

MMM 493

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What are the Break-Even Prices and Yields when Comparing Corn and Peanuts for 2009?

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With commodity prices fluctuating daily and input costs still near record levels, producers will be challenged to maintain profitability in 2009 as profit margins are shrinking. Currently, the major decision facing producers is determining the enterprise mix for 2009. This memo compares the Returns over Variable Costs for corn and peanuts and analyzes the break-even yields and prices for non-irrigated and irrigated production.

Return over Variable Costs

Table 1. 2009 Estimated Return over Variable Costs for Corn and Peanuts.

	Non-Irrigated Corn	Non-Irrigated Peanut	Irrigated Corn	Irrigated Peanut
Harvest Price ^{1/}	\$4.17	\$0.2050	\$4.17	\$0.2050
Yield	120	3000	160	4000
Total Variable Costs ^{2/}	\$339.37	\$575.10	\$461.36	\$730.23
Return over Variable Costs	\$161.03	\$39.90	\$205.84	\$89.77

^{1/} The harvest price for corn is based on the December Corn Futures Contract adjusted by harvest-time basis of -\$0.10/bu. on January 29, 2009. Peanut price is based on Economist's Forecast on January 29, 2009. Contract prices may differ from this estimate.

^{2/} 2009 Clemson University Crop Enterprise Budgets (<http://cherokee.agecon.clemson.edu/budgets.htm>).

The estimated Returns over Variable Costs for corn and peanuts are reported in Table 1. The harvest cash price for corn is based on the December 2009 corn futures contract and is adjusted by the estimated harvest-time basis. Similarly, the cash price for peanuts is based on economist's forecast for the 2009 crop. For this comparison, the harvest cash price for corn and peanuts are \$4.17/bu. and \$0.2050/lb., respectively (Table 1). The variable costs are based on Clemson University Extension crop enterprise budgets. Based on the assumptions listed in Table 1, the estimated Return over Variable Costs for non-irrigated corn is \$161/acre while the Return for non-irrigated peanuts is \$39/acre (Table 1). Similarly, the estimated Returns over Variable Costs for irrigated corn and irrigated peanuts are \$205/acre and \$89/acre, respectively (Table 1).

Break-Even Yields and Prices

Based on the assumptions listed in Table 1, corn provides a greater Return over Variable Costs than peanuts. Since prices, yields and costs will vary from these assumptions, managers need to understand the break-even yields and break-even prices when comparing corn and peanut production. Table 2 reports the Break-Even Yields and Break-Even Prices for corn and peanuts produced with and without irrigation.

The Break-Even Yield in Table 2 is the yield that will pay for all of the Total Variable Costs. For example, non-irrigated corn yielding 81 bu. (Table 2) at a price of \$4.17 will just pay for the Total Variable Costs of \$339 (Table 1). Similarly, irrigated peanuts yielding 3,562 lbs. (Table 2) at a price of \$0.2050 will just pay for Total Variable Costs of \$730 (Table 1).

Similarly, the Break-Even Price in Table 2 is the price that will pay for all of the Total Variable Costs. For example, non-irrigated peanuts with a price of \$0.1917 (Table 2) yielding 3,000 lbs. will just pay for the Total Variable Costs of \$575 (Table 1). Similarly, irrigated corn at a price of \$2.88 (Table 2) with a yield of 160 bu will just pay for the Total Variable Costs of \$461 (Table 1).

Table 2. Break-Even Yields and Prices for Non-Irrigated and Irrigated Corn and Peanuts

	Non-Irrigated Corn	Non-Irrigated Peanut	Irrigated Corn	Irrigated Peanut
Break-Even Yield ^{1/}	81	2,805	111	3,562
Break-Even Price ^{2/}	\$2.83	\$0.1917	\$2.88	\$0.1826

^{1/} The Break-Even Yield is the yield that will cover Total Variable Costs at the prices and costs listed in Table 1. For example, 81 bu. non-irrigated corn at a price of \$4.17 will pay for the Total Variable Costs of \$339/acre.

^{2/} The Break-Even Price is the price that will cover Total Variable Costs at the yields and costs listed in Table 1. For example, 120 bu. non-irrigated corn at \$2.83 will just pay for the Total Variable Costs of \$339/acre.

The break-even price and yield information in Table 2 will help managers evaluate the feasibility of producing corn or peanuts. For example, managers know that they will need at least \$0.1917/lb and yields of 3,000 lbs/acre to be profitable at producing non-irrigated peanuts. Similarly, irrigated corn producers that produce 111 bu/acre or better will cover variable costs at a price of \$4.17/bu. (Table 2).

Break-Even Yield and Price Sensitivity Analysis

How does yield or price risk affect the analysis of which crop is more profitable? Table 3 lists the break-even yields for peanuts for a range of potential corn yields at the prices and costs listed in Table 1. Managers can use Table 3 to understand the yields necessary for peanuts to be competitive with corn. For example, non-irrigated peanuts yielding 3,591 lbs. have the same Return as 120 bu. non-irrigated corn (Table 3). For this example, corn is more profitable when yields are greater than 120 bu. or peanuts yield less than 3,591 lbs.

Similarly, Table 4 lists the break-even prices for peanuts for a range of potential corn prices at the yields and costs listed in Table 1. This table tells managers what price is needed from the market for peanuts to be competitive with corn. For example, at a price of \$4.20 for non-irrigated corn, non-irrigated peanuts must have a price of \$0.2466 to have the same Return (Table 4). For this example, corn is more profitable when peanut prices are less than \$0.2466 or corn prices are greater than \$4.20.

Managers can use Table 3 and Table 4 in guiding their enterprise selection for 2009. By using their own price and yield expectations, managers will have a better idea of the relative profitability of corn and peanuts for both production systems.

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. There is also a decision spreadsheet available that can be used to compare the Returns over Variable Costs for corn and peanuts. The budgets and decision spreadsheet are available at <http://cherokee.agecon.clemson.edu/budgets.htm>. Your local extension office will be able to help you download these budgets and the decision spreadsheet and can help you understand how to use this information in making this comparison.

Table 3. Break-Even Yields for Peanuts for Varying Corn Yields for Non-Irrigated and Irrigated Production.

Non-Irrigated Corn	Non-Irrigated Peanuts	Irrigated Corn	Irrigated Peanuts
30	1,760	70	2,735
40	1,964	80	2,939
50	2,167	90	3,142
60	2,370	100	3,346
70	2,574	110	3,549
80	2,777	120	3,753
90	2,981	130	3,956
100	3,184	140	4,159
110	3,387	150	4,363
120	3,591	160	4,566
130	3,794	170	4,770
140	3,998	180	4,973
150	4,201	190	5,176
160	4,405	200	5,380
170	4,608	210	5,583
180	4,811	220	5,787

^{1/} The Break-Even Yield is the yield that equates the Returns over Variable Costs for the two commodities at the prices and costs listed in Table 1. For example, 3,794 lb. non-irrigated peanuts have the same Return as 130 bu. non-irrigated corn.

Table 4. Break-Even Prices for Peanuts for Varying Corn Prices for Non-Irrigated and Irrigated Production.

Non-Irrigated Corn	Non-Irrigated Peanuts	Irrigated Corn	Irrigated Peanuts
\$3.80	\$0.2306	\$3.80	\$0.2192
\$3.90	\$0.2346	\$3.90	\$0.2232
\$4.00	\$0.2386	\$4.00	\$0.2272
\$4.10	\$0.2426	\$4.10	\$0.2312
\$4.20	\$0.2466	\$4.20	\$0.2352
\$4.30	\$0.2506	\$4.30	\$0.2392
\$4.40	\$0.2546	\$4.40	\$0.2432
\$4.50	\$0.2586	\$4.50	\$0.2472
\$4.60	\$0.2626	\$4.60	\$0.2512
\$4.70	\$0.2666	\$4.70	\$0.2552
\$4.80	\$0.2706	\$4.80	\$0.2592
\$4.90	\$0.2746	\$4.90	\$0.2632
\$5.00	\$0.2786	\$5.00	\$0.2672
\$5.10	\$0.2826	\$5.10	\$0.2712
\$5.20	\$0.2866	\$5.20	\$0.2752
\$5.30	\$0.2906	\$5.30	\$0.2792

^{1/} The Break-Even Price is the price that equates the Returns over Variable Costs for the two commodities at the yields and costs listed in Table 1. For example, non-irrigated peanuts at \$0.2506/lb. have the same Return as non-irrigated corn at \$4.30/bu.