

ARKANSAS CORN AND GRAIN SORGHUM PROMOTION BOARD
2007 Report

Title: Economic Analysis of Corn and Grain Sorghum Production Practices

Investigator: Dr. Robert Hogan, Jr.
Previous UA Extension Economist
Currently Texas A&M Extension Economist

Contact Person: Pam Guiling
Agricultural Economics Associate

The 2007 Research Verification Program included five (5) corn fields and three (3) grain sorghum fields. The crop was prosperous for corn and grain sorghum producers. Even though prices for inputs increased, varying production practices helped offset some of the higher input prices. In general, the majority of the producers were able to pay all costs and have a positive net return for the year.

Economic summary results for the year can be seen in Table 1. Six of the eight fields had a positive net return above total costs plus land rent costs. The average net returns above all costs for both corn and grain sorghum were around \$43.00 per acre, up from \$.05 and -\$10.65 for corn and grain sorghum, respectively, in 2006.

Table 2 shows the historical economic analysis for 2002-2007. Total per acre direct costs increased for the 2007 season from \$349.24 in 2006 to \$360.00 in 2007 for corn. Grain sorghum per acre direct costs decreased from \$207.94 in 2006 to \$188.51 in 2007. Increased yield and above average market prices proved to be profitable for producers. Notice the estimated sales for corn was greater than its total direct costs for each year and the same is true for grain sorghum. Breakeven prices for both, direct and direct plus fixed costs are listed for each year since 2002 for both grain sorghum and corn.

Changes in costs for selected inputs can be seen in Table 3. Custom work had the largest percent increase from 2006 for corn while diesel fuel and irrigation labor had the largest percent decrease. The decrease in diesel fuel can be explained by the decrease in fuel consumption. In 2006 the average fuel consumption was 31.4 gallons per acre while in 2007 it dropped 41% to 18.5 gallons per acre. The opposite is true for grain sorghum where the fuel consumption increased 29%; as a result, 12% increase in diesel fuel costs from 2006 to 2007.

Table 1. Selected Economic Information for the 2007 Corn and Grain Sorghum Research Verification Program

County	Total Direct Expenses ¹		Break-even Price With Direct Costs ²		Total Fixed Costs ³		Total Direct and Fixed Costs ⁴		Break-even Price With Total Costs ⁵		Break-even Price With Land Rent Costs ⁶		Returns Above Total Costs and Land Rent Costs ⁷	
	(\$/A)	(\$/Bu)	(\$/Bu)	(\$/Bu)	(\$/A)	(\$/A)	(\$/A)	(\$/A)	(\$/Bu)	(\$/Bu)	(\$/Bu)	(\$/Bu)	(\$/A)	(\$/A)
Corn														
Crittenden	\$361.92	\$2.14	\$2.14	\$115.99	\$477.91	\$2.79	\$3.73	-\$68.79						
Desha	\$304.43	\$1.52	\$1.52	\$51.08	\$355.51	\$1.78	\$2.37	\$122.99						
Monroe	\$370.07	\$1.88	\$1.88	\$63.74	\$433.81	\$2.20	\$2.94	\$37.51						
Pulaski	\$409.83	\$1.91	\$1.91	\$56.97	\$466.80	\$2.17	\$2.89	\$47.59						
Randolph	\$361.44	\$1.66	\$1.66	\$104.17	\$465.61	\$2.14	\$2.85	\$55.95						
Weighted Average	\$360.54	\$1.79	\$1.79	\$80.93	\$441.47	\$2.19	\$2.92	\$43.69						
Grain Sorghum														
Lawrence (Non-Irrig.)	\$152.77	\$1.41	\$1.41	\$33.37	\$186.14	\$1.72	\$2.30	\$94.93						
Poinsett (Irrigated)	\$204.03	\$1.59	\$1.59	\$100.46	\$304.49	\$2.38	\$3.17	\$28.63						
Prairie (Irrigated)	\$183.19	\$1.93	\$1.93	\$69.82	\$253.01	\$2.66	\$3.55	-\$5.77						
Weighted Average	\$188.51	\$1.58	\$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 2. Estimated Returns per Acre: 2002-2007 Corn and Grain Sorghum Research Verification Program

Corn	2002-2007 Corn and Grain Sorghum Research Verification Program					
	2002	2003	2004	2005	2006	2007
Per Acre Yield	159	180	158	174	175	203
Estimated Price (Aug-Oct average)	<u>\$2.46</u>	<u>\$2.18</u>	<u>\$2.01</u>	<u>\$2.09</u>	<u>\$3.18</u>	<u>\$3.19</u>
Sales	\$391.14	\$392.40	\$317.58	\$363.66	\$555.27	\$646.88
Total Direct Expenses ¹	<u>\$246.26</u>	<u>\$242.92</u>	<u>\$249.63</u>	<u>\$294.11</u>	<u>\$349.24</u>	<u>\$360.00</u>
Returns over Direct Expenses	\$144.88	\$149.48	\$67.95	\$69.55	\$206.03	\$286.88
Total Expenses ²	<u>\$298.81</u>	<u>\$293.23</u>	<u>\$289.79</u>	<u>\$334.00</u>	<u>\$416.40</u>	<u>\$441.47</u>
Returns over Total Expenses	\$92.33	\$99.17	\$27.79	\$29.66	\$138.87	\$205.41
Rent (25% share) ³	<u>\$97.79</u>	<u>\$98.10</u>	<u>\$79.40</u>	<u>\$90.92</u>	<u>\$138.82</u>	<u>\$161.72</u>
Returns over Total Expenses and Rent	-\$5.46	\$1.07	-\$51.61	-\$61.26	\$0.05	\$43.69
Breakeven \$/bu for Direct Costs	\$1.60	\$1.38	\$1.60	\$1.77	\$2.05	\$1.79
Breakeven \$/bu for Total Costs	\$1.93	\$1.68	\$1.85	\$2.01	\$2.44	\$2.19
Grain Sorghum	2002	2003	2004	2005	2006	2007
Per Acre Yield	100	131	114	114	102	120
Estimated Price (Aug-Oct average)	<u>\$2.58</u>	<u>\$2.30</u>	<u>\$1.98</u>	<u>\$1.95</u>	<u>\$3.40</u>	<u>\$3.47</u>
Sales	\$258.00	\$301.30	\$225.72	\$222.30	\$345.39	\$415.47
Total Direct Expenses ¹	<u>\$144.96</u>	<u>\$159.24</u>	<u>\$172.35</u>	<u>\$184.35</u>	<u>\$207.94</u>	<u>\$188.51</u>
Returns over Direct Expenses	\$113.04	\$142.06	\$53.37	\$37.95	\$137.45	\$227.89
Total Expenses ²	<u>\$188.60</u>	<u>\$216.98</u>	<u>\$231.20</u>	<u>\$242.38</u>	<u>\$269.70</u>	<u>\$268.35</u>
Returns over Total Expenses	\$69.40	\$84.32	-\$5.48	-\$20.08	\$75.70	\$148.05
Rent (25% share) ³	<u>\$64.50</u>	<u>\$75.33</u>	<u>\$56.43</u>	<u>\$55.58</u>	<u>\$86.35</u>	<u>\$103.87</u>
Returns over Total Expenses and Rent	\$4.90	\$8.99	-\$61.91	-\$75.66	-\$10.65	\$43.25
Breakeven \$/bu for Direct Costs	\$1.60	\$1.22	\$1.53	\$1.71	\$2.05	\$1.58
Breakeven \$/bu for Total Costs ⁴	\$2.03	\$1.65	\$2.04	\$2.22	\$2.66	\$2.23

¹Direct out-of-pocket expenses, such as seed, fertilizer, herbicides, irrigation, interest on all machinery and irrigation equipment, etc.

²Total direct, operating costs plus fixed costs which include charges for depreciation, taxes, and insurance.

³A 25% crop share rent was assumed as a land charge for a renter situation. No cost sharing was assumed.

⁴Price per bushel required by the farmer to equal total direct and fixed costs. Does not include land, overhead, risk, and management costs.

Table 3. Percent Change in Production Costs 2006 – 2007, Selected Inputs

Selected input	Percent change from 2006
<u>Corn</u>	
Custom Work	31%
Fertilizer	0%
Herbicides	21%
Crop Seed	24%
Operator Labor	20%
Irrigation Labor	-55%
Diesel Fuel	-30%
Repairs & Maintenance	-7%
Interest on Operating Capital	12%
Total Direct Expenses	3%
Total Fixed Expenses	20%
<u>Grain Sorghum</u>	
Custom Work	-24%
Fertilizer	-15%
Herbicides	-39%
Crop Seed	-1%
Operator Labor	205%
Irrigation Labor	-74%
Diesel Fuel	12%
Repairs & Maintenance	46%
Interest on Op. Capital	-2%
Total Direct Expenses	-9%
Total Fixed Expenses	29%