

**M**ANAGEMENT **M**EMO  
**ARKETING**

Department of Applied Economics and Statistics, Clemson University, Clemson, SC 29634-0313

MMM 486

February 2, 2009

2009 Estimated Costs and Returns for Soybeans

Todd D. Davis  
 Extension Economist

With commodity prices fluctuating daily and input costs still near record levels, soybean producers will be challenged to maintain profitability in 2009 as profit margins are shrinking. Currently, the major decision for producers is to evaluate the crop enterprise mix for 2009. This memo discusses the estimated costs and returns to producing soybeans, how production costs have increased since 2003, and how price and yield variability affects profitability.

Costs and Returns for 2009

The estimated Return over Variable (production) costs for full-season soybeans for 2009, based on Clemson University Extension Enterprise budgets, is described in Table 1.

Table 1. 2009 Full Season (No-Till, Round-Up Ready) Soybeans Estimated Costs and Returns (\$/Acre) <sup>1/</sup>.

	<u>Unit</u>	<u>Quantity</u>	<u>Price or Cost/Unit</u>	<u>Total Per Acre</u>
<b>Gross Receipts</b>				
Soybeans <sup>2/</sup>	bu.	35	\$9.01	<u>\$315.35</u>
<b>Total Receipts</b>				<u>\$315.35</u>
<b>Variable Costs</b>				
Seed (certified)	bu.	0.83	\$42.00	\$34.86
Fertilizer				
Phosphate	lbs.	50	\$0.46	\$23.00
Potash	lbs.	50	\$0.67	\$33.50
Lime (prorated)	ton	0.5	\$51.00	\$25.50
Herbicides	acre	1	\$28.44	\$28.44
Insecticides	acre	1	\$18.98	\$18.98
Fungicides	acre	1	\$20.16	\$20.16
Aerial Application	acre	1	\$6.00	\$6.00
Hauling	bu.	35	\$0.40	\$14.00
Tractor/Machinery	acre	1	\$39.52	\$39.52
Labor	hrs	3.58	\$6.50	\$23.27
Interest on Operating Capital	dol.	\$158.94	9.00%	<u>\$9.54</u>
<b>Total Variable Costs</b>				<u>\$276.77</u>
<b>Return over Variable Costs</b>				<u>\$38.58</u>

<sup>1/</sup>Detailed enterprise budgets for agronomic crops are available at: <http://cherokee.agecon.clemson.edu/budgets.htm> or from your local Clemson University Cooperative Extension office.

<sup>2/</sup>Soybean price based on November 2009 Soybean Futures price on January 29, 2009 at a harvest-time basis of -\$0.30/bu.

Total production costs are estimated to be \$277/acre with fertilizer/lime costs accounting for 30% of the total cost per acre (Table 1). In addition, seed, tractor/machinery, and pesticide expenses account for 13%, 14% and 24%, respectively, of the total cost per acre (Table 1).

The harvest cash price, based on the value of the November 2009 Soybeans Futures contract of \$9.31/bu. and adjusted by an estimated harvest-time basis of -\$0.30, is estimated to be \$9.01 per bushel (Table 1). Given the revenue and cost estimates, the Return over variable costs for soybeans is estimated to be \$38 per acre (Table 1).

### Understanding the Increase in Production Costs

For long-term profitability, producers must continue to control costs. The production costs for soybeans from 2003 to 2009, based on Clemson University Extension enterprise budgets, are reported in Table 2. Variable costs have increased \$145/acre since 2003 with 67% of the increase occurring since 2006 (Table 2). Most of this increase is due to a change in production assumptions used to create the 2008 and 2009 budgets. However, the largest increase has been for fertilizer and lime which increased \$44 per acre since 2003 and accounts for 30% of the total variable cost increase since 2003. In addition, the cost of seed has increased \$15 per acre since 2003 (Table 2). Another large increase has occurred in hauling expense which has increased \$8.75 per acre since 2003.

This cost information will help managers understand which cost items have increased the most and, in turn, which items to focus on when monitoring costs. It is important to remember that it is important to cut the non-necessary expenses and to use inputs in a way to get the biggest return for the cost of the input. Therefore, sound management practices should be used when managing costs. For example, soil tests can be used to determine fertilization rates and increased scouting for weeds and insects can be used to monitor pesticide costs.

Table 2. Budgeted Production Costs from 2003 – 2009 for Soybeans with an Estimated Yield of 35 Bushels/Acre.

<b>Variable Costs</b>	<b>2009</b>	<b>2008</b>	<b>2006/2007</b>	<b>2005</b>	<b>2004</b>	<b>2003</b>
Seed (certified)	\$34.86	\$34.86	\$31.87	\$26.89	\$23.90	\$20.75
Fertilizer						
Phosphate	\$23.00	\$26.00	\$17.50	\$18.39	\$16.56	\$14.89
Potash	\$33.50	\$13.00	\$14.50	\$12.05	\$11.07	\$8.28
Lime (prorated)	\$25.50	\$26.25	\$26.25	\$17.00	\$15.85	\$14.40
Herbicides	\$28.44	\$17.60	\$12.31	\$11.91	\$11.56	\$12.77
Insecticides	\$18.98	\$21.24	\$3.77	\$3.26	\$3.24	\$3.36
Fungicides	\$20.16					
Aerial Application	\$6.00	\$6.50	\$5.50	\$4.50	\$4.50	\$4.50
Hauling	\$14.00	\$14.00	\$10.50	\$8.75	\$7.00	\$5.25
Tractor/Machinery	\$39.52	\$36.83	\$27.67	\$25.21	\$22.98	\$20.91
Labor	\$23.27	\$23.27	\$23.27	\$21.48	\$21.48	\$21.48
Interest on Operating Capital	\$9.54	\$8.11	\$5.87	\$4.92	\$4.26	\$4.20
<b>Total Variable Costs</b>	<b>\$276.77</b>	<b>\$227.66</b>	<b>\$179.01</b>	<b>\$154.36</b>	<b>\$142.40</b>	<b>\$130.79</b>
<b>Increase from Previous Year</b>	<b>\$49.11</b>	<b>\$48.65</b>	<b>\$24.65</b>	<b>\$11.96</b>	<b>\$11.61</b>	

### How Risky is Soybeans in 2009?

Another question managers should consider when evaluating a crop enterprise is the risk of not covering variable costs. The Total Variable Costs for soybeans are estimated to be \$277/acre (Table 1). At an expected yield of 35 bu./acre, the break-even price for soybeans is \$7.91 per bushel. At this break-even price, there will be just enough revenue to pay for the variable costs listed in Table 1. However, the break-even price does not pay for the cost of rented land or provide a return to fixed costs and management.

Table 3 describes the Return over Variable Cost for alternative prices and yields. Managers can use Table 3 to evaluate the risk of not covering variable costs of producing soybeans based on their own price and yield expectations. For example, at the price of \$9.00/bushel, there would be revenue available to pay for all production expenses with yields of 32 bu./acre or greater (Table 3). Similarly, at a yield of 29 bu./acre, all variable costs will be covered with prices of \$10.00/bu. or greater (Table 3).

Table 3. Return over Variable Cost for Various Prices and Yields for Full-Season Soybeans (35 bu/acre Expected Yield) <sup>1/</sup>.

Harvest Yield	Harvest Cash Price						
	\$7.50	\$8.00	\$8.50	\$9.00	\$9.50	\$10.00	\$10.50
20	(\$127)	(\$117)	(\$107)	(\$97)	(\$87)	(\$77)	(\$67)
23	(\$105)	(\$93)	(\$82)	(\$70)	(\$59)	(\$47)	(\$36)
26	(\$82)	(\$69)	(\$56)	(\$43)	(\$30)	(\$17)	(\$4)
29	(\$60)	(\$45)	(\$31)	(\$16)	(\$2)	\$13	\$28
32	(\$37)	(\$21)	(\$5)	\$11	\$27	\$43	\$59
35	(\$15)	\$3	\$21	\$38	\$56	\$73	\$91

<sup>1/</sup>Total Variable Costs are estimated to be \$277 per acre.

### Where do I go for Help in Making this Decision?

Clemson University Extension has developed budgets for the major agronomic crops to help you evaluate their profitability for your farm business. The budgets are to be used as a guide and it is very important that you adjust these budgets to reflect your own costs, management practices, and productivity. You can download the enterprise budgets from the internet at <http://cherokee.agecon.clemson.edu/budgets.htm>. Your local extension office will be able to help you download these budgets and can help you understand how to use these budgets to make decisions for your farm business.