

MANAGEMENT MARKETING MEMO

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What are the Break-Even Prices and Yields when Comparing Corn and Peanuts for 2007?

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The corn and soybean markets have been bidding for acreage due to a bullish final crop report for 2006. With bio-fuels creating new markets for corn and soybeans, this demand-driven market may continue to provide marketing opportunities. Currently, the major decision facing producers is determining the enterprise mix for 2007. 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. 2007 Estimated Return over Variable Costs for Corn and Peanuts.

	Non-Irrigated Corn	Non-Irrigated Peanuts		Irrigated Corn	Irrigated Peanuts
Harvest Price ^{1/}	\$4.05	\$0.21		\$4.05	\$0.21
Yield	100	3000		160	4000
Variable Cost ^{2/}	\$278	\$583		\$403	\$654
Return over Variable Costs	\$127	\$47		\$245	\$186

^{1/} The harvest price for corn is based on the December Corn Futures Contract adjusted by harvest-time basis of +0.15. Peanut price is based on Economist's Forecast on January 18, 2007. Contract prices may differ from this estimate.

^{2/} 2007 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 2007 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 2007 crop. For this comparison, the harvest cash prices for corn and peanuts are \$4.05/bu. and \$0.21/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 \$127/acre while the Return for non-irrigated peanuts is \$47/acre (Table 1). Similarly, the estimated Returns over Variable Costs for irrigated corn and irrigated peanuts are \$245/acre and \$186/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 makes the two Returns over Variable Costs equal. For example, non-irrigated corn yielding 80 bu. (Table 2) at a price of \$4.05 and Variable Costs of \$278 (Table 1) will have the same Return as non-irrigated peanuts yielding 3,000 lbs. at a price of \$0.21 and Variable Costs of \$583 (Table 1). Similarly, irrigated peanuts yielding 4,281 lbs. (Table 2) at a price of \$0.21 and Variable Costs of \$654 (Table 1) will have the same Return as irrigated corn yielding 160 bu. at a price of \$4.05 and Variable Costs of \$403 (Table 1).

Similarly, the Break-Even Price in Table 2 is the price that makes the two Returns over Variable Costs equal. For example, non-irrigated peanuts with a price of \$0.2367 (Table 2) yielding 3,000 lbs. and Variable Costs of \$583 (Table 1) will have the same Return as non-irrigated corn yielding 100 bu. at a price of \$4.05 and Variable Costs of \$278 (Table 1). Similarly, irrigated corn at a price of \$3.68 (Table 2) with a yield of 160 bu and Variable Costs of \$403 (Table 1) will have the same Return as irrigated peanuts yielding 4,000 lbs. at a price of \$0.21 and Variable Costs of \$654 (Table 1).

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

	Non-Irrigated Corn	Non-Irrigated Peanuts	Irrigated Corn	Irrigated Peanuts
Break-Even Yield ^{1/}	80	3,381	145	4,281
Break-Even Price ^{2/}	\$3.25	\$0.2367	\$3.68	\$0.2248

^{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, 80 bu. non-irrigated corn at \$4.05 has the same Return as 3000 lb. non-irrigated peanuts at \$0.21.

^{2/} 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, 100 bu. non-irrigated corn at \$3.25 has the same Return as 3000 lb. non-irrigated peanuts at \$0.21.

The break-even price and yield information in Table 2 will help managers evaluate when corn is more profitable than peanuts. For example, non-irrigated corn at \$4.05 with yields greater than 80 bu. is more profitable than non-irrigated peanuts with a price of \$0.21 yielding 3,000 lbs. Similarly, irrigated corn yielding 160 bu. with prices greater than \$3.68 is more profitable than irrigated peanuts yielding 4,000 lbs. at a price of \$0.21 (Table 2).

Break-Even Yield and Price Sensitivity Analysis

How does yield or price risk affect this analysis? 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 2,802 lbs. have the same Return as 70 bu. non-irrigated corn (Table 3). For this example, corn is more profitable when yields are greater than 70 bu. or peanuts yield less than 2,802 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 \$4.00 for non-irrigated corn, non-irrigated peanuts must have a price of \$0.2350 to have the same Return (Table 4). For this example, corn is more profitable when peanut prices are less than \$0.2350 or corn prices are greater than \$4.00.

Managers can use Table 3 and Table 4 in guiding their enterprise selection for 2007. 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 Yield	Non-Irrigated Peanuts Yield ^{1/}		Irrigated Corn Yield	Irrigated Peanuts Yield
50	2,417		100	3,124
55	2,513		105	3,220
60	2,610		110	3,317
65	2,706		115	3,413
70	2,802		120	3,510
75	2,899		125	3,606
80	2,995		130	3,702
85	3,092		135	3,799
90	3,188		140	3,895
95	3,285		145	3,992
100	3,381		150	4,088
105	3,477		155	4,185
110	3,574		160	4,281
115	3,670		165	4,377
120	3,767		170	4,474
125	3,863		175	4,570
130	3,960		180	4,667
135	4,056		185	4,763
140	4,152		190	4,860

^{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, 3,188 lb. non-irrigated peanuts have the same Return as 90 bu. non-irrigated corn.

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

Non-Irrigated Corn Price	Non-Irrigated Peanuts Price ^{1/}		Irrigated Corn Price	Irrigated Peanuts Price
\$2.70	\$0.1917		\$2.70	\$0.1708
\$2.80	\$0.1950		\$2.80	\$0.1748
\$2.90	\$0.1983		\$2.90	\$0.1788
\$3.00	\$0.2017		\$3.00	\$0.1828
\$3.10	\$0.2050		\$3.10	\$0.1868
\$3.20	\$0.2083		\$3.20	\$0.1908
\$3.30	\$0.2117		\$3.30	\$0.1948
\$3.40	\$0.2150		\$3.40	\$0.1988
\$3.50	\$0.2183		\$3.50	\$0.2028
\$3.60	\$0.2217		\$3.60	\$0.2068
\$3.70	\$0.2250		\$3.70	\$0.2108
\$3.80	\$0.2283		\$3.80	\$0.2148
\$3.90	\$0.2317		\$3.90	\$0.2188
\$4.00	\$0.2350		\$4.00	\$0.2228
\$4.10	\$0.2383		\$4.10	\$0.2268
\$4.20	\$0.2417		\$4.20	\$0.2308
\$4.30	\$0.2450		\$4.30	\$0.2348
\$4.40	\$0.2483		\$4.40	\$0.2388
\$4.50	\$0.2517		\$4.50	\$0.2428

^{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 \$0.2250/lb. have the same Return as non-irrigated corn at \$3.70/bu.