Differences Between High-, Medium-, and Low-Profit Producers: An Analysis of 2007-2009 Kansas Farm Management Association Crop Enterprises

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Because of its importance at the individual farm level and at the policy-making level, farm profitability is a topic widely discussed in both the agricultural community and in Washington D.C. Uncontrollable macroeconomic factors such as interest rates, trade policies, and government programs/policies impact overall farm profitability. However, individual producers do have more control of profitability at the farm level relative to other producers. That is, while numerous factors beyond the producer's control impact the absolute level of profitability, producers' management abilities impact their relative profitability. In a competitive, consolidating industry such as agriculture, relative profitability dictates which producers remain in business in the long run.

For long-term business sustainability it is important to recognize which management and farm characteristics determine relative farm profitability among producers. Do profitable farms get higher yields? Do profitable farms receive higher prices for their commodities? Do they have lower costs? If they have lower costs, in what areas are their costs lower? To consider these questions, crop enterprise budgets from the Kansas Farm Management Association (KFMA) Enterprise Analysis for the years 2007-2009 were divided into three profitability groups, high, middle, and low, based on the 3-year average per acre return to management.[1] The enterprises (number of farms) included in this analysis were alfalfa (46), corn (115), irrigated corn (50), grain sorghum (128), soybean (139), and wheat (221). Enterprise analyses completed at the regional level were aggregated for the entire state for this analysis. Enterprises also were aggregated by tillage method where applicable – i.e., no-till enterprises were analyzed jointly with those including tillage (same was done for center pivot and flood irrigation in the case of irrigated corn). For a farm to be included in a specific enterprise analysis, KFMA must have had data for that enterprise each year over the 3-year period. Producer returns over a multi-year period better characterize profitability differences due to management abilities than would returns from a single year, which would be expected to be more random due to uncontrollable events (e.g., weather).[2]

Aggregation of a number of the income and expense categories reported in the KFMA enterprise reports allows for easier comparisons. Crop income was calculated for each farm-year by multiplying the yield by the operator percentage and the commodity price. Gross income included crop income plus any government payments, crop insurance payments, and any other type of miscellaneous income directly related to the production of the specific crop. Machinery costs were the summation of general machinery repairs, machinery hire net of custom work, fuel, gas, oil, market depreciation, and machinery-related labor costs. Other costs were the summation of fees, grain storage and marketing, personal property tax, general farm insurance, utility expense,

[1] The words profitability and profit used in this paper refer to the Net Return to Management measure reported in the Kansas Farm Management Association Enterprise *PROFITCENTER* Summary reports. Net Return to Management is gross income less all costs, which includes unpaid labor, depreciation, and a charge for owned land.

[2] A 5-year average (2005-2009) was also examined as this smoothes through random weather effects better than a shorter time period. However, the number of farms available for analysis would have decreased considerably – alfalfa (26), corn (52), irrigated corn (30), grain sorghum (83), soybean (71), and wheat (153). Thus, it was determined to report the results for the analysis on the larger sample size (results were generally consistent with 5-year averages).

conservation, and auto-expense. Land costs were the summation of cash rent, real estate taxes, and an opportunity cost on owned land (calculated based on a percentage of the crop times an average market price). The following is a brief discussion of the analysis for each of the different enterprises included.

Nonirrigated Corn (Table 1)

On average, high-profit farms earned $140.72 per acre more profit than the low-profit farms and averaged $65.21 per acre more than the mid-profit farms. Yields and prices varied across all three profit categories, resulting in substantial differences in gross income between the different profit categories. Low-profit farm's gross income was $97.64 per acre lower than high-profit farms, and it was $30.36 per acre lower than that of mid-profit farms. Thus, about 69% of the difference in net profit between high- and low-profit farms was due to income differences, with the other 31% being due to cost differences. Of the various cost categories, machinery costs had the largest impact on farm profitability. Machinery costs were $19.70 per acre lower for the high-profit farms relative to the low-profit farms, which is 46% of the total cost difference. The machinery cost difference between high- and mid-profit farms was only $2.04 per acre. The second largest disparity in costs between high- and low-profit farms was for fertilizer. Fertilizer costs for high-profit farms were $7.42 per acre (11%) lower than for low-profit farms. This fertilizer difference is likely price-related, as opposed to rates applied, as high-profit farms had higher yields (+17.8 bu/ac) compared to low-profit farms. Land costs for the high- and low-profit farms were lower than mid-profit farms. The high-profit farms tended to own or cash rent a greater percentage of their cropland relative to the mid- and low-profit farms. High-profit farms had lower costs relative to low-profit farms in every category except crop insurance and land costs, where low-profit farms had 4% and 5% lower costs, respectively. Of the three profit categories, mid-profit farms had the lowest total costs, significantly lower than the low-profit farms ($45.15 per acre difference) but just slightly lower costs than the high-profit farms ($2.07 per acre difference). The high-profit farms had the greatest yields and received the highest prices of all of the categories followed by the mid- and then low-profit farms. Thus, while cost control is clearly important, these results suggest that making sure that production is maintained and receiving high prices are both important. Overall, low-profit farms had costs that were $43.08 per acre (11%) higher than high-profit farms and $45.15 (12%) higher than mid-profit farms.

High-profit farms had the highest acreage with 506 acres, mid-profit farms were second with 400 acres, and low-profit farms were third with 322 acres. Thus, high-profit farms had 57% more acres (506 versus 322) than low-profit farms and 27% more acres (506 versus 400) than mid-profit farms. High-profit farms had the highest yield (123.7 bu/ac) of the three categories and low-profit farms had the lowest yield (105.9 bu/ac). At the relatively high prices received over this time period, the impact of yield differences on profitability differences is quite important. Contributing to the income differences is the fact that high-profit farms also received slightly higher prices. Of the 115 farms, 57 were classified as no-till operations. These 57 no-till operations were spread over the high-, mid-, and low-profit categories as 22, 15, and 20, respectively, indicating no-till was not a major determinant of profit ranking. Similarly, the 115 farms were from all areas of the state, with the exception of southwest Kansas, and region had no significant impact on profitability (i.e., farms for the various regions were distributed fairly evenly across all three profit categories).

In summary, high-profit farms had higher gross income, due to both higher yields and prices, compared to low-profit farms, and lower costs leading to a 3-year average difference in returns of over $140 per acre. When the difference in net return to management between the high- and low-profit farms was examined more closely, it was found that 37.9% was attributable to better

yields, 18.5% due to higher prices, and 30.6% was due to lower costs (note that an additional 13.0% was due the fact that the higher profit farms had a greater tendency to own or cash rent cropland as opposed to sharecropping, i.e., the operator percentage of production was highest for these farms). Mid-profit farms had the lowest total costs, but did not obtain the yields or prices of the high-profit farms. Still, the mid-profit farms had a $75.51 per acre advantage over the low-profit farms in net returns. Low-profit farms averaged a negative return to management of $35.08/ac over this 3-year period. Figure 1a contains a breakdown of prices and yields for the three profitability groups and Figure 1b presents a similar breakdown of each group's costs.

Irrigated Corn (Table 2)

The profitability difference between high- and low-profit farms for irrigated corn in Kansas was $256.98 per acre. As was the case for nonirrigated corn, the high-profit farms had both a yield and price advantage over both mid- and low-profit farms. However, when operator percentage was accounted for, the difference in gross income per acre was only $45.16. Thus, over 82% of the profit difference between high- and low-profit farms was due to cost differences. Unlike the case with nonirrigated corn, the mid-profit farms had the lowest yield and gross income per acre, but they were more profitable than low-profit farms because of significantly lower costs ($180.11/ac lower). Because of these lower costs, the mid-profit farms had returns that were $125.18 per acre higher than low-profit farms in spite of $54.93 per acre lower income. Both high- and mid-profit farms had lower costs than low-profit farms in every major category (i.e., focusing on total machinery costs and not its individual components). The higher land costs and operator percentage for low-profit farms suggests these farms rely less on crop share rental arrangements than the mid- and high-profit farms. The "other" cost category represented a large difference in costs between the high- and low-profit farms ($49.21/ac difference). This category is an aggregation of irrigation expenses and other whole-farm related expenses (e.g., fees, utilities, marketing). The large differences are likely due to energy sources for irrigation pumping and potentially margin calls associated with grain hedges in 2009 (specific details not available).

Low-profit farms raised 17% more acres of irrigated corn than high-profit farms, and 44% more than mid-profit farms. High-profit farms had the highest yield (198.2 bu/ac) of the three categories and mid-profit farms had the lowest yield (181.0 bu/ac). At the relatively high prices received over this time period, the impact of yield differences on profitability differences is quite important. However, that is not real apparent here because the high-profit farms only received an average of 86.6% of the crop compared to 93.9% for the low-profit farms (i.e., the high profit farms had more land rented on crop share basis). The high-profit farms also received slightly higher prices than the mid- and low-profit farms ($4.07/bu versus $3.86/bu and $3.79/bu, respectively). Of the 50 farms, 35 were classified as center pivot with the rest being furrow irrigated. These 35 center pivot operations were spread over the high-, mid-, and low-profit categories as 10, 9, and 16, respectively, indicating a minor tendency for center pivot to be slightly less profitable than furrow.

In summary, high-profit farms had the highest gross income, due to a combination of higher yields and prices, and much lower costs leading to a 3-year average difference in returns of over $256 per acre. Further analysis indicated that 16.2% of the advantage in net returns was due to higher prices, 19.9% due to yield superiority, but a negative 18.5% was due to operator percentage (i.e., operator receiving less bushels because a higher proportion of land is rented with crop share lease). After netting out the impact of the three factors affecting gross income (i.e., price, yield, and operator percentage), the majority of the net return differences (82.4%) was due to lower total costs. Mid-profit farms had the lowest gross income, but because they were efficient, having costs that were over $180 per acre lower than the low-profit farms, they averaged returns of $125.18 per acre more than low-profit farms. Low-profit farms averaged a negative return to management of $28.16

per acre over this 3-year period compared to a positive $228.82 for the high-profit farms. Figure 2a contains a breakdown of prices and yields for the three profitability groups and Figure 2b presents a similar breakdown of each group's costs.

Nonirrigated Grain Sorghum (Table 3)

On average, the high-profit farms earned $126.60 per acre more than the low-profit farms and $62.55 per acre more than mid-profit farms. Both yields and prices were highest for high-profit farms and lowest for low-profit farms. High-profit farms had the best yield with 103.1 bushels per acre, whereas low-profit farms only produced 79.9 bushels per acre and mid-profit farms produced 94.1 bushels per acre. Gross income differences account for 54.2% (7.5% due to price effect, 48.1% due to yield advantages, and -1.4% due to operator percentage effect) of the $126.60 per acre profit difference between high- and low-profit farms, and total costs account for 45.8% of the difference. Of the various cost categories, machinery costs had the largest impact on farm profitability. Machinery costs were $27.75 per acre (28%) lower for the high-profit category compared to the low-profit category. The total cost difference between high-profit farms and low-profit farms was $57.97 per acre. Thus, machinery cost differences accounted for nearly 48% of the total costs differences between high- and low-profit farms. While differences in costs for other categories were generally not very large, high-profit farms had lower costs than low-profit farms in every category except crop insurance. Costs for mid-profit farms also were higher than those of high-profit farms in every category resulting in total costs that were $36.08 per acre greater for the mid-profit farms compared to the high-profit farms.

Low-profit farms had 74% fewer acres than high-profit farms, and 28% less than mid-profit farms. All three profit categories had similar operator percentages and land costs suggesting similar land tenure arrangements. Of the 128 farms, 59 were classified as no-till operations. These 54 no-till operations were spread over the high-, mid-, and low-profit categories as 22, 23, and 14, respectively, indicating a slight tendency for no-till to be associated with a higher profit ranking. While there were not strong regional differences, farms in the northwest region had a slightly higher probability of being in the high or mid-profit category (as opposed to being in the low-profit category). Likewise, farms in the south central part of the state had a slightly higher probability of being in the low-profit category.

In summary, high-profit farms had the highest gross income, due to a combination of higher yields and prices, and lowest costs leading to a 3-year average difference in returns of approximately $127 per acre. Mid-profit farms had the second highest gross income and second lowest costs resulting in average net returns that were about $63 per acre lower than the high-profit farms but about $64 per acre higher than low-profit farms. Low-profit farms averaged a negative return to management ($40.96/ac) over this 3-year period. Figure 3a contains a breakdown of prices and yields for the three profitability groups and Figure 3b presents a similar breakdown of each group's costs.

Nonirrigated Wheat (Table 4)

The average difference in profit between high-profit and low-profit farms was $125.28 per acre, while the average difference in profit between high- and mid-profit farms was $54.62 per acre. Prices and yields descended from high- to low-profit farms with high-profit farms getting $0.29 per bushel and 7.6 bushels per acre more, respectively. The combination of higher yields and higher prices resulted in high-profit farms earning $28.46 per acre higher gross income than mid-profit farms and $50.69 per acre more than low-profit farms. While substantial differences in gross

income between the high- and low-profit farms exist, only 40.5% of the difference in net returns is income related (9.9% attributable to higher prices, 34.3% to yield advantages, and -3.8% due to lower operator percentage) with the other 59.5% due to higher costs for the low-profit farms. The difference in total costs between high- and low-profit farms was almost $75 per acre. Of the various cost categories, differences in machinery costs had the largest impact on farm profitability differences. Machinery costs were $30.52 per acre (29%) lower for the high-profit category relative to the low-profit category. Fertilizer costs were also lower for the high-profit farms ($15.32/ac). Given that high-profit farms obtained higher yields, their lower fertilizer costs was likely a price issue as opposed to lower application rates, however data did not exist to verify this. High- and mid-profit farms had lower costs than low-profit farms in every cost category, except crop insurance where they were nearly equal (in the case of the high- and low-profit farms).

A positive relationship between enterprise size (acres) and profit category exists, as larger-acre farms incurred less cost per acre than smaller-acre farms. High-profit farms farmed 29% more acres than mid-profit farms (1,002 versus 777). Mid-profit farms farmed 96% more acres than the low-profit farms (777 versus 396). All three profit categories had similar operator percentages and land costs suggesting similar land tenure arrangements (high-profit farms appear to rely slightly more on crop share arrangements, but differences are quite small). Of the 221 farms, 51 were classified as no-till operations. These 51 no-till operations were spread over the high-, mid-, and low-profit categories as 11, 18, and 22, respectively, indicating a slight negative relationship between no-till and high-profit ranking. There were slight regional differences regarding profitability (data not shown). Farms from the south central and northwest regions had a higher proability of being in the high-profit category and farms in the northeast region had a higher probability of being in the low-profit category.

In summary, high-profit farms had the highest income, lowest cost, and highest acreage of the three groups leading to a 3-year average difference in returns of approximately $125 per acre. Mid-profit farms had the second highest gross income and second lowest costs leading to a 3-year average difference in returns of about $70 per acre more than low-profit farms. Low-profit farms had lowest income, highest cost, and smallest acreage of the three profit categories leading to a negative average return to management of $73.38 over the 3-year period analyzed. Figure 4a contains a breakdown of prices and yields for the three profitability groups and Figure 4b presents a similar breakdown of each group's costs.

Nonirrigated Soybeans (Table 5)

On average, the net return to management for high-profit farms was $141.18 per acre higher than low-profit farms and $68.23 per acre higher than mid-profit farms. High-profit farms had higher yields and higher prices compared to mid- and low-profit farms. These higher yields and prices resulted in high-profit farms having $94.12 per acre higher crop income than the low-profit farms and $33.05 per acre higher than mid-profit farms. Thus, of the $141.18 per acre difference in profitability between high- and low-profit farms, two-thirds (66.7%) was gross income related (11.8% due to price effect, 45.7% due to yield effect, and 9.1% due to operator percentage effect), with the remaining 33.3% ($47.06/ac) coming from the cost differences. Of the various cost categories, machinery costs had the largest impact on farm profitability. Machinery costs were $32.71 per acre (30%) lower for the high-profit category relative to the low-profit category. High-profit farms had lower costs than low-profit farms in every cost category, except land. Total costs for mid-profit farms were $35.18 per acre higher than for high-profit farms and $11.88 per acre lower than low-profit farms.

Low-profit farms had the smallest acreage planted to soybeans at 208 acres compared to 358 acres for high-profit farms and 324 acres for mid-profit farms. Low-profit farms had a slightly lower operator percentage indicating they rely more on crop share arrangements than the other categories. Of the 139 farms, 49 were classified as no-till operations. These 49 no-till operations were spread over the high-, mid-, and low-profit categories as 17, 21, and 11, respectively, indicating that no-till farms had a lower probability of being in the low-profit category that would be expected at random (i.e., there appears to be a positive relationship between no-till adoption and profitability for soybean farms). The majority of the soybean farms were from the north central and northeast regions of the state, but there was little or no relationship between region and profitability.

In summary, high-profit farms had both the highest gross income and the lowest cost of the three different groups leading to a 3-year average difference in returns of approximately $141/acre. Mid-profit farms had the second highest gross income and second lowest costs leading to a 3-year average difference in returns of about $73 per acre more than low-profit farms. Low-profit farms had lowest income, highest cost, and smallest acreage of the three profit categories and averaged $9.08 per acre return to management over the 3-year period. Figure 5a contains a breakdown of prices and yields for the three profitability groups and Figure 5b presents a similar breakdown of each group's costs.

Nonirrigated Alfalfa (Table 6)

The average difference in profit between high- and low-profit farms was $182.75 per acre. The difference between high- and mid-profit farms was $101.34 per acre. The high-profit farms had the highest yield (4.3 tons/ac) and the low-profit farms had the lowest yield (3.1 tons/ac). Average prices again favored the more profitable farms ranging from $100.40/ton to $87.28/ton for the high- to low-profit farms, respectively. Thus, the difference in gross income between high- and low-profit farms ($166.63/ac) was due primarily to yield differences but hay prices also played a significant role. The overwhelming majority (91.2%) of the profitability difference between high- and low-profit farms was due to income (49.3% yield effects, 29.0% price effects, and 12.9% operator percentage effects), while the other 8.8% ($16.12/ac) was due to cost differences. Of the various cost categories, machinery costs had the largest impact on farm profitability. Machinery costs were almost $18 per acre lower for high-profit farms relative to the low-profit farms. High-profit farms had lower costs than low-profit farms in all categories except seed, fertilizer, and land costs. The costs for the mid-profit farms were similar to high-profit farms (only $5.90/ac difference). Thus, the main difference in net returns between these two groups ($101.34/ac) was due to income differences (primarily yield as opposed to price) and not costs.

An interesting note with alfalfa, is that it was the only enterprise with a quasi-inverse relationship between enterprise size (acres) and profit category. High-profit farms had considerably lower alfalfa acreage relative to mid- and low-profit farms. The lower costs on these smaller acres could be related to how producers allocate some of their fixed expenses to the alfalfa enterprise because it is doubtful that diseconomies of size exist. The operator percentages for alfalfa also were generally higher than with the other crops indicating alfalfa was planted on owned or cash rented land more often relative to other crops. More than the other five crops considered in this report, the price received for alfalfa is heavily dependent upon the quality of the finished product (e.g., condition and amount of leaves, protein levels, etc.). The price effect on profitability differences was larger for alfalfa than for any other crop analyzed which is likely a function of the product being less homogenous with regards to quality and packaging (i.e., bale type and size). Since the high-profit farms received over $13/ton (+15%) more than the low-profit farms, this likely indicates that these producers were producing a higher quality product and/or found better markets for their

feedstuff. Related to this, smaller alfalfa enterprises may be more capable of putting up a crop in good condition (e.g., without hay getting rained on) since the time window for putting up high-quality hay can be quite narrow at times.

In summary, high-profit farms had significantly higher income and slightly lower costs compared to the low-profit farms leading to a 3-year average difference in returns of $182.75 per acre. The total costs of the mid-profit farms was only slightly better than the low-profit farms ($10.22/ac lower), but their gross incomes were over $71 per acre higher leading to a 3-year average difference in returns of $81.40 per acre more than low-profit farms. That is, mid-profit farms had costs comparable to low-profit farms and gross incomes about halfway in between high- and low-profit farms resulting in returns roughly $100 per acre worse than high-profit farms, but $80 better than low-profit farms. Low-profit farms had the lowest income and highest cost of the three profit categories resulting in a negative 3-year average return to management of $14.88 per acre. Figure 6a contains a breakdown of prices and yields for the three profitability groups and Figure 6b presents a similar breakdown of each group's costs.

Summary

Several conclusions can be drawn from this information. The difference between the average profit (returns to management) for high-profit and low-profit farms ranged from $125.28 for wheat to $256.98 for irrigated corn (see Table 7). This indicates there are extremely large differences in profitability across producers at a point in time (here, the years 2007-2009). Furthermore, for all enterprises examined (with the exception of nonirrigated soybeans and nonirrigated wheat), the bottom third of producers had negative average returns compared to the mid- and high-profit farms that had positive returns. That is, even during relatively good economic times (for the most part 2007 to 2009 were good years for crop producers in Kansas), the bottom one-third of producers, in general, are not profitable. This wide disparity in profitability makes it difficult to design policy that supports agriculture because the needed support varies considerably.

For all enterprises except irrigated corn and alfalfa, the low-profit farms had the smallest acres devoted to that enterprise providing some evidence that larger operations are more profitable. Furthermore, in all cases (again excluding alfalfa) the high-profit farms had more acres devoted to the enterprise than the mid-profit farms indicating the importance of farm size. For nearly all enterprises examined, high-profit farms had both the highest revenue and the lowest cost, with the relative importance of cost versus income varying from one crop to another. For example, differences in profit between high- and low-profit farms for irrigated corn was almost entirely due to cost differences (82.4%); whereas, profit differences for soybeans and alfalfa were due more to revenue differences (66.7% and 91.2%, respectively). Figure 7a shows the crop income advantage for high-profit farms versus low-profit farms and decomposes the total advantage into three parts – price effect, yield effect, and operator percentage effect. For all of the enterprises examined, the average yield difference plays a larger role in explaining income differences than the average price difference. That is, for those enterprises where income differences are important in explaining profit differences, it is the higher yields that are primarily responsible for the income difference.

Figure 7b shows the relative importance of income differences in explaining profit differences for each of the enterprises over four different time periods – 1-year (2009), 3-year average (2007-09), 5-year average (2005-09), and 7-year average (2003-09). The number of farms listed represents the total number of farms included in the analysis, which decreases with longer time periods given that the analysis required a farm to have data for each year in order to be included. The data for the 699 farms in 2007-09 represent the information summarized in Tables 1-6. What is quite apparent from this figure is that income differences are generally less important in

explaining profit differences as the length of time included in the analysis increases. This is exactly what would be expected if price (and yields to a lesser extent) received in a given year are somewhat random, i.e., the ability for an individual producer to get better than average prices year in and year out is unlikely. Analyzing data from only 2009 indicates that income differences explain a large part of profitability differences between high- and low-profit farms. Given the extremely wide variation in prices throughout the year, this is likely due to when a particular producer sold their grain. However, with five or seven years of data (2005-09 and 2003-09) the importance of income differences decreases significantly and thus the importance of cost control increases (actually over 100% of the differences in profit for irrigated corn for these two longer time periods was due to cost differences).

For most of the enterprises considered, machinery costs represented a major cost difference between high- and low-profit farms. The difference in machinery costs between these two groups ranged from $17.79 per acre for alfalfa to $32.71 per acre for soybeans, with most enterprises in the vicinity of $25 per acre. While $25 per acre may not seem like a terribly high number for irrigated enterprises or for crops in the Corn Belt, it is quite significant for nonirrigated crop production in Kansas where the average cash rental rate as reported by Kansas Agricultural Statistics for 2009 was $46.50. Differences in machinery costs between high- and low-profit farms accounted for anywhere from 41% to 110% (with a simple average across all nonirrigated enterprises of 63%) of the total cost differences between these farm categories for the nonirrigated crops. Thus, machinery management is one of the areas producers should focus their efforts to improve their relative profit positions.

Table 1. Kansas Farm Management Association Enterprise Analysis

Nonirrigated Corn -- State Averages, 2007-2009

	Profit Category			Difference between High 1/3 and Low 1/3	
	High 1/3	Mid 1/3	Low 1/3	Absolute	%
Number of farms	38	39	38		
Enterprise acres	506	400	322	184	57%
Yield per acre, bu	123.7	110.3	105.9	17.8	17%
Operator percentage	88.7%	87.7%	84.6%	4.2%	5%
Price per bushel	$3.91	$3.77	$3.67	$0.25	7%
	430	365	329	$101.34	
INCOME ($/acre)					
Crop income	$423.88	$360.26	$326.72	$97.17	30%
Gross income	**$452.11**	**$384.83**	**$354.47**	**$97.64**	**28%**
COSTS ($/acre)[1]					
Seed	$42.30	$38.98	$46.13	-$3.83	-8%
Fertilizer	$60.06	$57.47	$67.48	-$7.42	-11%
Herbicide-insecticide	$29.03	$28.73	$35.12	-$6.10	-17%
Crop insurance	$17.84	$15.07	$17.12	$0.72	4%
Repairs	$19.06	$18.59	$23.89	-$4.84	-20%
Machine hire	$5.35	$11.57	$9.28	-$3.93	-42%
Fuel	$15.35	$16.75	$17.79	-$2.44	-14%
Depreciation	$23.42	$19.41	$26.98	-$3.55	-13%
Labor	$27.11	$26.02	$32.05	-$4.94	-15%
Total machinery	$90.29	$92.33	$109.99	-$19.70	-18%
Other	$23.38	$24.03	$28.79	-$5.41	-19%
Land	$59.82	$65.30	$56.71	$3.11	5%
Interest	$23.75	$22.49	$28.21	-$4.46	-16%
Total Cost	**$346.47**	**$344.40**	**$389.55**	**-$43.08**	**-11%**
Net Return to Management	**$105.64**	**$40.43**	**-$35.08**	**$140.72**	

[1] Based on the operator's share of production, and thus includes only production expenses paid by the operator.

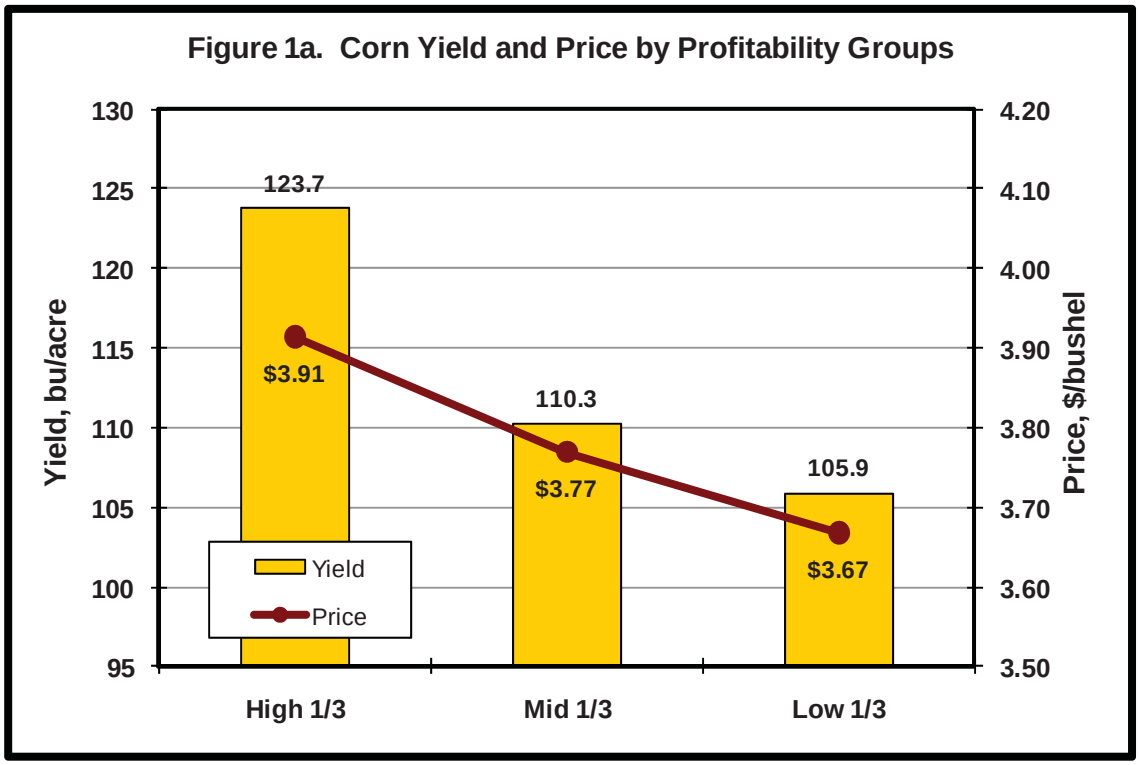

Figure 1a. Relationship between price and yields for low-, medium- and high-profit farms, Nonirrigated corn enterprise.

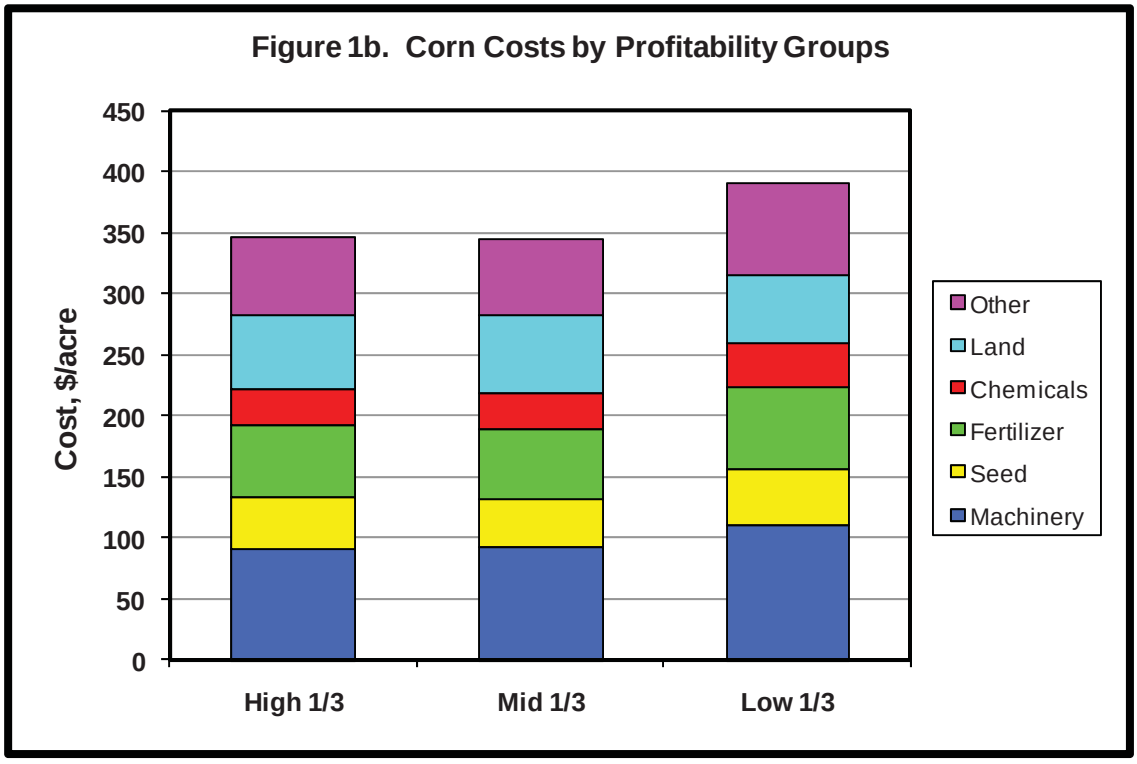

Figure 1b. Relationship of different costs between low-, medium-, and high-profit farms, Nonirrigated corn enterprise.

Table 2. Kansas Farm Management Association Enterprise Analysis

Irrigated Corn -- State Averages, 2007-2009

	Profit Category			Difference between High 1/3 and Low 1/3	
	High 1/3	Mid 1/3	Low 1/3	Absolute	%
Number of farms	17	16	17		
Enterprise acres	568	464	667	-99	-15%
Yield per acre, bu	198.2	181.0	181.6	16.6	9%
Operator percentage	86.6%	81.7%	93.9%	-7.3%	-8%
Price per bushel	$4.07	$3.86	$3.79	$0.28	7%
INCOME ($/acre)					
Crop income	$698.85	$570.21	$646.90	$51.95	8%
Gross income	**$741.91**	**$641.82**	**$696.75**	**$45.16**	**6%**
COSTS ($/acre)[1]					
Seed	$49.96	$57.82	$77.89	-$27.93	-36%
Fertilizer	$82.37	$87.89	$108.51	-$26.14	-24%
Herbicide-insecticide	$38.37	$47.75	$56.22	-$17.85	-32%
Crop insurance	$16.11	$26.46	$31.48	-$15.37	-49%
Repairs	$19.73	$25.78	$29.31	-$9.57	-33%
Machine hire	$15.04	$10.80	$12.93	$2.11	16%
Fuel	$26.90	$20.93	$22.72	$4.18	18%
Depreciation	$31.76	$31.91	$38.10	-$6.34	-17%
Labor	$24.92	$29.22	$38.20	-$13.28	-35%
Total machinery	$118.35	$118.64	$141.26	-$22.91	-16%
Other	$88.30	$93.04	$137.52	-$49.21	-36%
Land	$86.60	$75.57	$122.86	-$36.25	-30%
Interest	$33.02	$37.63	$49.18	-$16.16	-33%
Total Cost	**$513.09**	**$544.80**	**$724.91**	**-$211.82**	**-29%**
Net Return to Management	**$228.82**	**$97.02**	**-$28.16**	**$256.98**	

[1] Based on the operator's share of production, and thus includes only production expenses paid by the operator.

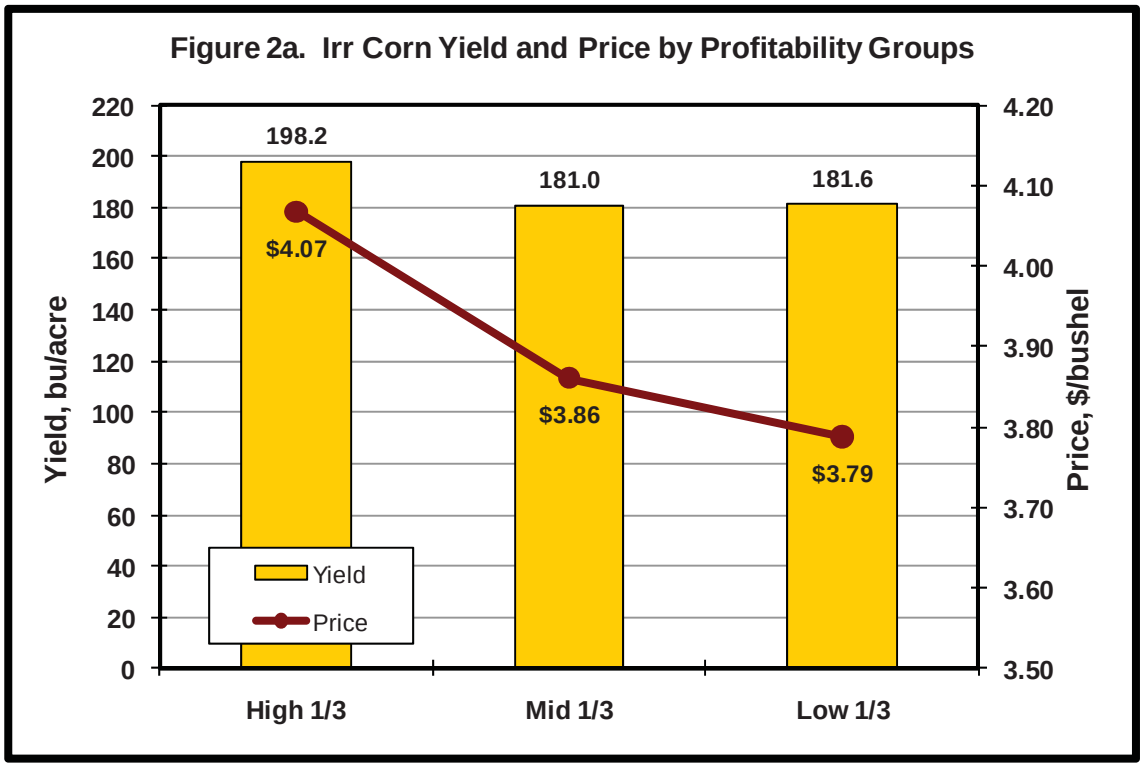

Figure 2a. Relationship between price and yields for low-, medium-, and high-profit farms, Irrigated corn enterprise.

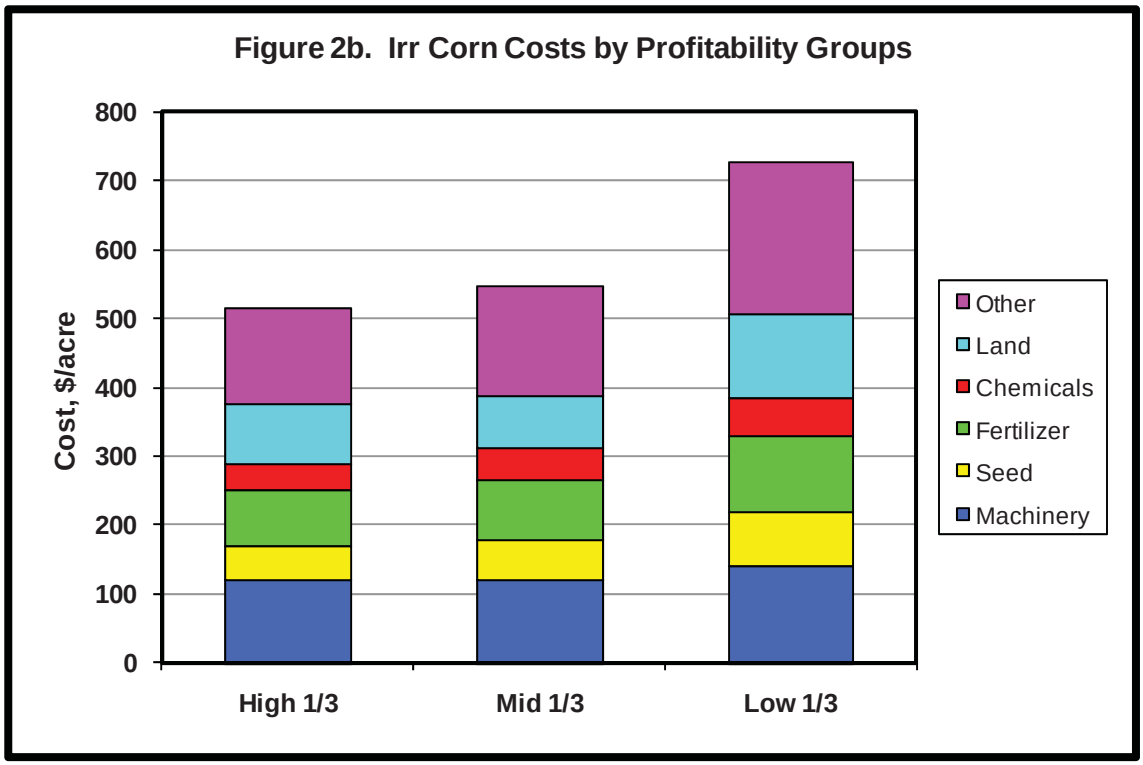

Figure 2b. Relationship of different costs between low-, medium-, and high-profit farms, Irrigated corn enterprise.

Table 3. Kansas Farm Management Association Enterprise Analysis

Nonirrigated Sorghum -- State Averages, 2007-2009

	Profit Category			Difference between High 1/3 and Low 1/3	
	High 1/3	Mid 1/3	Low 1/3	Absolute	%
Number of farms	43	42	43		
Enterprise acres	473	348	271	201	74%
Yield per acre, bu	103.1	94.1	79.9	23.2	29%
Operator percentage	83.0%	83.0%	83.5%	-0.6%	-1%
Price per bushel	$3.51	$3.40	$3.39	$0.12	4%
INCOME ($/acre)					
Crop income	$299.04	$265.09	$226.25	$72.78	32%
Gross income	**$319.68**	**$293.21**	**$251.05**	**$68.63**	**27%**
COSTS ($/acre)[1]					
Seed	$12.27	$13.28	$14.80	-$2.53	-17%
Fertilizer	$40.94	$49.38	$44.76	-$3.81	-9%
Herbicide-insecticide	$28.74	$36.59	$36.50	-$7.77	-21%
Crop insurance	$11.06	$12.65	$10.82	$0.24	2%
Repairs	$15.58	$17.62	$19.60	-$4.02	-21%
Machine hire	$4.82	$4.87	$9.85	-$5.03	-51%
Fuel	$13.14	$14.81	$16.10	-$2.96	-18%
Depreciation	$17.08	$18.08	$18.94	-$1.87	-10%
Labor	$20.15	$26.49	$34.02	-$13.87	-41%
Total machinery	$70.77	$81.88	$98.52	-$27.75	-28%
Other	$18.32	$21.23	$27.08	-$8.76	-32%
Land	$36.36	$38.08	$39.85	-$3.49	-9%
Interest	$15.58	$17.04	$19.69	-$4.11	-21%
Total Cost	**$234.04**	**$270.12**	**$292.02**	**-$57.97**	**-20%**
Net Return to Management	**$85.64**	**$23.09**	**-$40.96**	**$126.60**	

[1] Based on the operator's share of production, and thus includes only production expenses paid by the operator.

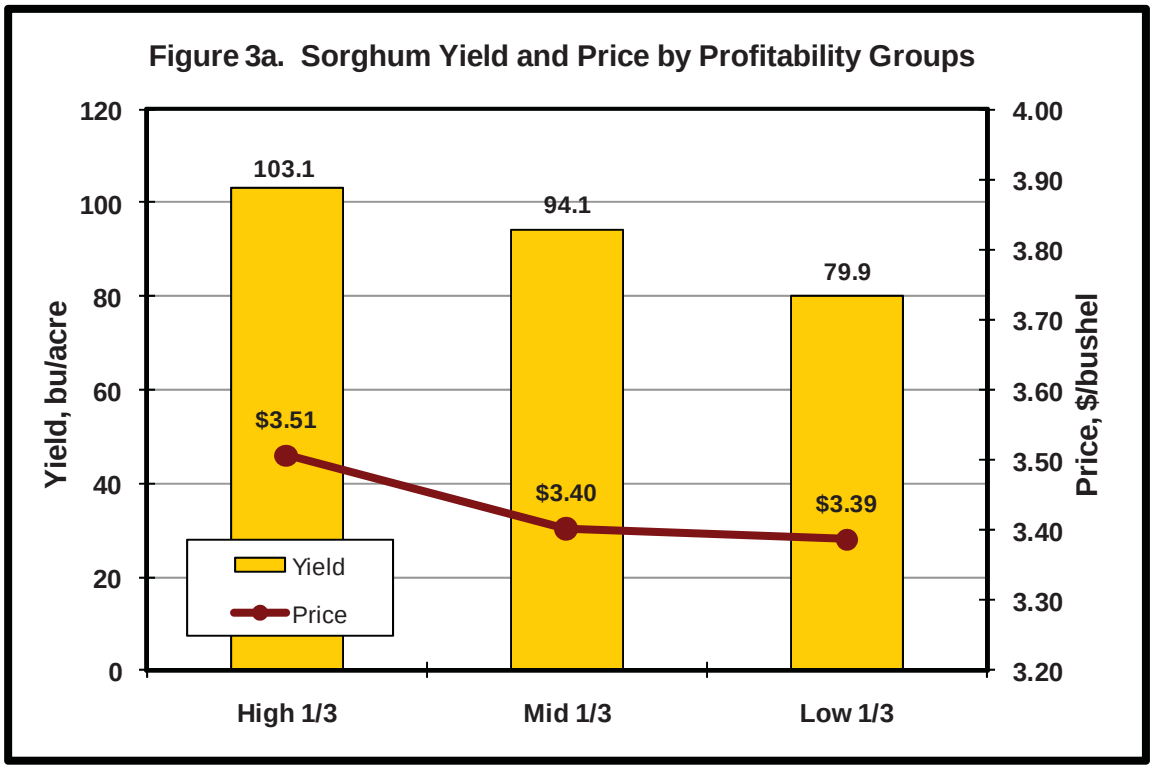

Figure 3a. Relationship between price and yields for low-, medium-, and high-profit farms, Sorghum enterprise.

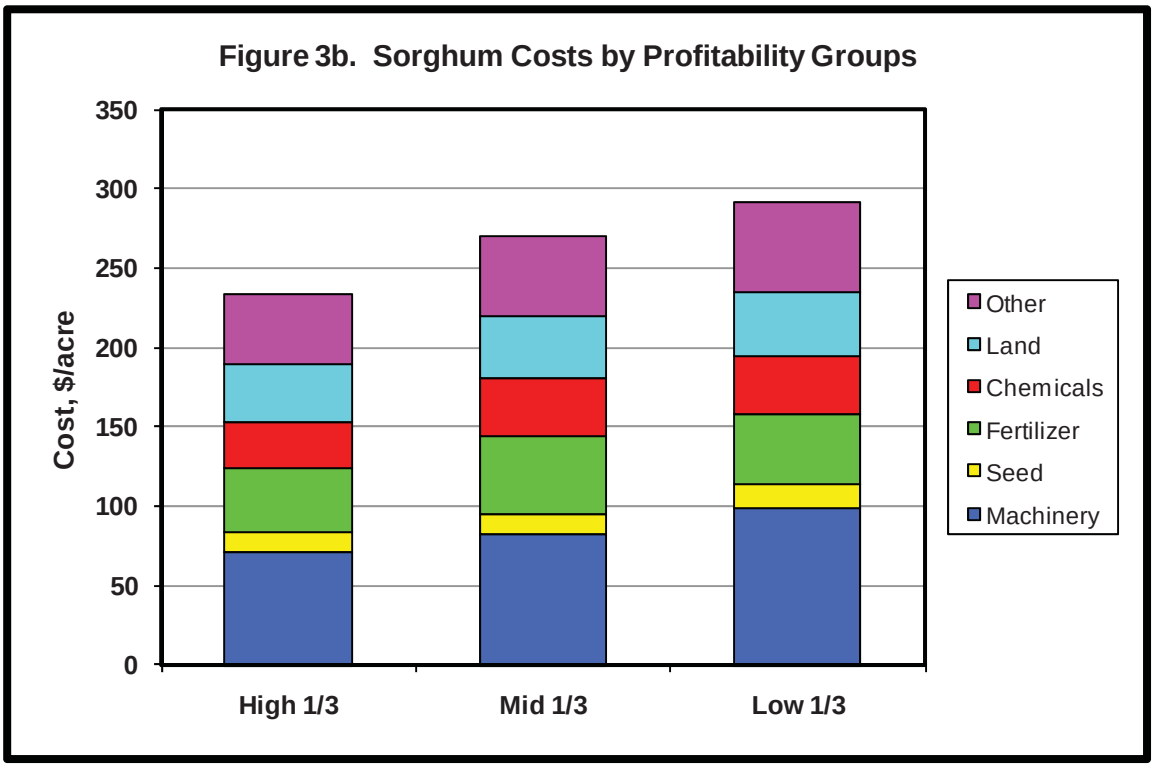

Figure 3b. Relationship of different costs between low-, medium-, and high-profit farms, Sorghum enterprise.

Table 4. Kansas Farm Management Association Enterprise Analysis

Nonirrigated Wheat -- State Averages, 2007-2009

	Profit Category			Difference between High 1/3 and Low 1/3	
	High 1/3	Mid 1/3	Low 1/3	Absolute	%
Number of farms	74	73	74		
Enterprise acres	1,002	777	396	606	153%
Yield per acre, bu	43.6	38.3	36.0	7.6	21%
Operator percentage	83.3%	84.8%	84.9%	-1.6%	-2%
Price per bushel	$5.97	$5.84	$5.68	$0.29	5%
INCOME ($/acre)					
Crop income	$217.30	$190.18	$172.14	$45.16	26%
Gross income	**$259.87**	**$231.41**	**$209.18**	**$50.69**	**24%**
COSTS ($/acre)[1]					
Seed	$11.69	$12.44	$13.83	-$2.14	-16%
Fertilizer	$36.35	$46.88	$51.67	-$15.32	-30%
Herbicide-insecticide	$9.65	$10.58	$13.08	-$3.42	-26%
Crop insurance	$10.82	$12.25	$10.78	$0.04	0%
Repairs	$15.27	$17.17	$22.70	-$7.43	-33%
Machine hire	$6.41	$5.12	$9.82	-$3.41	-35%
Fuel	$14.22	$13.27	$17.17	-$2.94	-17%
Depreciation	$17.68	$18.38	$19.71	-$2.02	-10%
Labor	$21.89	$25.24	$36.60	-$14.71	-40%
Total machinery	$75.48	$79.18	$106.00	-$30.52	-29%
Other	$18.51	$20.88	$29.58	-$11.06	-37%
Land	$30.77	$34.28	$38.18	-$7.41	-19%
Interest	$14.70	$17.64	$19.45	-$4.75	-24%
Total Cost	**$207.97**	**$234.13**	**$282.56**	**-$74.59**	**-26%**
Net Return to Management	**$51.90**	**-$2.72**	**-$73.38**	**$125.28**	

[1] Based on the operator's share of production, and thus includes only production expenses paid by the operator.

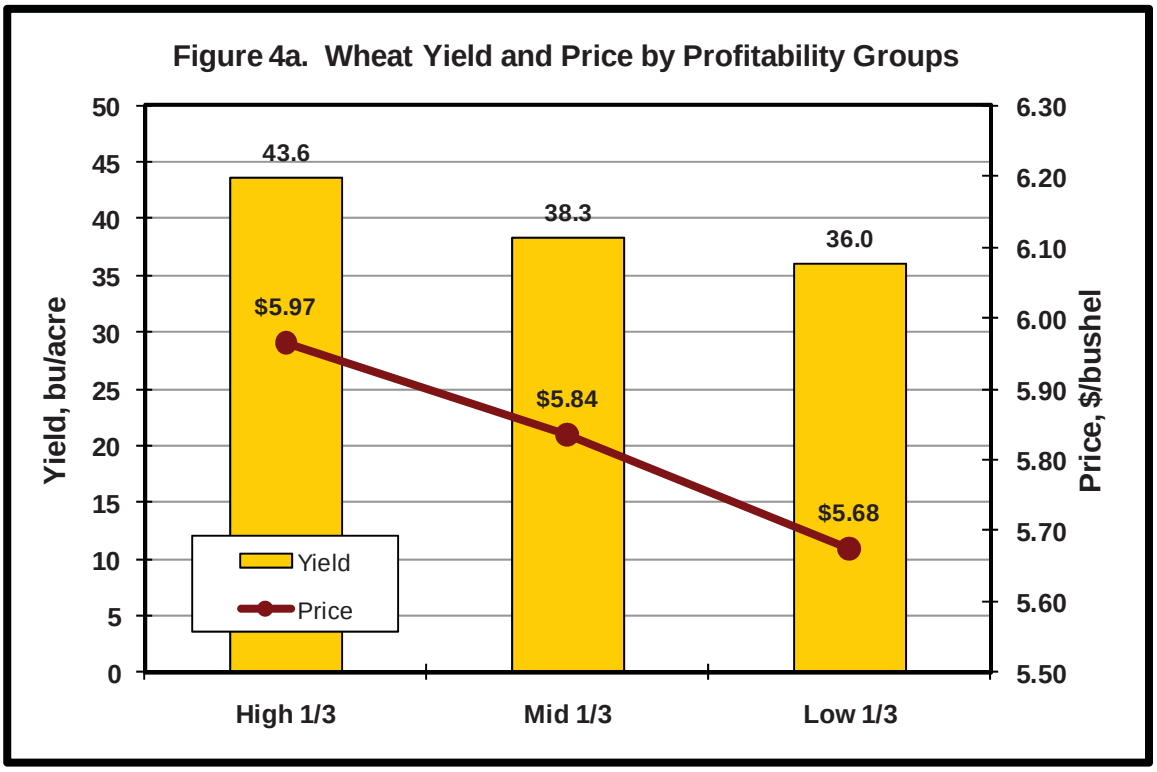

Figure 4a. Relationship between price and yields for low-, medium-, and high-profit farms, Wheat enterprise.

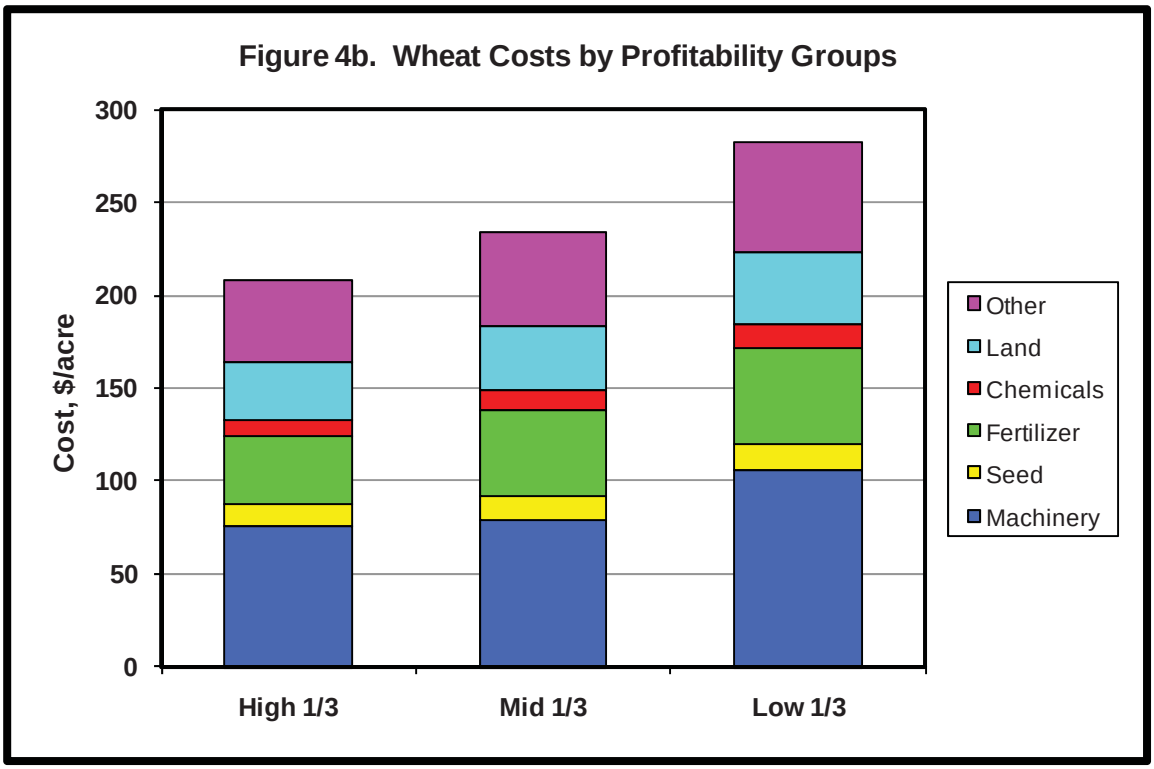

Figure 4b. Relationship of different costs between low-, medium-, and high-profit farms, Wheat enterprise.

Table 5. Kansas Farm Management Association Enterprise Analysis

Nonirrigated Soybeans -- State Averages, 2006-2008

	Profit Category			Difference between High 1/3 and Low 1/3	
	High 1/3	Mid 1/3	Low 1/3	Absolute	%
Number of farms	46	47	46		
Enterprise acres	358	324	208	150	72%
Yield per acre, bu	44.8	42.0	36.9	7.8	21%
Operator percentage	87.5%	86.7%	84.5%	3.0%	3%
Price per bushel	$9.55	$9.39	$9.15	$0.40	4%
INCOME ($/acre)					
Crop income	$373.38	$341.37	$281.87	$91.51	32%
Gross income	**$395.95**	**$362.90**	**$301.83**	**$94.12**	**31%**
COSTS ($/acre)[1]					
Seed	$33.42	$37.40	$35.72	-$2.30	-6%
Fertilizer	$8.24	$9.66	$9.16	-$0.92	-10%
Herbicide-insecticide	$22.37	$24.60	$25.04	-$2.67	-11%
Crop insurance	$12.27	$15.07	$11.63	$0.64	6%
Repairs	$17.81	$19.23	$24.83	-$7.02	-28%
Machine hire	$3.69	$5.91	$9.03	-$5.35	-59%
Fuel	$13.47	$15.18	$16.44	-$2.97	-18%
Depreciation	$17.98	$19.52	$24.72	-$6.74	-27%
Labor	$24.95	$28.39	$35.60	-$10.64	-30%
Total machinery	$77.90	$88.24	$110.61	-$32.71	-30%
Other	$19.72	$24.45	$29.95	-$10.23	-34%
Land	$55.41	$62.26	$49.25	$6.15	12%
Interest	$16.37	$19.20	$21.39	-$5.02	-23%
Total Cost	**$245.69**	**$280.87**	**$292.75**	**-$47.06**	**-16%**
Net Return to Management	**$150.26**	**$82.03**	**$9.08**	**$141.18**	

[1] Based on the operator's share of production, and thus includes only production expenses paid by the operator.

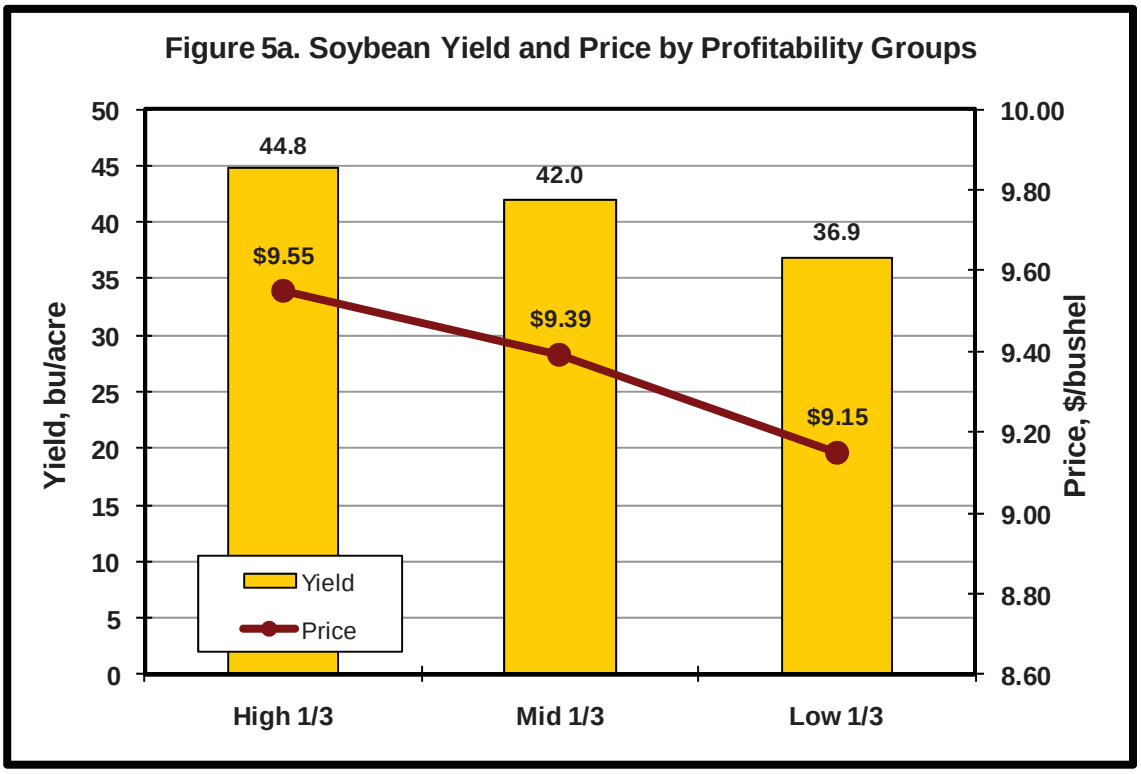

Figure 5a. Relationship between price and yields for low-, medium-, and high-profit farms, Soybean enterprise.

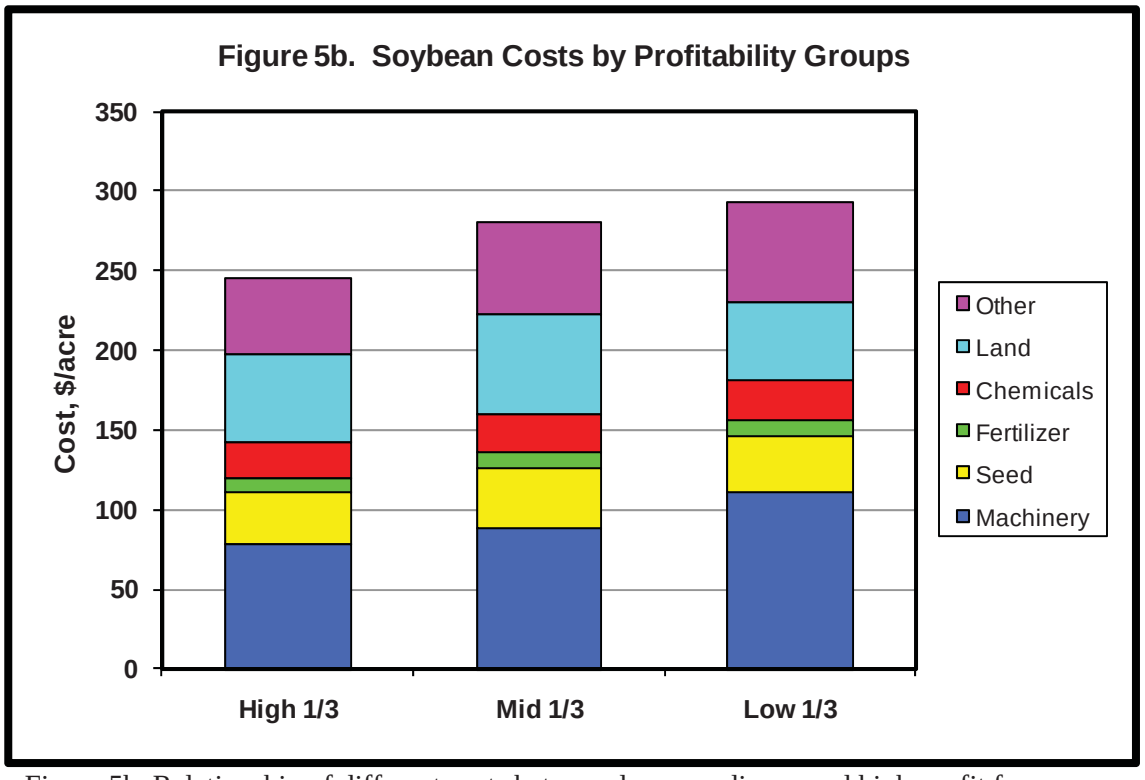

Figure 5b. Relationship of different costs between low-, medium-, and high-profit farms, Soybean enterprise.

Table 6. Kansas Farm Management Association Enterprise Analysis

Alfalfa -- State Averages, 2007-2009

	Profit Category			Difference between High 1/3 and Low 1/3	
	High 1/3	Mid 1/3	Low 1/3	Absolute	%
Number of farms	15	16	15		
Enterprise acres	79	108	107	-28	-26%
Yield per acre, tons	4.3	3.4	3.1	1.2	38%
Operator percentage	98.2%	97.0%	91.7%	6.5%	7%
Price per ton	$100.40	$97.20	$87.28	$13.12	15%
INCOME ($/acre)					
Crop income	$415.97	$323.32	$248.06	$167.91	68%
Gross income	**$428.20**	**$332.75**	**$261.57**	**$166.63**	**64%**
COSTS ($/acre)[1]					
Seed	$13.05	$11.40	$11.62	$1.42	12%
Fertilizer	$13.69	$12.44	$11.02	$2.67	24%
Herbicide-insecticide	$11.40	$8.36	$14.50	-$3.10	-21%
Crop insurance	$0.00	$0.07	$0.40	-$0.40	-100%
Repairs	$21.25	$27.71	$28.73	-$7.48	-26%
Machine hire	$13.02	$12.74	$9.73	$3.29	34%
Fuel	$14.45	$17.51	$18.86	-$4.41	-23%
Depreciation	$25.03	$28.40	$27.61	-$2.58	-9%
Labor	$35.69	$37.27	$42.30	-$6.61	-16%
Total machinery	$109.44	$123.63	$127.23	-$17.79	-14%
Other	$27.58	$27.57	$33.41	-$5.83	-17%
Land	$65.35	$64.18	$54.09	$11.26	21%
Interest	$19.82	$18.59	$24.18	-$4.36	-18%
Total Cost	**$260.33**	**$266.23**	**$276.45**	**-$16.12**	**-6%**
Net Return to Management	**$167.86**	**$66.52**	**-$14.88**	**$182.75**	

[1] Based on the operator's share of production, and thus includes only production expenses paid by the operator.

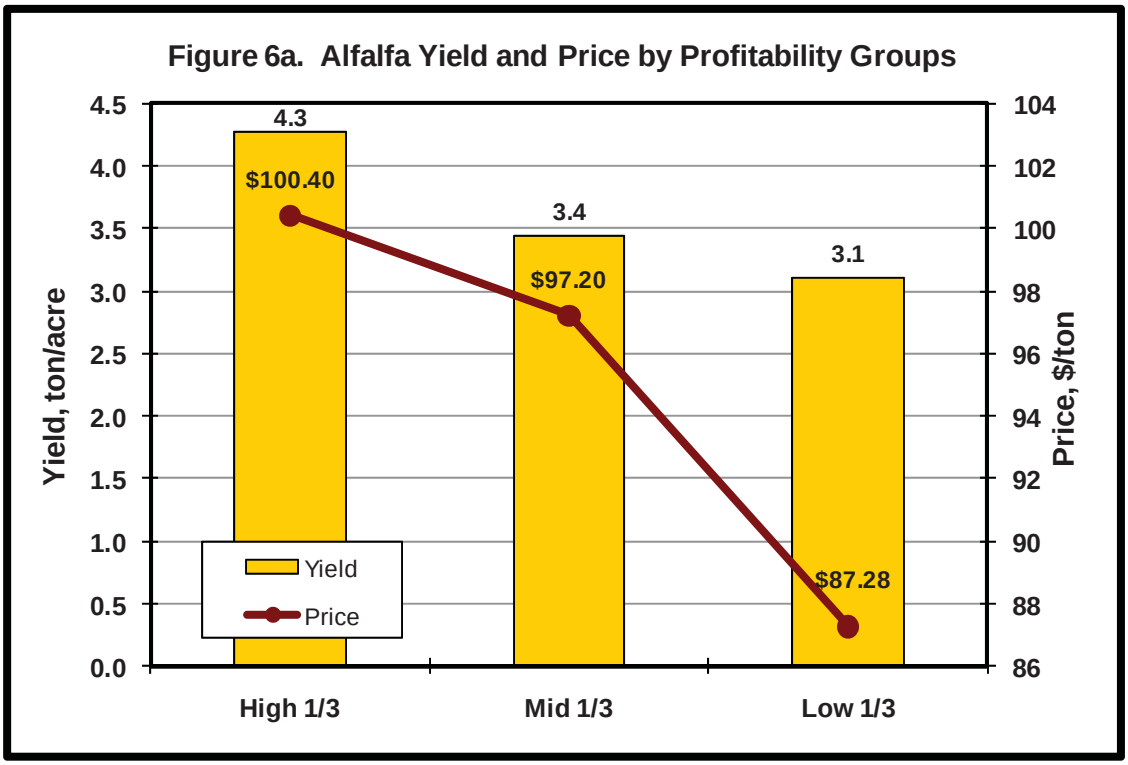

Figure 6a. Relationship between price and yields for low-, medium-, and high-profit farms, Alfalfa enterprise.

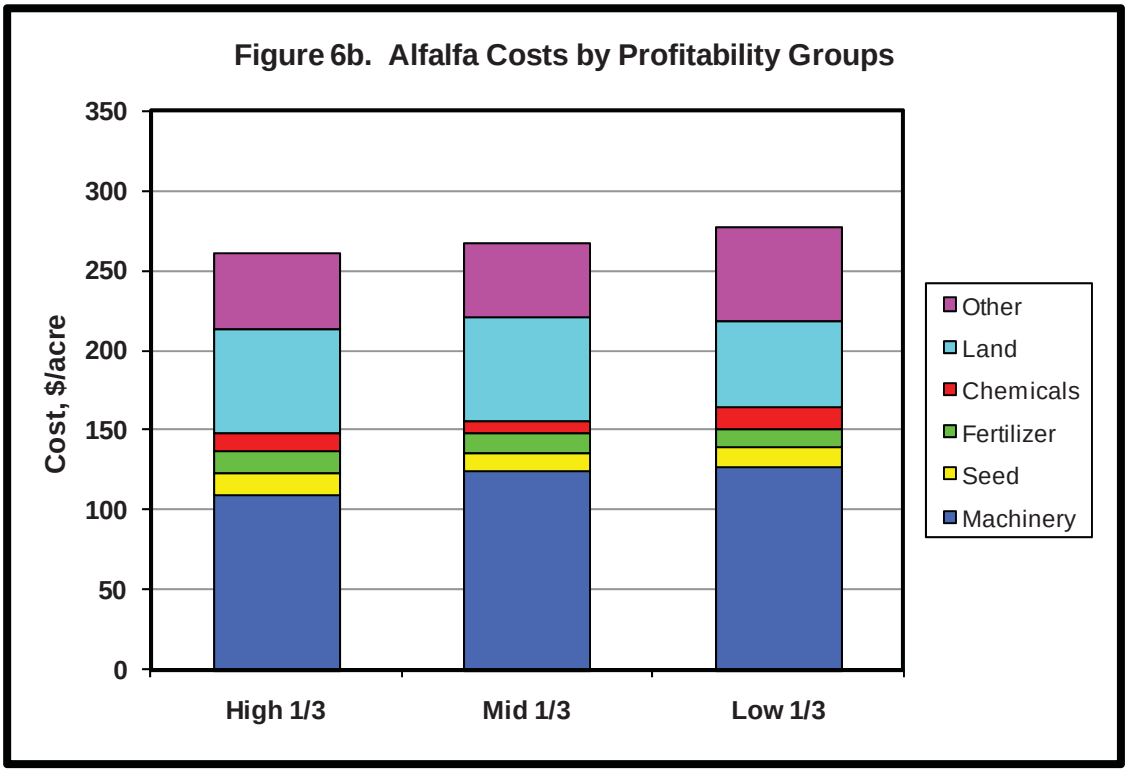

Figure 6b. Relationship of different costs between low-, medium-, and high-profit farms, Alfalfa enterprise.

Table 7. Difference between the High 1/3 and Low 1/3 farms ranked on return to management
Kansas Farm Management Association Enterprise Analysis
State Averages, 2007-2009

	Corn	Irr Corn	Sorghum	Wheat	Soybean	Alfalfa
Number of farms	115	50	128	221	139	46
Enterprise acres	184	-99	201	606	150	-28
Yield per acre, bu	17.8	16.6	23.2	7.6	7.8	1.2
Operator percentage	4.2%	-7.3%	-0.6%	-1.6%	3.0%	6.5%
Price per unit	$0.25	$0.28	$0.12	$0.29	$0.40	$13.12
Yield effect	37.9%	19.9%	48.1%	34.3%	45.7%	49.3%
Price effect	18.5%	16.2%	7.5%	9.9%	11.8%	29.0%
Operator % effect	13.0%	-18.5%	-1.4%	-3.8%	9.1%	12.9%
Cost effect	30.6%	82.4%	45.8%	59.5%	33.3%	8.8%
INCOME ($/acre)						
Crop income	$97.17	$51.95	$72.78	$45.16	$91.51	$167.91
Gross income	**$97.64**	**$45.16**	**$68.63**	**$50.69**	**$94.12**	**$166.63**
COSTS ($/acre)[1]						
Seed	-$3.83	-$27.93	-$2.53	-$2.14	-$2.30	$1.42
Fertilizer	-$7.42	-$26.14	-$3.81	-$15.32	-$0.92	$2.67
Herbicide-insecticide	-$6.10	-$17.85	-$7.77	-$3.42	-$2.67	-$3.10
Crop insurance	$0.72	-$15.37	$0.24	$0.04	$0.64	-$0.40
Repairs	-$4.84	-$9.57	-$4.02	-$7.43	-$7.02	-$7.48
Machine hire	-$3.93	$2.11	-$5.03	-$3.41	-$5.35	$3.29
Fuel	-$2.44	$4.18	-$2.96	-$2.94	-$2.97	-$4.41
Depreciation	-$3.55	-$6.34	-$1.87	-$2.02	-$6.74	-$2.58
Labor	-$4.94	-$13.28	-$13.87	-$14.71	-$10.64	-$6.61
Machinery	-$19.70	-$22.91	-$27.75	-$30.52	-$32.71	-$17.79
Other	-$5.41	-$49.21	-$8.76	-$11.06	-$10.23	-$5.83
Land	$3.11	-$36.25	-$3.49	-$7.41	$6.15	$11.26
Interest	-$4.46	-$16.16	-$4.11	-$4.75	-$5.02	-$4.36
Total Cost	**-$43.08**	**-$211.82**	**-$57.97**	**-$74.59**	**-$47.06**	**-$16.12**
Net Return to Management	**$140.72**	**$256.98**	**$126.60**	**$125.28**	**$141.18**	**$182.75**

[1] Based on the operator's share of production, and thus includes only production expenses paid by the operator.

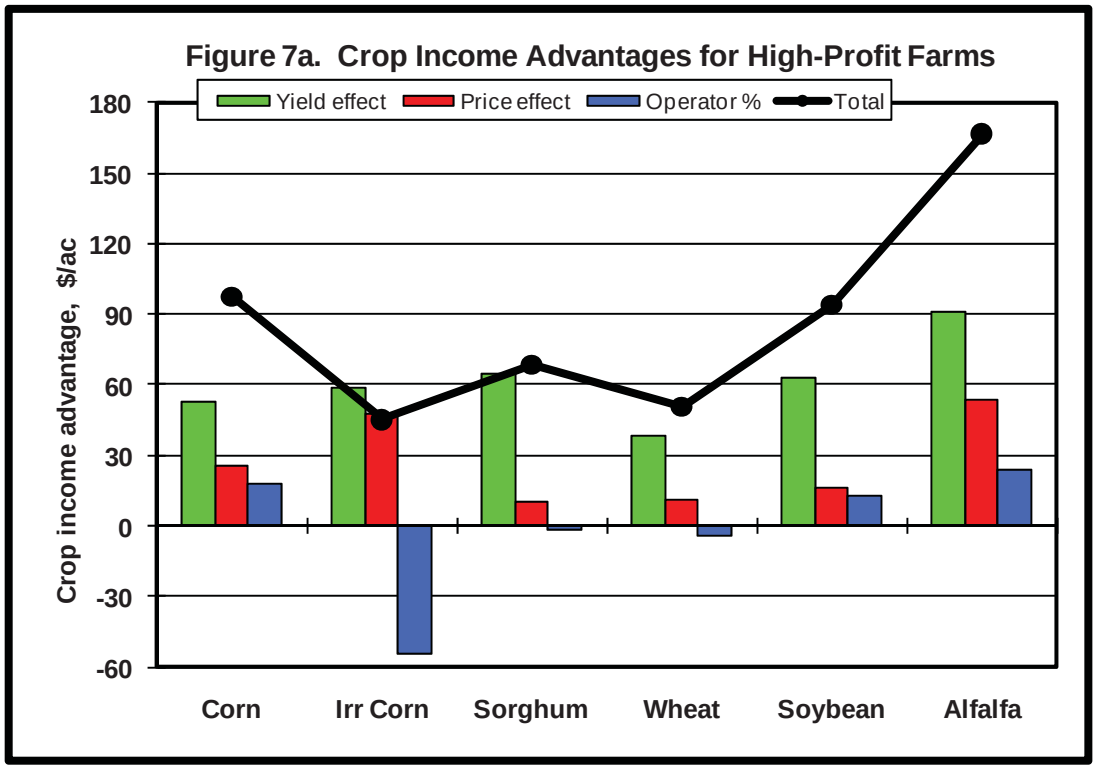

Figure 7a. Income advantages of high-profit farms over low-profit farms for different crops analyzed.

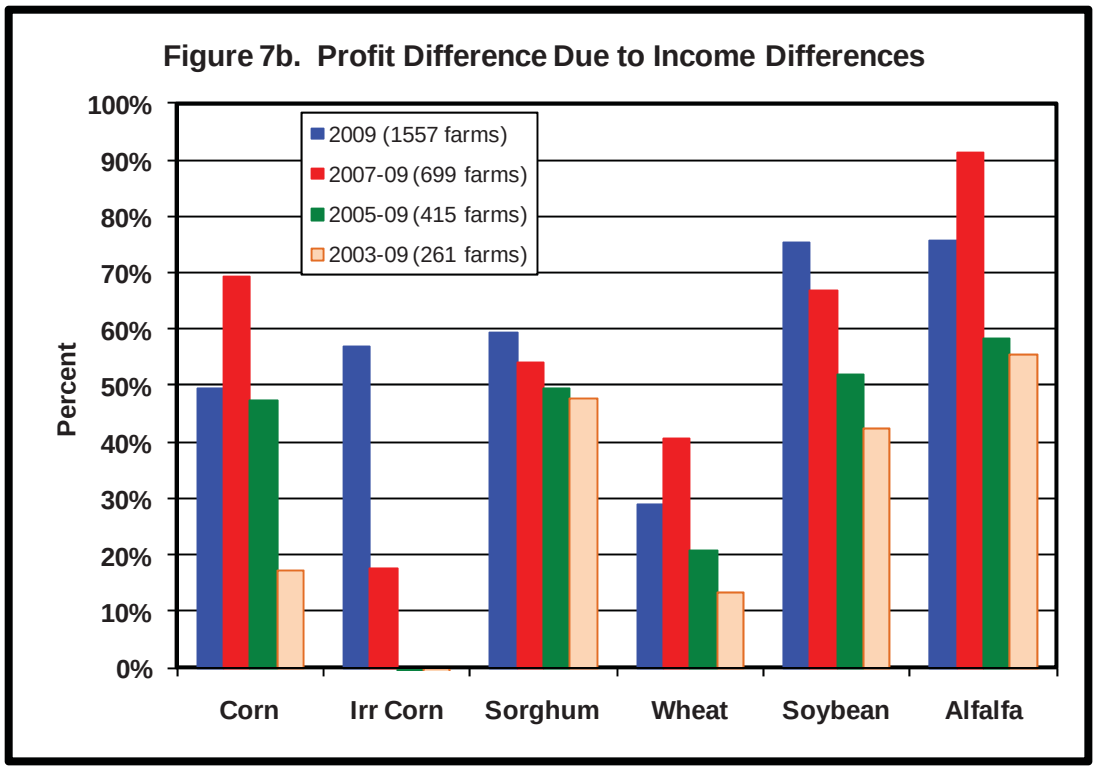

Figure 7b. Importance of income differences in explaining differences in profit between high-profit and low-profit farms for various time periods.