

Full Season Soybean Enterprise 1990-2003

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Soybean production in Kentucky utilizes about 44 percent of Kentucky's cropland, excluding hay lands. About 28 percent of the soybean production is from double crop soybeans and about 72 percent of the state's soybean production is from full season (or single crop) soybeans. As with corn, the profitability of Kentucky grain farmers weighs heavily upon the level of profitability in annual soybean production. But, of course, "profit" is defined in many different ways. For our purpose, "management return" is our measure of profitability. Management return is the residual return after all costs, including a charge for equity capital and a charge for operator (or unpaid) labor, are subtracted from gross returns. In addition, there are no returns allocated to the soybean enterprise from government program payments (i.e., direct payment, counter-cyclical payments, etc.), except for loan deficiency payments. Table 1 is compiled from Kentucky Farm Business Management Program data and summarizes cost and return data averages for 1999 through 2003.

Gross returns for full season soybean production ranged from \$175.79 to \$327.00 per acre during the past five years. Loan deficiency payments contributed to the gross returns in each year except 2002 and 2003. The years with historically large yields were the same years with the largest gross returns. The year with the highest per bushel return (2003) was the same year with the greatest gross returns. The relatively higher 2003 price was a result of lower U.S. production.

Over the past five years production costs have steadily increased by varying amounts. Variable costs have risen \$16.67 per acre with fertilizer, pesticides, and seed contributing \$9.51 toward the increase and fuel contributing \$1.24 per acre. The average percentage increase in variable costs in the last five years is 3.5 percent.

Other non-land costs have increased \$15.06 per acre over the five-year period. Machinery depreciation increased \$1.72 per acre, insurance increased \$3.92 per acre, and interest charge on non-land capital investment increased \$6.88 per acre. Interestingly, total labor cost per acre has fallen \$2.94 per acre. One major factor for the reduction is an increase in farm acreage. The average percentage increase in other non-land costs during the last five years is 3.5 percent per year.

Surprisingly, land costs have essentially stayed the same. Adjusted net rent is a composite cost of cash rent, crop-share rent, and an imputed interest charge on owned land. On the surface, one would have expected an increase in land costs over the past five years due to the underlying pressures for expansion. Cash rental rates have increased at the rate of 3.1 percent per year over the past five years.

Average management returns have maintained a negative level during the past five years with the exception of 2003. Students of economics argue that this cannot continue. Using the five-year averages, the response to that is that it can as long as producers expect zero returns to equity capital, very limited returns, if any, for their own labor, and "direct payments" remain available through the government farm program (i.e., \$16 to \$20 per acre). Another item is very apparent though; full season soybean yields must exceed 40 bushels per acre to hope to make any money.

Table 1. Full Season Soybean Enterprise for 1999 through 2003.

	1999	2000	2001	2002	2003	Five Year Avg.
Number of Farms	44	82	90	75	89	
Total Acres	442.3	352.9	436.1	463.8	827.2	504.4
Operator Acres	353.9	306.7	383.4	403.8	726.4	434.8
GROSS RETURNS						
Production Returns	\$145.06	\$219.00	\$180.00	\$217.00	\$327.00	\$235.80
Loan Deficiency Payments	<u>30.73</u>	<u>41.80</u>	<u>54.61</u>	<u>0.00</u>	<u>0.00</u>	<u>20.53</u>
TOTAL CROP REVENUE	\$175.79	\$260.80	\$234.61	\$217.00	\$327.00	\$256.33
(Per Unit)	5.73	5.93	5.46	5.86	6.96	6.61
NON LAND COSTS						
Variable Costs						
Fertilizer	\$13.19	\$19.98	\$23.30	\$18.02	\$21.89	\$19.74
Pesticides	31.50	30.49	26.83	28.59	26.35	28.28
Seed	19.86	21.56	23.79	23.35	25.82	23.43
Drying	0.71	1.08	1.06	0.91	2.66	1.51
Machinery Repair	14.39	15.37	16.76	16.55	17.68	16.45
Fuel & Oil	6.43	8.64	7.55	6.94	7.67	7.45
Machine Hire	<u>5.60</u>	<u>7.76</u>	<u>7.20</u>	<u>8.01</u>	<u>6.29</u>	<u>6.86</u>
Total Variable	\$91.68	\$104.89	\$106.49	\$102.37	\$108.35	\$103.71
Other Non land Costs						
Utilities	\$2.53	\$3.13	\$3.57	\$3.13	\$3.79	\$3.33
Labor - Paid	11.86	11.67	14.28	15.21	16.19	14.33
- Unpaid	23.13	15.14	13.99	16.99	15.89	16.83
Storage	0.26	0.18	0.44	0.34	0.87	0.50
Building Repairs	2.95	3.00	2.91	3.75	3.90	3.42
Building Depreciation	2.26	2.74	2.33	2.69	2.66	2.55
Light Vehicle Expense	0.19	0.19	0.22	0.24	0.22	0.22
Machinery Depreciation	18.44	17.45	16.56	17.77	20.16	18.42
Insurance	6.38	8.74	8.36	9.23	10.30	8.90
Miscellaneous	2.82	4.16	4.19	3.92	5.02	4.19
Non land Interest	<u>16.00</u>	<u>25.09</u>	<u>22.85</u>	<u>20.61</u>	<u>22.88</u>	<u>21.65</u>
Total Other	86.82	91.50	89.71	93.87	101.88	94.33
Total Non land Costs	\$178.50	\$196.39	\$196.20	\$196.25	\$210.24	\$198.04
LAND COSTS						
Taxes	1.86	6.15	6.58	6.02	6.89	5.75
Adjusted Net Rent	<u>92.59</u>	<u>76.76</u>	<u>83.40</u>	<u>78.64</u>	<u>87.45</u>	<u>84.43</u>
Total Land Costs	\$94.45	\$82.91	\$89.99	\$84.67	\$94.34	\$90.18
TOTAL - ALL COSTS	\$272.95	\$279.30	\$286.18	\$280.92	\$304.58	\$288.23
MANAGEMENT RETURNS	-\$97.16	-\$18.50	-\$51.57	-\$63.92	\$22.42	-\$31.90
Non land Costs per Bushel	\$5.81	\$4.46	\$4.56	\$5.30	\$4.47	\$5.10
All Costs per Bushel	\$8.89	\$6.35	\$6.66	\$7.59	\$6.48	\$7.43
Average 5-Year Yield	34.9	35.4	35.9	36.0	38.8	38.8
All Costs per Bushel	\$7.82	\$7.88	\$7.96	\$7.80	\$7.85	\$7.43
Average Cash Rent	\$77.72	\$83.33	\$83.16	\$87.99	\$89.83	\$81.40