

2009 Estimated Costs and Returns for Irrigated Cotton

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

Costs and Returns for 2009

Table 1. 2009 Irrigated Cotton Estimated Costs and Returns (\$/Acre) ^{1/}.

	Unit	Quantity	Price or Cost/Unit	Total Per Acre
Gross Receipts				
Cotton Lint ^{2/}	lbs.	1000	\$0.5291	\$529.10
Cotton Seed	lbs.	1670	\$0.0900	<u>\$150.30</u>
Total Receipts				\$679.40
Variable Costs				
Seed (certified)	lbs.	10	\$7.65	\$76.50
Fertilizer				
Nitrogen	lbs.	100	\$0.43	\$43.00
Phosphate	lbs.	60	\$0.46	\$27.60
Potash	lbs.	60	\$0.67	\$40.20
Boron	lbs.	0.5	\$1.25	\$0.63
Sulfur	lbs.	10	\$1.00	\$10.00
Lime (prorated)	ton	0.33	\$51.00	\$16.83
Herbicides	acre	1	\$28.77	\$28.77
Insecticides	acre	1	\$44.81	\$44.81
Growth Reg & Defoliant	acre	1	\$15.53	\$15.53
Scouting	acre	1	\$8.50	\$8.50
Irrigation Machinery and Labor	acre	1	\$55.15	\$55.15
Aerial Application	appl	3	\$6.00	\$18.00
Ginning	lbs.	1000	\$0.12	\$120.00
Hauling	acre	1	\$6.50	\$6.50
Check-off fee	acre	1	\$5.50	\$5.50
Boll Weevil Eradication	bale	2.08	\$1.92	\$3.99
Crop Insurance	acre	1	\$20.00	\$20.00
Tractor/Machinery	acre	1	\$81.10	\$81.10
Labor	hrs	5.69	\$6.50	\$36.99
Interest on Operating Capital	dol.	200.45	9.00%	<u>\$18.04</u>
Total Variable Costs				\$677.63
Return over Variable Costs				\$1.77

^{1/} 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.

^{2/} Cotton price based on December 2009 Cotton Futures price on January 29, 2009 with a harvest-time basis of -\$0.03/lb.

The estimated Return over Variable (production) costs for irrigated cotton for 2009, based on Clemson University Enterprise budgets, is described in Table 1. Total production costs are estimated to be \$677/acre with fertilizer/lime costs accounting for 20% of the total cost per acre (Table 1). In addition, pesticides/defoliant, seed, ginning, and machinery/irrigation expenses account for 13%, 11%, 18%, and 20%, respectively, of the total cost per acre (Table 1).

The harvest cash price, based on the value of the December 2009 Cotton Futures contract of \$0.5591/lb. and adjusted by an estimated harvest-time basis of -\$0.030, is estimated to be \$0.5291 per pound (Table 1). Given the revenue and cost estimates, the Return over Variable cost for irrigated cotton is estimated to be \$1.77 per acre (Table 1).

Understanding the Increase in Production Costs

For long-term profitability, producers must continue to control costs. The production costs for irrigated cotton from 2003 to 2009, based on Clemson University Extension enterprise budgets, are reported in Table 2.

Table 2. Budgeted Production Costs from 2003 – 2009 for Irrigated Cotton with an Estimated Yield of 1000 Pounds/Acre.

Variable Costs	2009	2008	2006/2007	2005	2004	2003
Seed (certified)	\$76.50	\$80.00	\$78.40	\$61.10	\$52.00	\$43.60
Fertilizer						
Nitrogen	\$43.00	\$59.00	\$58.21	\$48.36	\$42.84	\$40.15
Phosphate	\$27.60	\$31.20	\$22.07	\$19.87	\$17.87	\$16.47
Potash	\$40.20	\$15.60	\$14.46	\$13.28	\$9.93	\$8.85
Boron	\$0.63	\$0.38	\$0.38	\$0.38	\$0.29	\$0.35
Sulfur	\$10.00	\$5.10	\$5.10	\$4.50	\$4.00	\$4.00
Lime (prorated)	\$16.83	\$17.33	\$11.22	\$10.46	\$9.50	\$9.04
Herbicides	\$28.77	\$30.95	\$39.66	\$36.28	\$35.93	\$39.40
Insecticides	\$44.81	\$43.88	\$59.55	\$53.95	\$53.28	\$55.45
Growth Reg & Defoliant	\$15.53	\$17.49	\$19.36	\$22.68	\$23.58	\$22.58
Scouting	\$8.50	\$8.50	\$8.50	\$8.50	\$8.00	\$8.00
Irrigation Machinery and Labor	\$55.15	\$55.15	\$48.16	\$28.50	\$24.92	\$24.92
Aerial Application	\$18.00	\$19.50	\$16.50	\$13.50	\$13.50	\$10.50
Ginning	\$120.00	\$120.00	\$120.00	\$130.00	\$100.00	\$130.00
Hauling	\$6.50	\$6.50	\$6.00	\$6.00	\$5.00	\$5.00
Check-off fee	\$5.50	\$5.50	\$5.50	\$5.50	\$5.50	\$9.50
Boll Weevil Eradication	\$3.99	\$3.99	\$5.32	\$4.00	\$4.00	\$3.13
Crop Insurance	\$20.00	\$20.00	\$18.00	\$16.00	\$15.00	\$15.00
Tractor/Machinery	\$81.10	\$78.56	\$69.36	\$64.04	\$59.33	\$54.81
Labor	\$36.99	\$36.99	\$36.99	\$34.14	\$34.14	\$34.14
Interest on Operating Capital	\$18.04	\$18.04	\$18.04	\$15.24	\$13.63	\$13.41
Total Variable Costs	\$677.63	\$673.66	\$660.77	\$596.27	\$532.24	\$548.30
Increase from Previous Year (\$/acre)	\$3.97	\$12.89	\$64.50	\$64.03	-\$16.05	

Variable costs have increased \$129/acre since 2003 with 63% of the increase occurring since 2005 (Table 2). As you would expect, the largest increase has been for fertilizer which has increased \$59 per acre since 2003 (Table 2). The increased cost of fertilizer and lime accounts for 46% of the cost increase since 2003. Seed expense has increased \$33/acre since 2003. Similarly, the cost of operating machinery and irrigation equipment has increased \$56/acre since 2003 reflecting the higher cost of fuel and oil (Table 2).

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.

How Risky is Irrigated Cotton 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 irrigated cotton are estimated to be \$677/acre (Table 1). At an expected yield of 1000 lbs./acre, the break-even price for irrigated cotton is \$0.5273 per pound. 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 irrigated cotton based on their own price and yield expectations. For example, at the price of \$0.62/lb., there would be revenue available to pay for all production expenses with yields of 900 lbs./acre or greater (Table 3). Similarly, at a yield of 800 lbs./acre, all variable costs will be covered with prices of \$0.70/lb. or greater (Table 3).

Table 3. Return over Variable Cost for Various Prices and Yields for Irrigated Cotton (1000 lbs./acre Expected Yield) ^{1/}.

Harvest Yield	Harvest Cash Price						
	\$0.50	\$0.54	\$0.58	\$0.62	\$0.66	\$0.70	\$0.74
500	(\$352)	(\$332)	(\$312)	(\$292)	(\$272)	(\$252)	(\$232)
600	(\$287)	(\$263)	(\$239)	(\$215)	(\$191)	(\$167)	(\$143)
700	(\$222)	(\$194)	(\$166)	(\$138)	(\$110)	(\$82)	(\$54)
800	(\$157)	(\$125)	(\$93)	(\$61)	(\$29)	\$3	\$35
900	(\$92)	(\$56)	(\$20)	\$16	\$52	\$88	\$124
1000	(\$27)	\$13	\$53	\$93	\$133	\$173	\$213
1100	\$38	\$82	\$126	\$170	\$214	\$258	\$302

^{1/}Total Variable Costs are estimated to be \$677 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.