

Analyzing the Profitability and Risk of High-Oil Corn

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Analyzing the Profitability and Risk of High-Oil Corn

1. Introduction¹

Farmers in Kentucky have more options for grain production than conventional corn, soybeans, or wheat. Specialty corn and soybeans are now available in Kentucky that offer a price premium over their conventional counterparts. Many producers may be considering high-oil corn production because it can be grown using traditional production methods while offering a higher price. At first glance, this price premium appears to give high-oil corn an advantage over conventional yellow corn. However, corn growers need to consider all the potential costs, benefits, and risks before making such a production decision. This report is intended to help producers analyze the profits and risks of growing high-oil corn. High-oil corn and conventional corn returns are compared on both a per acre and whole farm basis in the following section. This is followed by a brief discussion of contracting issues.

2. Profit Comparisons: High-oil Corn and Conventional Corn

The potential high-oil corn and conventional corn returns are compared on a per acre basis by examining enterprise budgets and from a total income perspective by using income statements. Producers can readily access price, yield, and cost comparisons of conventional corn and high-oil corn on a variety of web sites (Ohio State University; Optimum Quality Grain; Pfister Hybrids). However, comparisons from the grain companies are somewhat flawed; they assume minimal yield and cost differences between high-oil corn and conventional corn production. Research from the University of Kentucky shows high-oil hybrids often yield less than their conventional counterparts (Pearce et al.). Further, their analysis fails to account for changing circumstances, such as increasing transportation costs or decreasing price premiums. The analysis presented in this report overcomes these shortcomings and thus, provides more useful and robust results.

2.1 Data and Methodology

The conventional corn budget is based on 1998 enterprise studies from the Kentucky Farm Business Management (KFBM) program (Moss et al.). The average yield is assumed to be 120 bushels per acre and the average price \$2.30 per bushel. The high-oil corn budget is estimated by modifying the appropriate conventional corn budget variables. It is assumed that high-oil corn yields are on average 10 percent lower than conventional corn yields, a somewhat typical result (Ohio State University Extension). In other words, the average yield for high-oil corn is 108 bushels per acre. The price for high-oil corn is simply assumed to be the conventional corn price plus a premium. High-oil corn premiums typically range from \$0.08 to \$0.25 per bushel depending on the oil content of the corn (Optimum Quality Grains; WHHOC). In this analysis, potential returns are calculated for a range of premiums: \$0.08 to \$0.24 per bushel in \$0.016 increments (or 10 percent increments). Thus, although the average price for conventional corn may be somewhat high, since the comparison of corn varieties rests on the level of additional price premium, the results are valid regardless of the conventional corn price. To test the sensitivity of the results to the data, different yield levels, yield drag levels, and price premiums were analyzed.

Since high-oil corn production and marketing may incur additional costs beyond conventional corn, the sensitivity of the results to assumptions regarding seed, storage, and transportation costs was also tested. Seed costs for high-oil corn may be \$30 per bag higher than conventional corn (Illinois Specialty Farm Products; McNew). In this analysis, two different seed cost levels (in terms of additional seed costs over conventional corn) were considered: \$15 per bag and \$30 per bag. Storage costs for high-oil corn could run upwards of an additional \$0.10 per bushel over conventional corn since it may have to be stored longer due to limited markets (Ohio State University Extension). This analysis calculates returns for both zero additional storage costs and \$0.10 per bushel additional storage costs for high-oil corn. Conventional corn can be sold to most grain elevators, while high-oil corn, at least currently, will usually have to be sold to a specific buyer, which may be farther away than the local grain elevator. Thus, transportation costs for high-oil corn may be higher. Considering average transportation costs of \$0.002 per mile per bushel (Illinois Specialty Farm Products),

¹ This research was funded by a grant from the Kentucky Corn Growers Association.

an additional 50 miles of transportation would incur an extra cost of \$0.10 per bushel. However, short or “local” hauls may use a flat fee instead of charging by the mile. This analysis considers \$0.10 per bushel to be the average additional transportation costs for high-oil corn.

The discussion that follows refers to a series of figures and tables designed to illustrate the results in a user-friendly format. The effects of varying price premiums, transportation costs, reductions in yield, extra storage costs, and extra seed costs for high-oil corn are examined. High-oil corn price premiums range from \$0.08 to \$0.24. Extra transportation costs examined for high-oil corn vary from \$0.00 to \$0.20. Reductions in yield from zero to 15 percent are shown. Extra seed costs of zero to \$30 per bag and extra storage costs up to \$0.10 per bushel are also shown.

2.2 Analysis and Results

In the first set of figures (figures 1A through 1C), two other possible conventional corn yields (higher and lower than the average) were constructed using historical yield estimates in Kentucky (Kentucky Agricultural Statistics). The difference between the average and actual conventional corn yield over the past ten years in Kentucky is near 13 bushels per acre (the standard deviation). Because high-oil corn yields are considered to be more variable than conventional corn, it is assumed that the standard deviation of high-oil corn is 16 bushels per acre. This assumption gives high-oil corn 25 percent more yield variability than conventional corn. Therefore, the two alternative yields for high-oil corn are 92 and 124 bushels per acre. The effect of higher or lower yields is represented by the three different lines in each figure. Keep in mind that when conventional corn has above average yields so will high-oil corn.

Regardless of the yield level, high-oil corn has a negative net return over conventional corn. For example, in figure 1A, given a price premium of \$0.16 for high-oil corn and average yield (108 bushels per acre for high-oil corn and 120 bushel per acre for conventional corn), the producer faces an approximately \$45 per acre reduction in returns by growing high-oil corn over conventional corn. Even at the highest price premium for high-oil corn (\$0.24 per bushel), producers still have a \$35 per acre reduction in revenue. The higher the yield, the lower the reduction, although the reduction remains well below zero. This set of figures also shows that as the additional costs of high-oil corn decrease (storage and seed costs decrease from Figure 1A to 1C), high-oil corn returns

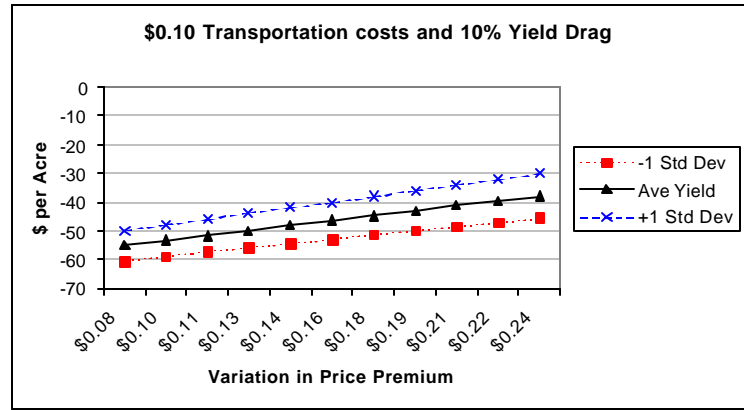


Figure 1A. Varying Premium with Three Yields - \$0.10 storage, \$30 extra seed cost.

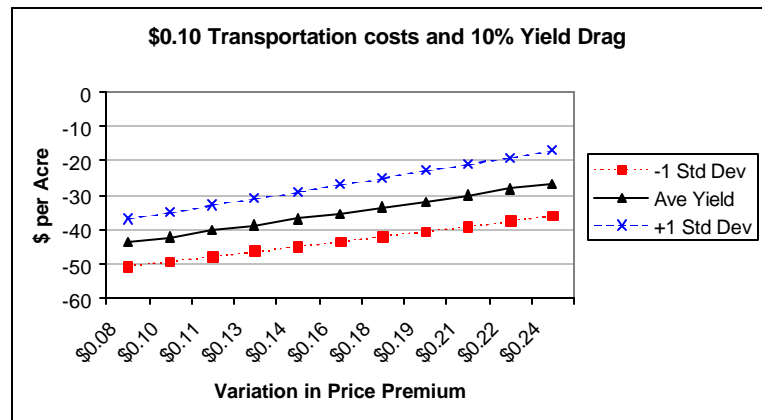


Figure 1B. Varying Premium with Three Yields - \$0.0 storage, \$30 extra seed cost.

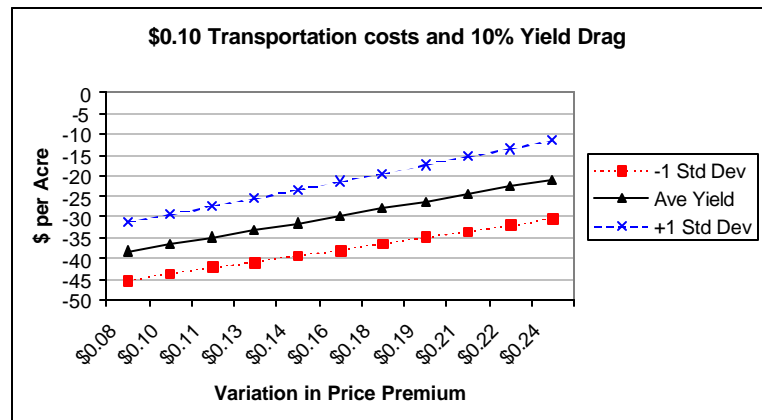


Figure 1C. Varying Premium with Three Yields - \$0.0 storage, \$15 extra seed cost.

increase, an obvious result that was carried through the other sets of calculations.

To test the significance of the yield drag assumption, the yield loss for high-oil corn was varied from 0 to 15 percent of conventional corn yield in the second set of calculations (figures 2A through 4C in Appendix A). With no yield drag, low additional costs, and higher premiums, high-oil corn produces a positive additional net return over conventional corn (figures 2B, 2C, 3B, 3C, 4B, and 4C). The highest returns are achieved when no extra transportation cost is incurred by the grower (figures 3A through 3C).

In the third set of calculations (figures 5A through 7C in Appendix A), five different levels of additional transportation costs are considered (\$0.0, \$0.05, \$0.10, \$0.15, \$0.20 per bushel). Again, the lower the additional costs, the greater the return to high-oil corn, although there is no advantage to high-oil corn production (i.e., no positive return) until the yield loss is less than 10 percent (figures 6A, 6B, 6C, and 7C).

In sum, these results indicate that growing high-oil corn will only produce price premiums above conventional corn when additional costs and yield loss are minimal. The results also suggest that yield loss is the most significant factor to consider when trying to predict the potential returns of high-oil corn. To further clarify these results, enterprise budgets for conventional corn and high-oil corn are reproduced in tables 4 through 6 (see Appendix B). As shown in table 4, conventional corn production results in a \$49.26 per acre return. Under a best case scenario (table 5), with no additional costs, a high premium, and no yield loss, high-oil corn production results in a \$75.02 per acre return. However, under a normal scenario (table 6), high-oil corn production results in a modest \$11.44 per acre return. Thus, under some conditions, growing high-oil corn over conventional corn could mean a loss of nearly \$40 per acre, even with the \$0.24 price premium.

Taking a whole-farm perspective, an income statement for a typical grain farm in Kentucky with no high-oil corn production (table 7 in Appendix C) can be compared to one with half of the corn acres in high-oil corn production (table 8 in Appendix C). Because the enterprises are very similar, capital requirements, labor, etc., are assumed to be the same for a farm with conventional or high-oil production. The typical grain farm (based on 1998 income statements from KFBM grain farms) has 1,504 acres with 590 acres in corn, 484 acres in soybeans, and 430 acres in wheat and double-crop soybeans. Again, under a best case scenario, net farm

income is increased only marginally by \$5,188 when high-oil corn is produced.

It should also be recognized that the returns to high-oil corn production may be somewhat overstated in this analysis, since it did not consider other sources of production cost increases. Because most high-oil corn is produced using a special high-oil pollinator, extra seed is usually required for planting. Guides for planting high-oil corn typically recommend a 10 percent higher seed ratio, or about 3,000 extra kernels per acre (WHHOC). Further, insects could be a greater problem with high-oil corn, incurring greater pest control costs (WHHOC). Labor costs may also increase as a result of extra time spent cleaning equipment to avoid cross-variety contamination. Finally, it is usually necessary to plant high-oil corn a minimum of 100 feet away from conventional corn, which could mean alternative planting arrangements on the farm and thus, greater costs (or revenue loss). The costs for insect control, extra labor, and isolation requirements are somewhat speculative and may not occur on all farms.

High-oil corn has an advantage to anyone feeding corn in a dairy, beef, poultry, or hog operation. High-oil corn has a gross energy value of 1855Kcal/lb which is 80 Kcal/LB more than No. 2 yellow corn. This extra energy can be a significant advantage to livestock producers. High-oil corn also has 6.1 percent higher protein, 82.6 percent higher crude oil, 5.6 percent higher crude fiber, 16.0 percent higher lysine, and 11.1 percent higher methionine than yellow corn. All of these factors result in an improved feed conversion for livestock. This improved conversion can be especially important when animals are lactating because these animals require a high-energy food source.

The basic results can be summarized in Tables 1 through 3. These tables show the advantage per acre of growing high-oil corn under different assumptions about the reduction in yield for high-oil corn. The figures that showed how storage cost, price premium, transportation cost, yield drag, and seed cost affected high-oil corn profitability can be combined into these tables. The effective premium is the difference between the actual premium less any additional costs for storage and transportation of high-oil corn. With actual premiums for high-oil corn topping out at between \$0.20 and \$0.30 per bushel, producers must have low additional storage and transportation costs to earn a positive effective premium. As the tables show, high-oil corn is often less profitable than conventional corn unless yields are similar.

Table 1. Advantage to High-Oil Corn With No Yield Drag*

Extra Seed Cost							
\$30 bag	-29	-22	-15	-7	0	7	14
\$15 bag	-23	-16	-9	-2	6	13	20
Effective Premium	-0.12	-0.06	0	0.06	0.12	0.18	0.24

* \$ per acre for different combinations of extra seed cost and effective premium

Table 2. Advantage to High-Oil Corn With 5% Yield Drag*

Extra Seed Cost							
\$30 bag	-42	-35	-28	-21	-14	-8	-1
\$15 bag	-36	-29	-22	-16	-9	-2	5
Effective Premium	-0.12	-0.06	0	0.06	0.12	0.18	0.24

* \$ per acre for different combinations of extra seed cost and effective premium

Table 3. Advantage to High-Oil Corn With 10% Yield Drag*

Extra Seed Cost							
\$30 bag	-55	-48	-42	-35	-29	-22	-16
\$15 bag	-49	-42	-36	-29	-23	-16	-10
Effective Premium	-0.12	-0.06	0	0.06	0.12	0.18	0.24

* \$ per acre for different combinations of extra seed cost and effective premium

3. Contract Issues

Typically, high-oil corn is produced under individual acreage-based contracts (i.e., a producer contracts to deliver all corn produced on a given number of acres). Under this type of contract, the producer's yield risk is shared with the buyer. Some specialty grain contracts may require a producer to deliver a certain number of bushels, regardless of yield. Under this type of contract, all of the yield risk is transferred to the producer. If the producer falls short there could be a price penalty. Likewise, any bushels produced above the contract specification may not receive any price premium.

If producers were to jointly market their high-oil corn through some type of cooperative arrangement, yield risk could be minimized and returns increased. For instance, if members are geographically dispersed (or share distinct production histories), if one member has a yield shortfall, another may have extra production. Therefore, together, the cooperative can market a more consistent volume of high-oil corn without price penalty. Furthermore, the higher volume and greater bargaining power

associated with a cooperative might result in a greater price premium. According to data from Purdue University (Maier and Briggs), high-oil corn may have an end-use value ranging from \$0.35 to \$0.65 per bushel above No. 2 yellow corn when used as poultry feed. As shown in Table 9 in the appendix, a \$0.50 premium increases a producer's net farm income to \$26,945. This is an increase of almost \$8,000 over the best case situation under individual contract production shown in Table 8. If farmers were in a cooperative arrangement, they might realize an advantage in buying or raising high-oil corn for on-farm use. The disadvantage of higher seed costs could be reduced if they buy their inputs in larger quantities from the agribusinesses.

When assessing the advantage/disadvantage of a cooperative marketing agreement, the total additional premium and risk reduction from such an arrangement must be weighed against any additional costs. For example, some producers will have to invest time organizing and running the co-op and legal fees will have to be paid to incorporate the organization. These costs will vary depending on the complexity of the marketing agreement and the number of producers involved.

3. Conclusion

This report gives some insight into the potential returns corn producers in Kentucky could expect from high-oil corn production. The results clearly show that ultimately the net returns depend on price premiums, yield levels (especially yield loss associated with high-oil corn), and additional production costs. Any yield drag at all is likely to make high-oil corn less profitable than conventional corn. In this analysis, the only time a 5 percent yield drag resulted in high-oil being more profitable was with zero extra transportation, zero extra storage, and only \$15 for extra seed costs. With no yield

drag, high-oil corn was only more profitable if the combination of transportation, extra storage, and extra seed costs was toward the bottom of the cost ranges tested. In almost all cases examined, a premium of \$0.12 per bushel or higher is needed to make high-oil corn more profitable than conventional corn (Fig 3C is an exception). Furthermore, the risks producers face could be mitigated with joint marketing arrangements, which could also increase the profit potential of high-oil corn production. Producers who are able to feed their high-oil corn to their livestock or who can sell directly to livestock producers probably stand to benefit the most from high-oil corn production.

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Appendix A

Sensitivity Analysis Results for per Acre Comparisons

Sensitivity Analysis of Yield Drag

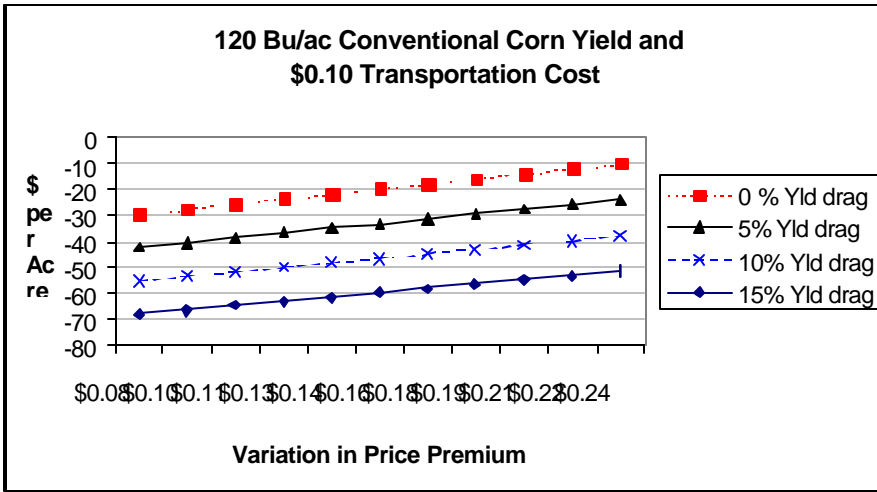


Figure 2A. Varying Premium with Four Yield Penalties - \$0.10 storage, \$30 extra seed cost.

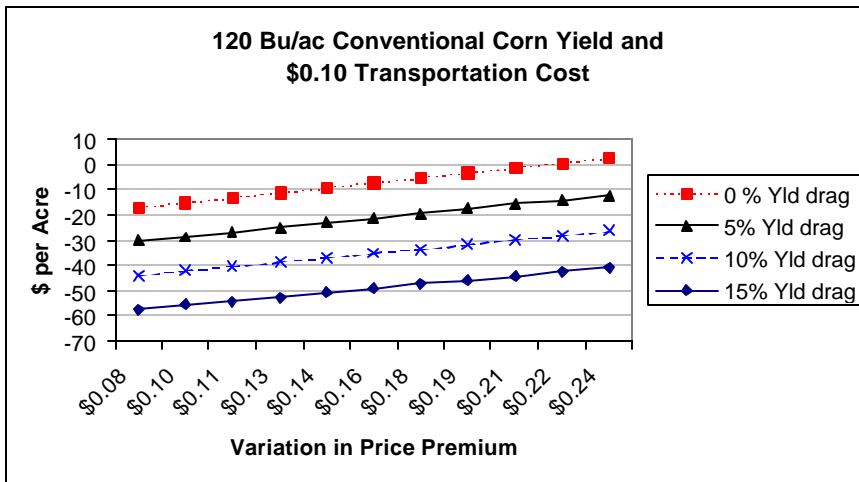


Figure 2B. Varying Premium with Four Yield Penalties - \$0.0 storage, \$30 extra seed cost.

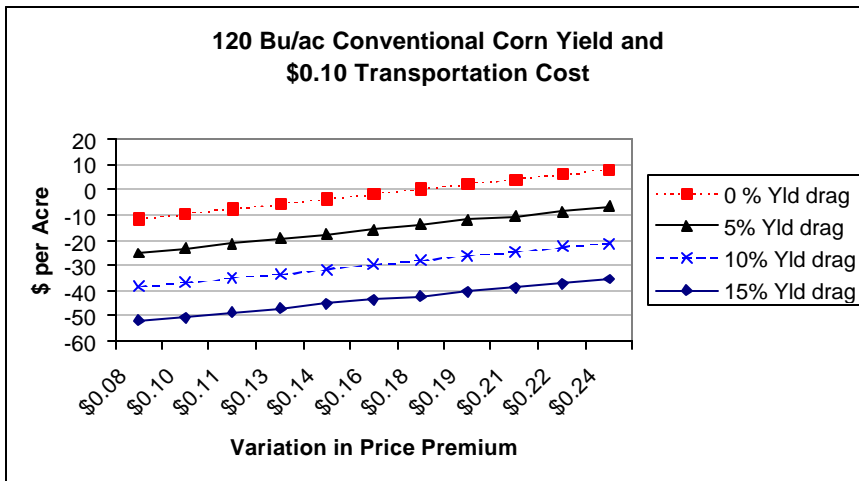


Figure 2C. Varying Premium with Four Yield Penalties - \$0.0 storage, \$15 extra seed cost.

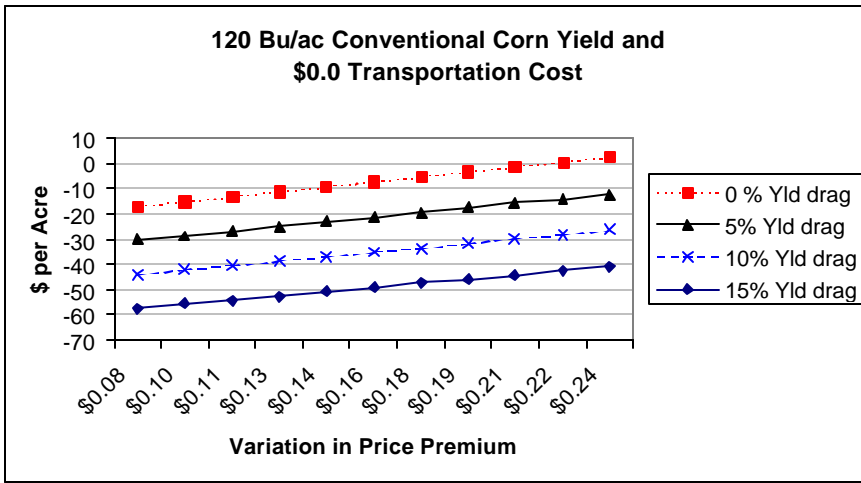


Figure 3A. Varying Premium with Four Yield Penalties - No Extra Transportation Cost - \$0.10 storage, \$30 extra seed cost

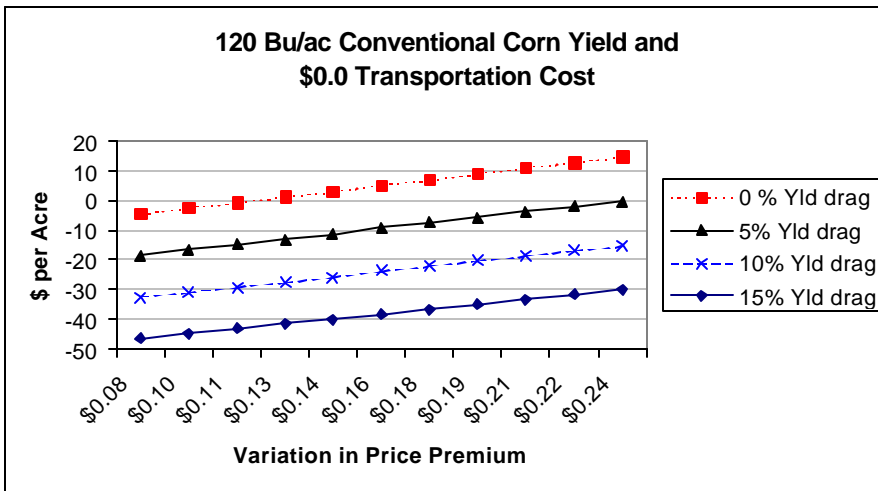


Figure 3B. Varying Premium with Four Yield Penalties - No Extra Transportation Cost - \$0.0 storage, \$30 extra seed cost

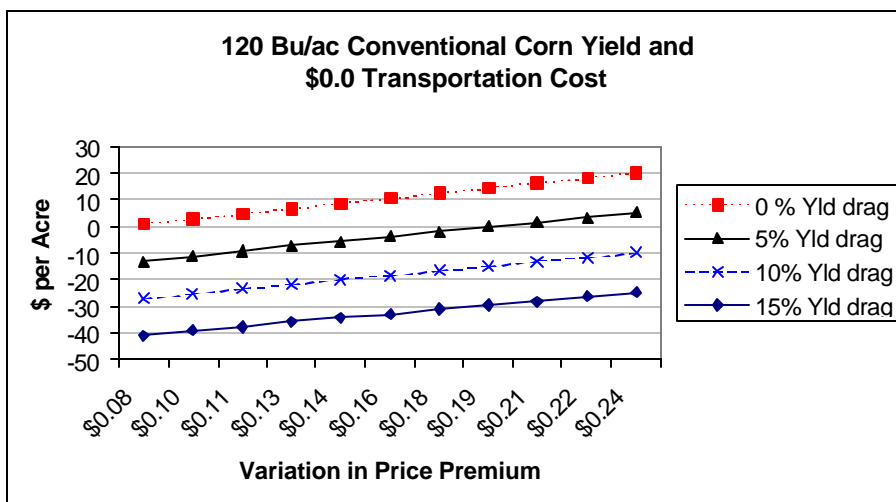


Figure 3C. Varying Premium with Four Yield Penalties - No Extra Transportation Cost - \$0.0 storage, \$15 extra seed cost

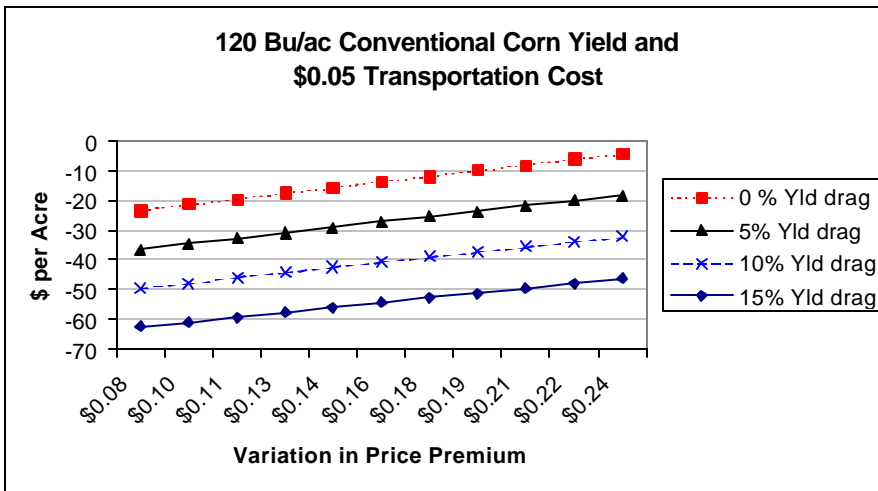


Figure 4A. Varying Premium with Four Yield Penalties - \$0.05/bu Transportation Cost - \$0.10 storage, \$30 extra seed cost

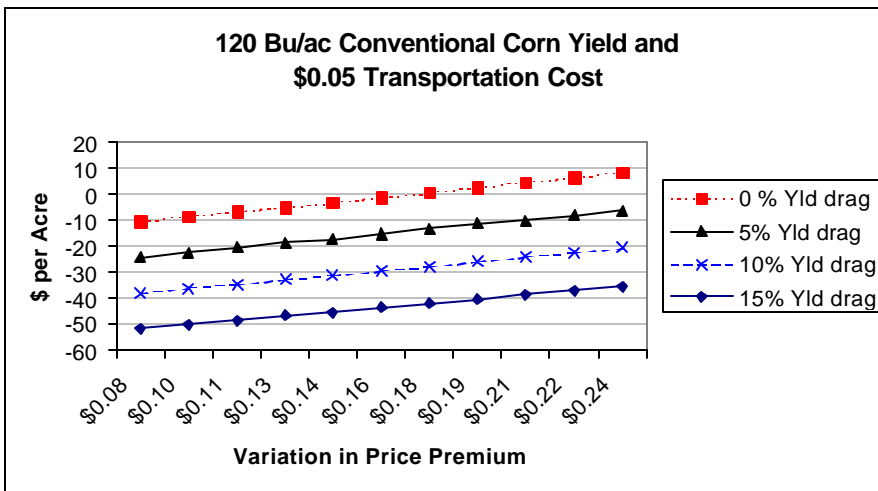


Figure 4B. Varying Premium with Four Yield Penalties - \$0.05/bu Transportation Cost - \$0.00 storage, \$30 extra seed cost

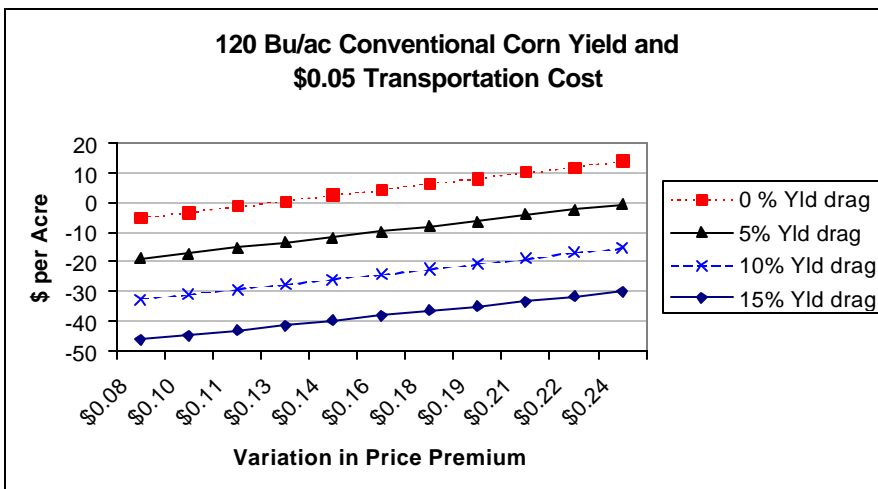


Figure 4C. Varying Premium with Four Yield Penalties - \$0.05/bu Transportation Cost - \$0.00 storage, \$15 extra seed cost

Sensitivity Analysis of Transportation Costs

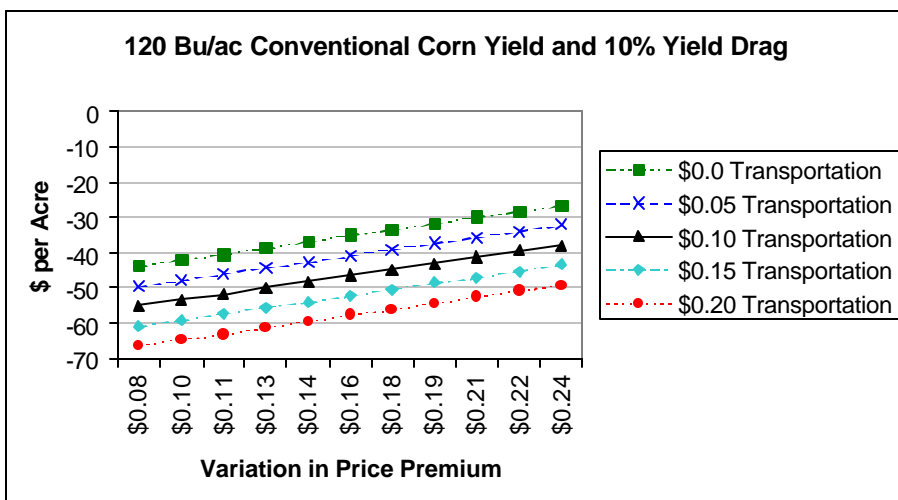


Figure 5A. Varying Premium with Five Transport Costs - \$0.10 storage, \$30 extra seed cost

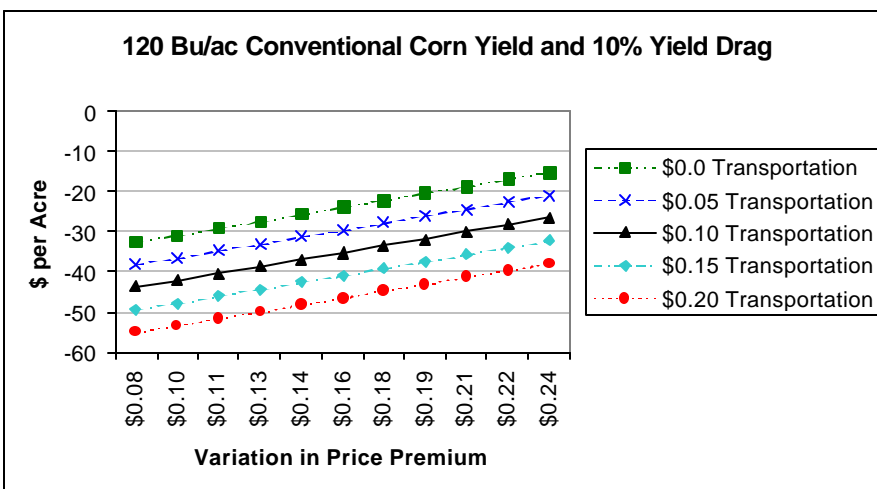


Figure 5B. Varying Premium with Five Transport Costs - \$0.0 storage, \$30 extra seed cost

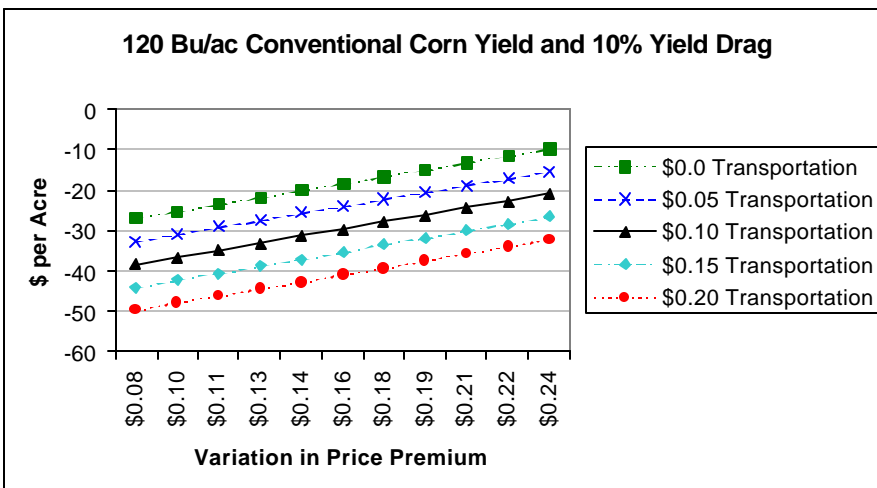


Figure 5C. Varying Premium with Five Transport Costs - \$0.0 storage, \$15 extra seed cost

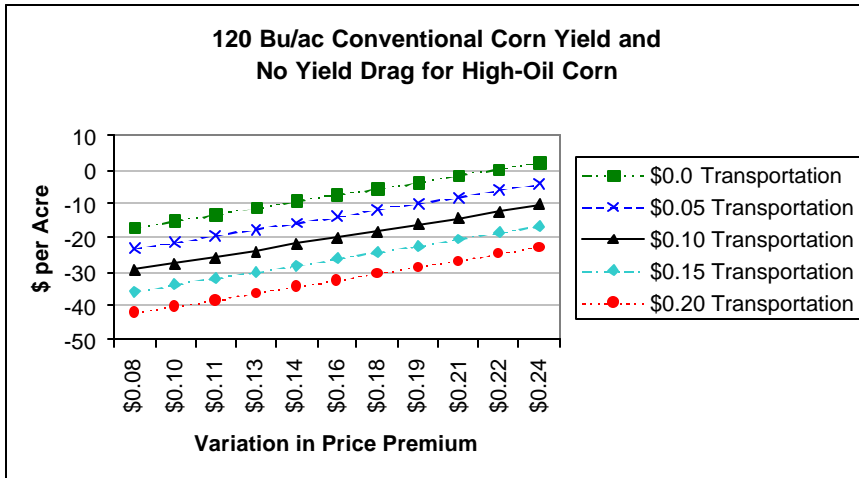


Figure 6A. Varying Premium with Five Transportation Costs – No Yield Penalty - \$0.10 storage, \$30 extra seed cost

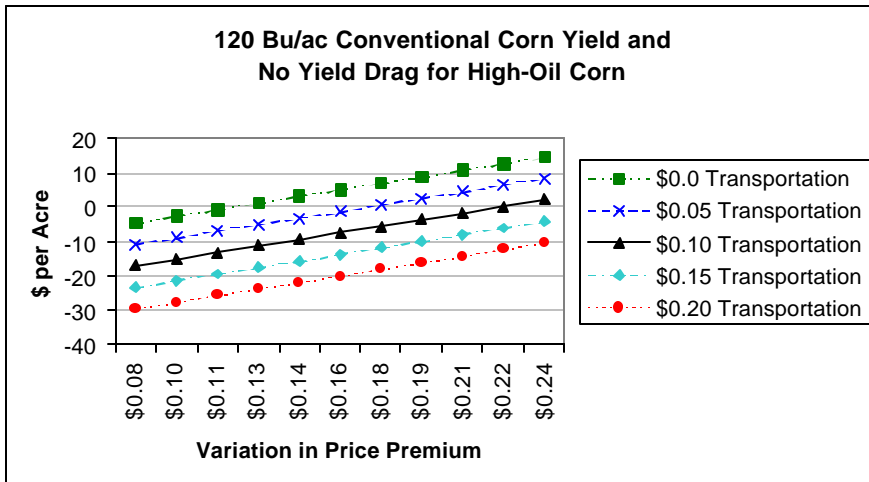


Figure 6B. Varying Premium with Five Transportation Costs – No Yield Penalty - \$0.0 storage, \$30 extra seed cost

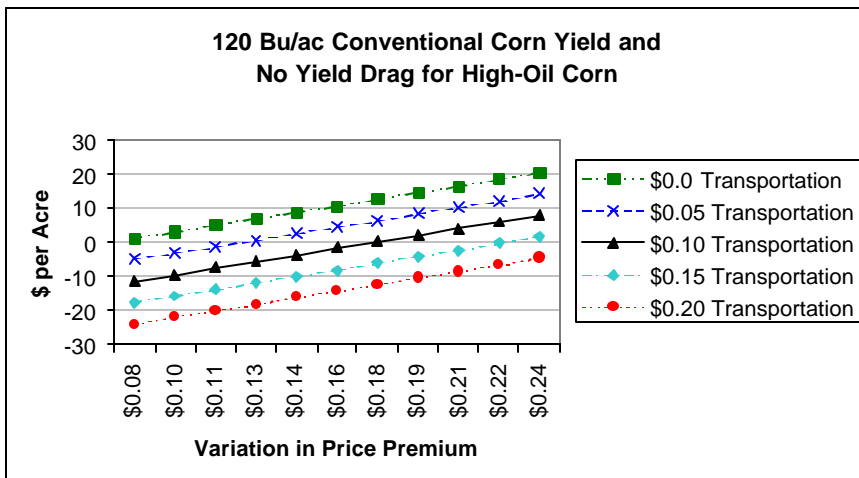


Figure 6C. Varying Premium with Five Transportation Costs – No Yield Penalty - \$0.0 storage, \$15 extra seed cost

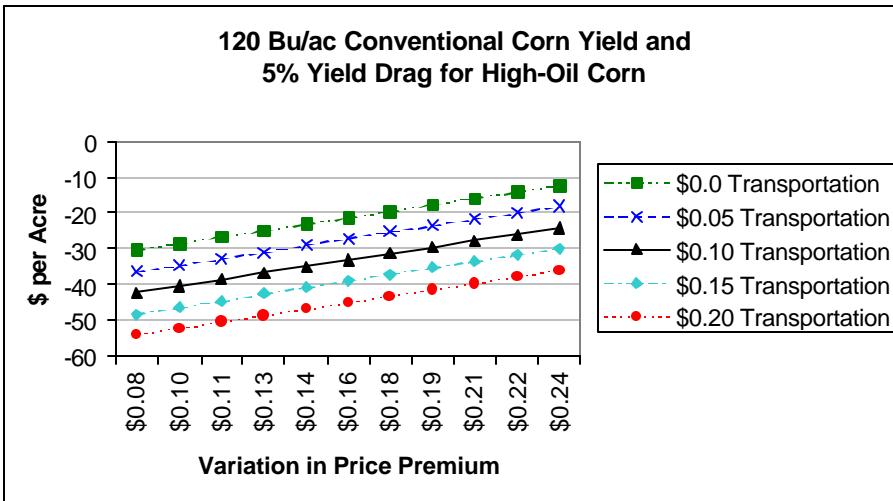


Figure 7A. Varying Premium with Five Transportation Costs – 5% Yield Penalty - \$0.10 storage, \$30 extra seed cost

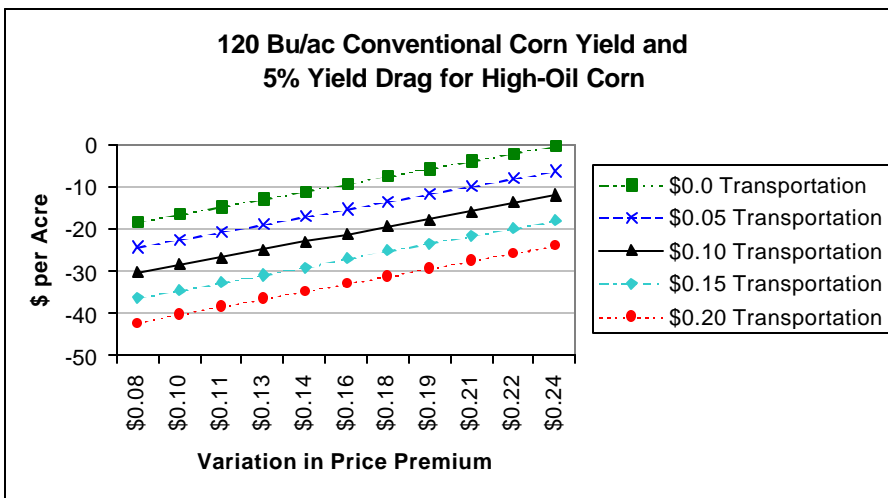


Figure 7B. Varying Premium with Five Transportation Costs – 5% Yield Penalty - \$0.0 storage, \$30 extra seed cost

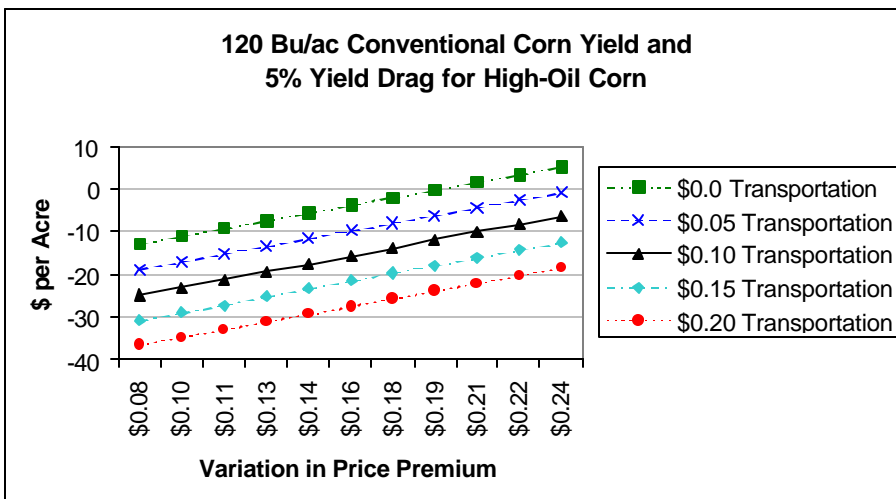


Figure 7C. Varying Premium with Five Transportation Costs – 5% Yield Penalty - \$0.0 storage, \$15 extra seed cost

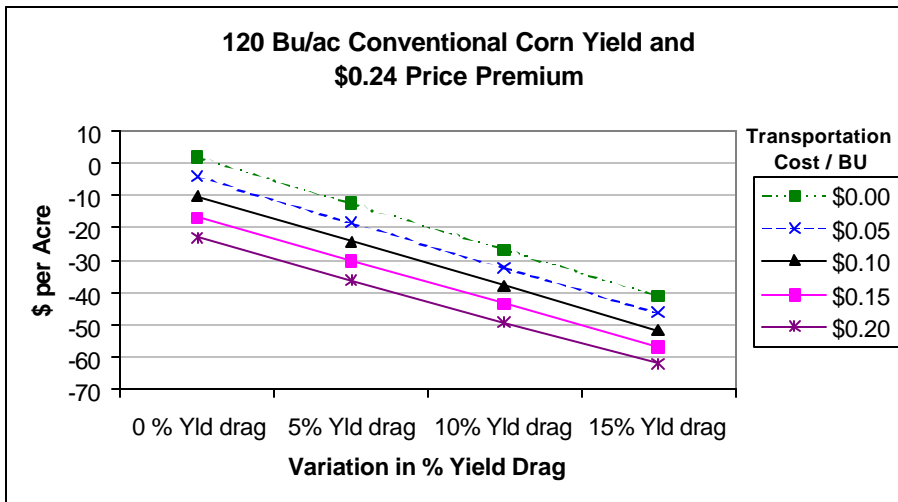


Figure 8A. Varying Yield Penalties with Five Transportation Costs - \$.24 Price Premium - \$0.10 storage, \$30 extra seed cost

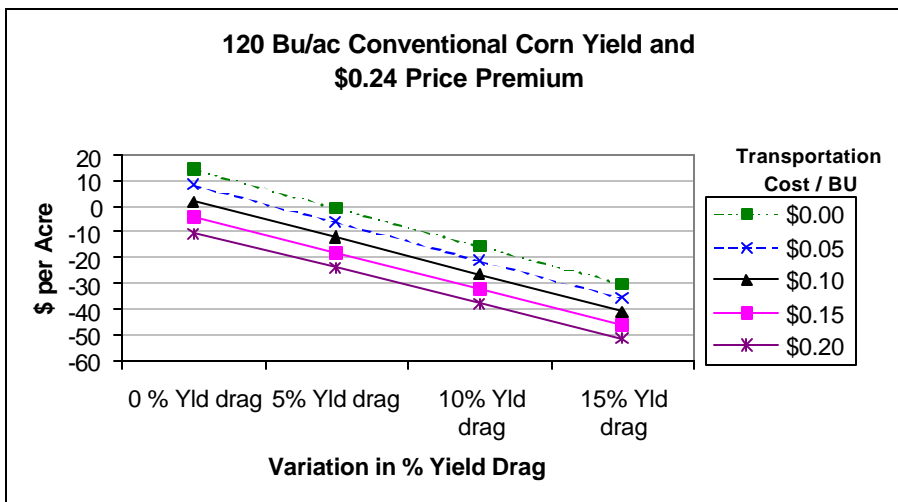


Figure 8B. Varying Yield Penalties with Five Transportation Costs - \$.24 Price Premium - \$0.0 storage, \$30 extra seed cost

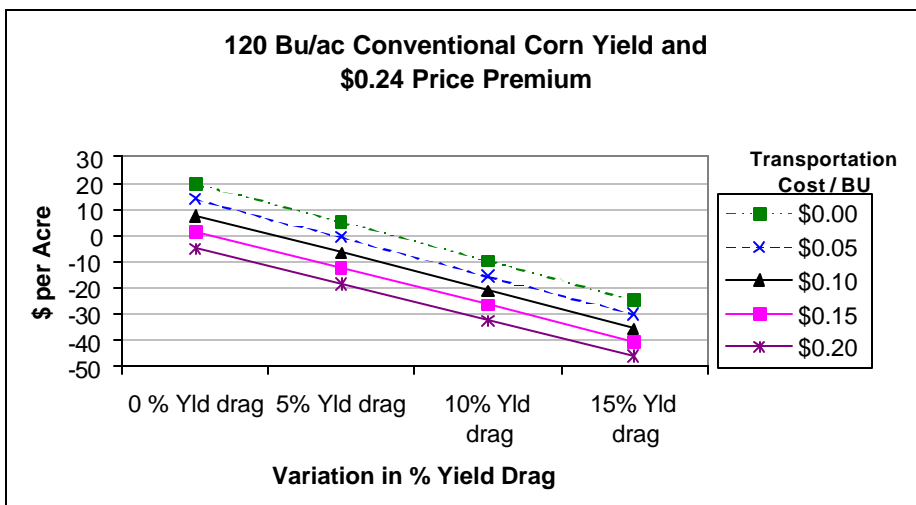


Figure 8C. Varying Yield Penalties with Five Transportation Costs - \$.24 Price Premium - \$0.0 storage, \$15 extra seed cost

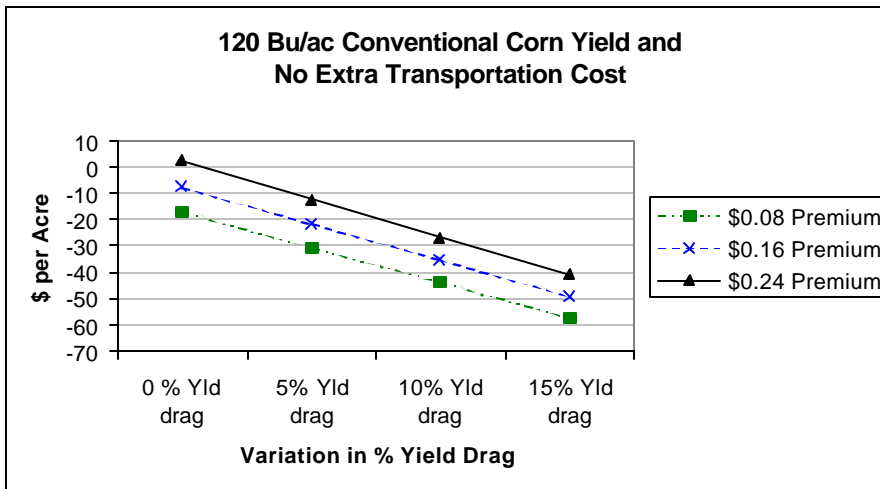


Figure 9A. Varying Yield Penalties with Three Price Premiums – No Transportation Costs - \$0.10 storage, \$30 extra seed cost

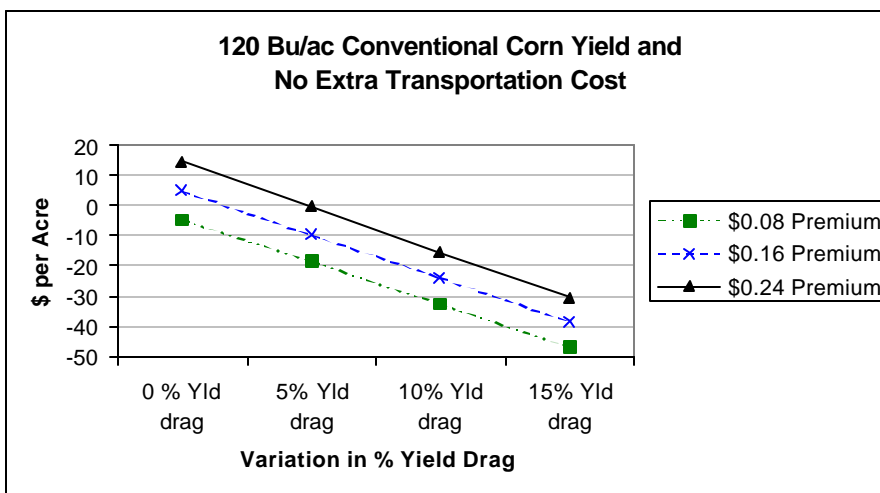


Figure 9B. Varying Yield Penalties with Three Price Premiums – No Transportation Costs - \$0.0 storage, \$30 extra seed cost

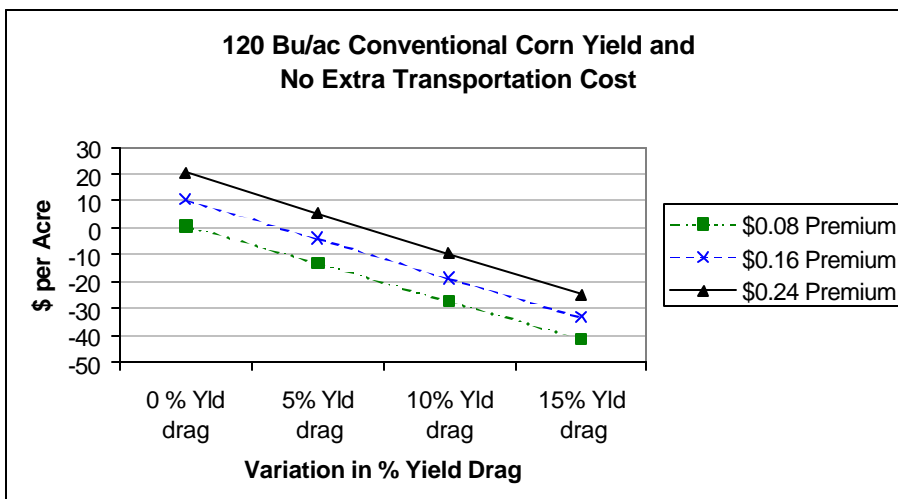


Figure 9C. Varying Yield Penalties with Three Price Premiums – No Transportation Costs - \$0.0 storage, \$15 extra seed cost

Appendix B
Enterprise Budgets

Table 4. Budget for Conventional Corn

Conventional Corn

	Amount	Unit	Price	Total
GROSS RETURNS PER ACRE				
Corn	120	bu	\$2.30	\$276.00
VARIABLE COSTS PER ACRE				
Fertilizer		acre		\$59.62
Pesticides				
- Herbicides		acre		31.90
- Insecticides		acre		0.00
Seed	0.32	80 K bag	90.97	29.11
Drying & Storage	120	bu	0.04	4.80
Utilities		acre		3.24
Machine Repair		acre		17.31
Cash Land Rent		acre		0.00
Machine Hire		acre		5.62
Fuel & Oil		acre		6.74
Transportation and Other	120	bu	0	0.00
Light Vehicle		acre		0.49
Hired Labor		acre		16.94
Miscellaneous		acre		3.40
Crop Insurance		acre		0.00
Interest on Variable Costs (1/2 year)	\$179.18	dollars	4.50%	8.06
TOTAL VARIABLE COSTS		per Acre		\$187.24
		per Bushel		\$1.56
FIXED COSTS PER ACRE				
Building Repair and Rent		acre		\$3.60
Insurance		acre		6.75
Taxes		acre		2.21
Depreciation				
- Machinery		acre		22.27
- Buildings		acre		4.67
TOTAL FIXED COSTS		per Acre		\$39.50
		per Bushel		\$0.33
TOTAL COSTS		per Acre		\$226.74
		per Bushel		\$1.89
RETURN TO OPERATOR LABOR, LAND, CAPITAL, AND MANAGEMENT		per Acre		\$49.26
		per Bushel		\$0.41
Less Operator Labor	4.5	hrs	\$7.00	\$31.50
RETURN TO LAND, CAPITAL, AND MANAGEMENT		per Acre		\$17.76
		per Bushel		\$0.15
BREAKEVEN YIELD in bu to cover				
		Variable Costs		81.4
		Total Costs		98.6
Advantage of conventional corn over high-oil corn per acre				\$37.83

Table 5. Budget for High-Oil Corn; \$0.24 Premium, No Extra Seed Cost, No Extra Transport Cost, No Yield Drag

High Oil Corn

	Amount	Unit	Price	Total
GROSS RETURNS PER ACRE				
Corn	120	bu	\$2.54	\$304.80
VARIABLE COSTS PER ACRE				
Fertilizer		acre		\$59.62
Pesticides				
- Herbicides		acre		31.90
- Insecticides		acre		0.00
Seed	0.352	80 K bag	90.97	32.02
Drying & Storage	120	bu	0.04	4.80
Utilities		acre		3.24
Machine Repair		acre		17.31
Cash Land Rent		acre		0.00
Machine Hire		acre		5.62
Fuel & Oil		acre		6.74
Transportation and Other	120	bu	0	0.00
Light Vehicle		acre		0.49
Hired Labor		acre		16.94
Miscellaneous		acre		3.40
Crop Insurance		acre		0.00
Interest on Variable Costs (1/2 year)	\$182.09	dollars	4.50%	8.19
TOTAL VARIABLE COSTS		per Acre		\$190.28
		per Bushel		\$1.59
FIXED COSTS PER ACRE				
Building Repair and Rent		acre		\$3.60
Insurance		acre		\$6.75
Taxes		acre		\$2.21
Depreciation				\$0.00
- Machinery		acre		\$22.27
- Buildings		acre		\$4.67
TOTAL FIXED COSTS		per Acre		\$39.50
		per Bushel		\$0.33
TOTAL COSTS		per Acre		\$229.78
		per Bushel		\$1.91
RETURN TO OPERATOR LABOR, LAND, CAPITAL, AND MANAGEMENT		per Acre		\$75.02
		per Bushel		\$0.63
Less Operator Labor	4.5	hrs	\$7.00	\$31.50
RETURN TO LAND, CAPITAL, AND MANAGEMENT		per Acre		\$43.52
		per Bushel		\$0.36
BREAKEVEN YIELD in bu to cover		Variable Costs		74.9
		Total Costs		90.5
<i>Advantage of high-oil corn over conventional corn per acre</i>				\$25.76

Table 6. Budget for High-Oil Corn; \$0.24 Premium, \$30 Extra Seed Cost, \$0.10 Extra Transport Cost, 10% Yield Drag

High Oil Corn

	Amount	Unit	Price	Total
GROSS RETURNS PER ACRE				
Corn	108	bu	\$2.54	\$274.32
VARIABLE COSTS PER ACRE				
Fertilizer		acre		\$59.62
Pesticides				
- Herbicides		acre		31.90
- Insecticides		acre		0.00
Seed	0.352	80 K bag	120.97	42.58
Drying & Storage	108	bu	0.14	15.12
Utilities		acre		3.24
Machine Repair		acre		17.31
Cash Land Rent		acre		0.00
Machine Hire		acre		5.62
Fuel & Oil		acre		6.74
Transportation and Other	108	bu	0.1	10.80
Light Vehicle		acre		0.49
Hired Labor		acre		16.94
Miscellaneous		acre		3.40
Crop Insurance		acre		0.00
Interest on Variable Costs (1/2 year)	\$213.77	dollars	4.50%	9.62
TOTAL VARIABLE COSTS		per Acre		\$223.39
		per Bushel		\$2.07
FIXED COSTS PER ACRE				
Building Repair and Rent		acre		\$3.60
Insurance		acre		\$6.75
Taxes		acre		\$2.21
Depreciation				\$0.00
- Machinery		acre		\$22.27
- Buildings		acre		\$4.67
TOTAL FIXED COSTS		per Acre		\$39.50
		per Bushel		\$0.37
TOTAL COSTS		per Acre		\$262.88
		per Bushel		\$2.43
RETURN TO OPERATOR LABOR, LAND, CAPITAL, AND MANAGEMENT				
		per Acre		\$11.44
		per Bushel		\$0.11
Less Operator Labor	4.5	hrs	\$7.00	\$31.50
RETURN TO LAND, CAPITAL, AND MANAGEMENT		per Acre		-\$20.06
		per Bushel		-\$0.19
BREAKEVEN YIELD in bu to cover		Variable Costs		87.9
		Total Costs		103.5
<i>Advantage of high-oil corn over conventional corn per acre</i>				-\$37.83

Appendix C

Income Statements

Table 7. Income Statement for Typical Kentucky Grain Farm with No Specialty Crops

INCOME STATEMENT		UK Farm Management Form: IS	
Name	Weighted Ave Grain Farm	Year Ending	1998
REVENUE			
Market Livestock			
Cash Sales	25,590	1a	
Inventory Change	2,145	1b	
Transfers to Breeding Herd		1c	27,735
			1
Livestock Products			2
Crops			
Cash Sales	403,911	3a	
Inventory Change	-60,895	3b	343,016
			3
Custom Work			4
Government Payments			56,754
			5
Patronage Dividends			6
Accounts Receivable Change			1,949
			7
Hedging Income			8
Other Farm Income			25,072
			9
GROSS REVENUE			454,527
			10
minus Market Livestock Purchases			8,335
			11
minus Feed Purchases and Crops Bought for Resale			19,734
			12
VALUE OF FARM PRODUCTION			426,458
			13
EXPENSES			
Cash Operating Expenses			319,390
			14
Prepaid Expenses Change			15,516
			15
Accounts Payable Change			771
			16
Depreciation			44,241
			17
TOTAL OPERATING EXPENSES			379,918
			18
Interest			
Interest Paid	33,208	19a	
Accrued Interest Change	2,439	19b	
TOTAL INTEREST EXPENSE			35,646
			19
NET FARM INCOME FROM OPERATIONS			10,894
			20
Gain/Loss on Sale of Capital Assets			2,867
			21
NET FARM INCOME			13,761
			22
Non-Farm Income			5,639
			23
NET INCOME BEFORE TAXES			19,401
			24
Income and Social Security Taxes			
			25
NET INCOME AFTER TAXES			
			26

Table 8. Income Statement with Half of Corn Acres in High-Oil Corn, \$0.24 Premium, \$15 Bag Extra Seed Cost, No Extra Transportation or Storage Cost, No Yield Drag

INCOME STATEMENT		UK Farm Management Form: IS	
Name	Weighted Ave Grain Farm	Year Ending	1998
REVENUE			
Market Livestock			
Cash Sales	25,590	1a	
Inventory Change	2,145	1b	
Transfers to Breeding Herd		1c	27,735 1
Livestock Products			
Crops			
Cash Sales	411,293	3a	
Inventory Change	-60,895	3b	350,398 3
Custom Work			
Government Payments			56,754 5
Patronage Dividends			
Accounts Receivable Change			1,949 7
Hedging Income			
Other Farm Income			25,072 9
GROSS REVENUE			461,908 10
minus Market Livestock Purchases			8,335 11
minus Feed Purchases and Crops Bought for Resale			19,734 12
VALUE OF FARM PRODUCTION			433,839 13
EXPENSES			
Cash Operating Expenses			321,583 14
Prepaid Expenses Change			15,516 15
Accounts Payable Change			771 16
Depreciation			44,241 17
TOTAL OPERATING EXPENSES			382,111 18
Interest			
Interest Paid	33,208	19a	
Accrued Interest Change	2,439	19b	
TOTAL INTEREST EXPENSE			35,646 19
NET FARM INCOME FROM OPERATIONS			16,081 20 (line 13 minus lines 18 and 19)
Gain/Loss on Sale of Capital Assets			2,867 21
NET FARM INCOME			18,949 22 (line 20 plus or minus line 21)
Non-Farm Income			5,639 23
NET INCOME BEFORE TAXES			24,588 24 (line 22 plus line 23)
Income and Social Security Taxes			
NET INCOME AFTER TAXES			 26 (line 24 minus line 25)

Table 9. Income Statement with Half of Corn Acres in High-Oil Corn, \$0.50 Premium for Forming a Cooperative, \$15 Bag Extra Seed Cost, No Extra Transportation or Storage Cost, No Yield Drag

INCOME STATEMENT		UK Farm Management Form: IS	
Name	Weighted Ave Grain Farm	Year Ending	1998
REVENUE			
Market Livestock			
Cash Sales	25,590	1a	
Inventory Change	2,145	1b	
Transfers to Breeding Herd		1c	27,735
			2
Livestock Products			
Crops			
Cash Sales	419,289	3a	
Inventory Change	-60,895	3b	358,394
			4
Custom Work			
			5
Government Payments			
			6
Patronage Dividends			
			7
Accounts Receivable Change			
			8
Hedging Income			
			9
Other Farm Income			
			10
GROSS REVENUE			469,905
minus Market Livestock Purchases			8,335
minus Feed Purchases and Crops Bought for Resale			19,734
VALUE OF FARM PRODUCTION			441,836
EXPENSES			
Cash Operating Expenses			321,583
Prepaid Expenses Change			15,516
Accounts Payable Change			771
Depreciation			44,241
TOTAL OPERATING EXPENSES			382,111
Interest			
Interest Paid			33,208
Accrued Interest Change			2,439
TOTAL INTEREST EXPENSE			35,646
NET FARM INCOME FROM OPERATIONS			24,078
			21
Gain/Loss on Sale of Capital Assets			2,867
NET FARM INCOME			26,945
			23
Non-Farm Income			5,639
NET INCOME BEFORE TAXES			32,585
			25
Income and Social Security Taxes			
NET INCOME AFTER TAXES			