Atrazine – May 5	6 times	Pivot	Cotton	128.04
Prairie (Irrig.)	1.5 pt Dual at Planting, 1.2 qt Atrazine – May 25	2 times	Flood	Soybeans	95.1
Lawrence (Non-Irr)	1 pt Parallel at Planting, 1.2 qt Atrazine – May 15	0 times	None	Soybeans	108.4
Average Yield					**110.51**

Table 3. Selected Economic Information for the 2007 CGSRVP.

County	Total Direct Expenses[1] ($/A)	Break-even Price With Direct Costs[2] ($/Bu)	Total Fixed Costs[3] ($/A)	Total Direct and Fixed Costs[4] ($/A)	Break-even Price With Total Costs[5] ($/Bu)	Break-even Price With Land Rent Costs[6] ($/Bu)	Returns Above Total Costs and Land Rent Costs[7] ($/A)
Corn							
Crittenden	$361.92	$2.14	$115.99	$477.91	$2.79	$3.73	-$68.79
Desha	$304.43	$1.52	$51.08	$355.51	$1.78	$2.37	$122.99
Monroe	$370.07	$1.88	$63.74	$433.81	$2.20	$2.94	$37.51
Pulaski	$409.83	$1.91	$56.97	$466.80	$2.17	$2.89	$47.59
Randolph	$361.44	$1.66	$104.17	$465.61	$2.14	$2.85	$55.95
Average	**$360.54**	**$1.79**	**$80.93**	**$441.47**	**$2.19**	**$2.92**	**$43.69**
Grain Sorghum							
Lawrence (Non-Irrig.)	$152.77	$1.41	$33.37	$186.14	$1.72	$2.30	$94.93
Poinsett (Irrigated)	$204.03	$1.59	$100.46	$304.49	$2.38	$3.17	$28.63
Prairie (Irrigated)	$183.19	$1.93	$69.82	$253.01	$2.66	$3.55	-$5.77
Average	**$188.51**	**$1.58**	**$79.85**	**$268.35**	**$2.23**	**$2.97**	**$43.25**

[1] Direct out-of-pocket, operating expenses, such as seed, fertilizer, irrigation, etc.
[2] Price per bushel required by the farmer to equal total direct costs. Does not include land, overhead, risk, and management costs.

[3] Total fixed or ownership costs which include charges for depreciation, taxes, and insurance.
[4] Total direct operating costs plus fixed costs which include charges for depreciation and interest on all machinery and irrigation equipment, taxes, and insurance.
[5] Price per bushel required by the farmer to equal total direct operating and fixed costs. Does not include land, overhead, risk, and management costs.
[6] Break-even price per bushel plus a 25 percent crop share rent. Does not include overhead, risk, and management costs.
[7] A 25 percent crop share rent was assumed as a land charge for a renter situation. No cost sharing was assumed.

Sales price is the greater of average Arkansas market price August through October (CCC Loan Price plus LDP does not apply for this year).

Table 4. Estimated Costs per Acre for Corn Fields (all irrigated), CGSRVP 2007

	Crittenden	Desha	Monroe	Pulaski	Randolph	Weighted Average[2]
Acres	61	71	92	59	128	
Direct Exp.	($/acre)	($/acre)	($/acre)	($/acre)	($/acre)	($/acre)
Custom Work	31.65	43.75	48.58	55.90	53.20	47.72
Fertilizer	134.11	109.00	113.43	192.10	160.18	141.59
Herbicides	18.58	22.88	24.70	12.58	11.20	17.53
Fungicides			10.44			2.34
Irrigation Supplies		10.30	10.30	10.30		5.56
Crop Seed	97.28	61.80	63.86	65.92	61.80	68.12
Operator Labor	8.31	3.74	5.34	4.39	4.98	5.26
Irrigation Labor	0.25	1.86	4.34	2.48	0.35	1.79
Hand Labor	2.17	1.43	0.66	0.41	0.61	0.97
Diesel Fuel[1]	38.71	30.61	64.08	40.69	41.14	44.03
Repairs & Maint.	17.40	8.23	12.81	10.11	16.11	13.34
Interest on Op. Cap.	13.46	10.83	11.53	14.95	11.87	12.29
					Total	**360.54**

[1]Price of diesel was taken to be $2.33 per gallon.
[2]Weighted average calculations based on 411 total acres.

Table 5. Estimated Costs per Acre for Grain Sorghum Fields, CGSRVP 2007

	Lawrence Non-Irrigated	Poinsett Irrigated	Prairie Irrigated	Weighted Average[2]
Acres	24	58	8	
Direct Exp.	($/acre)	($/acre)	($/acre)	($/acre)
Custom Work	16.20	19.20	24.28	18.85
Fertilizer	78.54	84.90	69.52	81.84
Herbicides	9.74	23.58	19.91	19.56
Crop Seed	8.04	10.72	12.60	10.17
Adjuvants	2.66	2.66	2.66	2.66
Operator Labor	6.85	5.03	5.55	5.56
Irrigation Labor		0.30	0.44	0.23
Hand Labor	1.63	1.10	0.87	1.22
Diesel Fuel[1]	16.24	35.68	30.04	29.99
Repairs & Maint.	7.85	14.13	10.82	12.16
Interest on Op. Cap.	5.02	6.73	6.50	6.25
			Total	**188.51**

[1]Price of diesel was taken to be $2.33 per gallon.
[2]Weighted average calculations based on 90 total acres.