

MANAGEMENT MARKETING MEMO

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2007 Estimated Costs and Returns for Non-Irrigated Corn

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As row-crop producers think about the 2007 crop-year, they should have a smile on their face. The corn and soybean markets have been bidding for acreage due to a bullish final crop report for 2006 which reduced corn production from the November estimate. With bio-fuels creating new markets for corn and soybeans, this demand-driven market may continue to provide marketing opportunities. Currently, the major decision for producers is to evaluate the crop enterprise mix for 2007. This memo discusses the estimated costs and returns to producing non-irrigated corn, how production costs have increased since 2002, and how price and yield variability affects profitability.

Costs and Returns for 2007

The estimated Return over Variable (production) Costs for non-irrigated corn for 2007, based on Clemson University Enterprise budgets, is described in Table 1. Total production costs are estimated to be \$278/acre with fertilizer/lime costs accounting for 42% of the total cost per acre (Table 1). In addition, seed, herbicides, and hauling expenses account for 13%, 14% and 11%, respectively, of the total cost per acre (Table 1).

Table 1. 2007 Non-Irrigated Corn (Conservation Tillage) Estimated Costs and Returns (\$/Acre) ^{1/}.

| | Unit | Quantity | Price or Cost/Unit | Total Per Acre |
|-----------------------------------|-------|----------|-----------------------|-------------------|
| Gross Receipts | | | | |
| Corn ^{2/} | bu. | 100 | \$4.05 | \$405.00 |
| Total Receipts | | | | \$405.00 |
| Variable Costs | | | | |
| Seed | thou. | 24 | \$1.49 | \$35.76 |
| Fertilizer | | | | |
| Nitrogen | lbs. | 120 | \$0.55 | \$66.00 |
| Phosphate | lbs. | 50 | \$0.35 | \$17.50 |
| Potash | lbs. | 50 | \$0.29 | \$14.50 |
| Lime (prorated) | ton | 0.33 | \$52.50 | \$17.33 |
| Herbicides | acre | 1 | \$39.81 | \$39.81 |
| Drying (3 points) | bu. | 105.83 | \$0.13 | \$13.76 |
| Hauling | bu. | 100 | \$0.30 | \$30.00 |
| Tractor/Machinery | acre | 1 | \$21.50 | \$21.50 |
| Labor | hrs | 1.82 | \$6.50 | \$11.83 |
| Interest on Operating Capital | dol. | 106.2 | 9.00% | \$9.56 |
| Total Variable Costs | | | | \$277.54 |
| Return over Variable Costs | | | | \$127.46 |

^{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/} Corn price based on December 2007 Corn Futures price on January 19, 2007 with a local harvest-time basis of +\$0.15.

The harvest cash price, based on the value of the December 2007 Corn Futures contract of \$3.90 and adjusted by an estimated harvest-time basis of +\$0.15, is estimated to be \$4.05 per bushel (Table 1). Given the revenue and cost estimates, the Return over Variable Costs for non-irrigated corn is estimated to be \$127 per acre (Table 1).

Understanding the Increase in Production Costs

For long-term profitability, producers must continue to control costs. The production costs for non-irrigated corn from 2002 to 2007, based on Clemson University Extension enterprise budgets, are reported in Table 2. Variable costs have increased \$93/acre since 2002 with 38% of the increase occurring since 2005 (Table 2). As you would expect, the largest increase has been for fertilizer with nitrogen costs increasing \$26 per acre since 2002 (Table 2). The increased cost of fertilizer and lime accounts for 50% of the cost increase since 2002. Another large increase has occurred in hauling expense which has doubled since 2003 (Table 2). The increase in hauling expense reflects the increase in the oil markets 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 2002 – 2007 for Non-Irrigated Corn with an Estimated Yield of 100 Bushels/Acre.

| Variable Costs (\$/acre) | <u>2006/2007</u> | <u>2005</u> | <u>2004</u> | <u>2003</u> | <u>2002</u> |
|--|------------------|---------------|---------------|---------------|---------------|
| Seed | \$35.76 | \$33.60 | \$30.00 | \$24.00 | \$24.00 |
| Fertilizer | | | | | |
| Nitrogen | \$66.00 | \$58.03 | \$51.40 | \$48.18 | \$39.76 |
| Phosphate | \$17.50 | \$16.56 | \$14.89 | \$13.72 | \$12.78 |
| Potash | \$14.50 | \$11.07 | \$8.28 | \$7.38 | \$7.62 |
| Lime (prorated) | \$17.33 | \$10.46 | \$9.50 | \$9.04 | \$8.94 |
| Herbicides | \$39.81 | \$35.83 | \$34.70 | \$34.73 | \$32.05 |
| Drying (3 points) | \$13.76 | \$12.70 | \$10.58 | \$10.58 | \$10.58 |
| Hauling | \$30.00 | \$25.00 | \$20.00 | \$15.00 | \$15.00 |
| Tractor/Machinery | \$21.50 | \$19.66 | \$17.99 | \$16.44 | \$16.04 |
| Labor | \$11.83 | \$10.98 | \$10.92 | \$10.92 | \$10.92 |
| Interest on Operating Capital | <u>\$9.56</u> | <u>\$8.32</u> | <u>\$7.35</u> | <u>\$7.02</u> | <u>\$6.65</u> |
| | | | | | |
| Total Variable Costs | \$277.54 | \$242.20 | \$215.61 | \$197.01 | \$184.34 |
| Increase from Previous Year (\$/acre) | \$35.34 | \$26.59 | \$18.60 | \$12.67 | |

How Risky is Non-Irrigated Corn in 2007?

Another question managers should consider when evaluating a crop enterprise is the risk of not covering variable costs. The Total Variable Costs for non-irrigated corn are estimated to be \$278/acre (Table 1). At an expected yield of 100 bu./acre, the break-even price for non-irrigated corn is \$2.78 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 of \$2.78 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 Costs for alternative prices and yields. Managers can use Table 3 to evaluate the risk of not covering variable costs of producing non-irrigated corn based on their own price and yield expectations. For example, at the price of \$3.75/bushel, there would be revenue available to pay for all production expenses with yields of 80 bu./acre or greater (Table 3). Similarly, at a yield of 90 bu./acre, all variable costs will be covered with prices of \$3.25/bu. or greater (Table 3).

Table 3. Return over Variable Costs for Various Prices and Yields for Non-Irrigated Corn (100 bu/acre Expected Yield)^{1/}.

| Harvest Yield | Harvest Cash Price | | | | | | |
|---------------|--------------------|-----------|-----------|-----------|-----------|-----------|----------|
| | \$2.50 | \$2.75 | \$3.00 | \$3.25 | \$3.50 | \$3.75 | \$4.00 |
| 70 | (\$103.00) | (\$85.50) | (\$68.00) | (\$50.50) | (\$33.00) | (\$15.50) | \$2.00 |
| 80 | (\$78.00) | (\$58.00) | (\$38.00) | (\$18.00) | \$2.00 | \$22.00 | \$42.00 |
| 90 | (\$53.00) | (\$30.50) | (\$8.00) | \$14.50 | \$37.00 | \$59.50 | \$82.00 |
| 100 | (\$28.00) | (\$3.00) | \$22.00 | \$47.00 | \$72.00 | \$97.00 | \$122.00 |
| 110 | (\$3.00) | \$24.50 | \$52.00 | \$79.50 | \$107.00 | \$134.50 | \$162.00 |
| 120 | \$22.00 | \$52.00 | \$82.00 | \$112.00 | \$142.00 | \$172.00 | \$202.00 |
| 130 | \$47.00 | \$79.50 | \$112.00 | \$144.50 | \$177.00 | \$209.50 | \$242.00 |

^{1/}Total Variable Costs are estimated to be \$278 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.