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Kentucky Farm Business Management Program

Preliminary Grain Analysis Summary

2015

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Contents

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The Farm Business Management Specialists listed below collected and processed the data used in this report. Their attention to details and accuracy of records are what make these results so valuable to farmers and to those working with farmers throughout the state.

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A Special Note to Our Readers

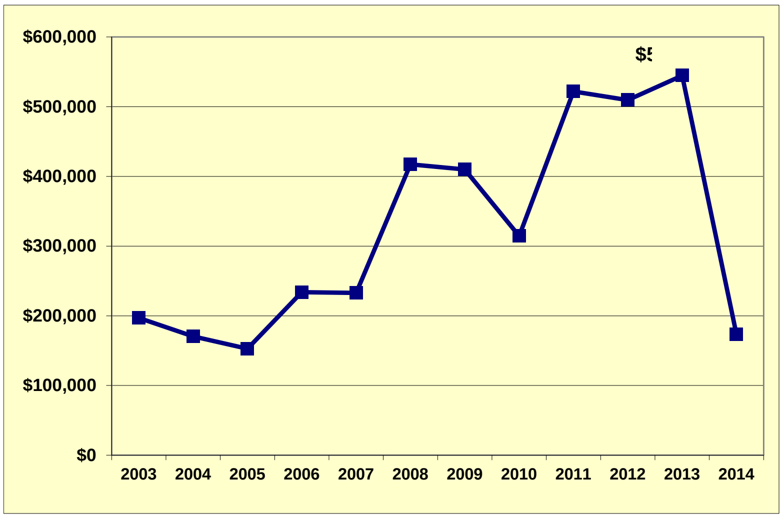
The data for this study are drawn from the detailed financial and production records of producers cooperating with the Kentucky Farm Business Management Program. The data are not drawn from a random sample of farms in the state. However, these data are the most accurate and detailed farm financial data available to researchers and educators. Every attempt has been made to select a set of farms for these research studies which are "typical" operations and have complete financial information available for analysis. These data are carefully cross-checked by our farm management specialists before inclusion in this analysis. It should be noted that farms included in this study are representative of commercial farms producing major commodities and livestock, but not of all farms in Kentucky.

PRELIMINARY GRAIN SUMMARY ANALYSIS

INTRODUCTION

Profitability for US grain farms was extraordinarily high for a period of eight years between 2006 and 2013. The primary factor driving profitability was commodity prices, especially corn and soybeans. Commodity prices fell dramatically in 2014, resulting in significant drops in grain farm profitability.

Figure 1. Historic Net Farm Income KFBM Grain



Kentucky grain farmers have experienced the same eight-year period of high profitability followed by a dramatic drop. This can be illustrated by charting Net Farm Incomes for grain farms participating in the Kentucky Farm Business Management (KFBM) program (Figure 1). Net Farm Income (NFI) is the value of farm production less total operating expenses and interest, plus net gain or loss on machinery and buildings sold. It includes returns to the farm for operator labor, interest on invested capital, and management. KFBM is a cooperative effort between the Department of Agricultural Economics of the University of Kentucky and farmers participating in four Farm Analysis Groups.

Farm managers, consultants, and lenders are faced with challenges as a result of the fall in commodity prices and drop in profitability as they make plans for the next year. Projections made in the fall of 2015 indicated further weakening of commodity prices, farm income, and farm balance sheets for 2015. Actual data from 2015 can provide a more accurate picture of the year's profitability and financial condition. Comparing performance for 2015 to 2014 may also give insight into specific items that may require adjustment or provide opportunities.

This publication looks at 2015 grain farm data from three perspectives: 1) comparison of actual data collected for 2015 to projections presented at the December 2015 Kentucky Farm Bureau Federation Annual Meeting Press Conference; 2) comparison 2015 farm performance and profitability data to 2014; and 3) examination of the effect of including farms with few acres of tobacco to grain farm profitability.

The analysis is preliminary in that only grain farms with usable data submitted as of March 21, 2015, were used. It is meant to be used as a reference for obtaining advance information about Kentucky grain farms. To see the complete publication of annual summary data, and for other publications based on the data, go to http://www.uky.edu/Ag/KFBM.

COMPARING ACTUAL TO PROJECTED RETURNS

Preliminary data from the KFBM program indicates that profitability for Kentucky grain farms has fallen from 2014 as predicted, but that financial condition has not eroded as much as expected.

Projected Returns

USDA projections of changes in income and expenses from 2014 to 2015 suggested that average NFI for KFBM grain farms would fall to $95,352 (November, 2015). USDA projections for each item of income and expense were applied to actual 2014 KFBM grain farm data. These projections were reported as part of the Kentucky Agricultural Economic Review and Outlook at the 2015 Kentucky Farm Bureau Federation Annual Meeting Press Conference. The resulting projected NFI was lower than the actual returns experienced by KFBM grain farms included in annual summary data reports for 13 of the past 14 years, and considerably lower than the $544,511 NFI peak in 2013 (Figure 2).

Figure 2. Historic Net Farm Income KFBM Grain

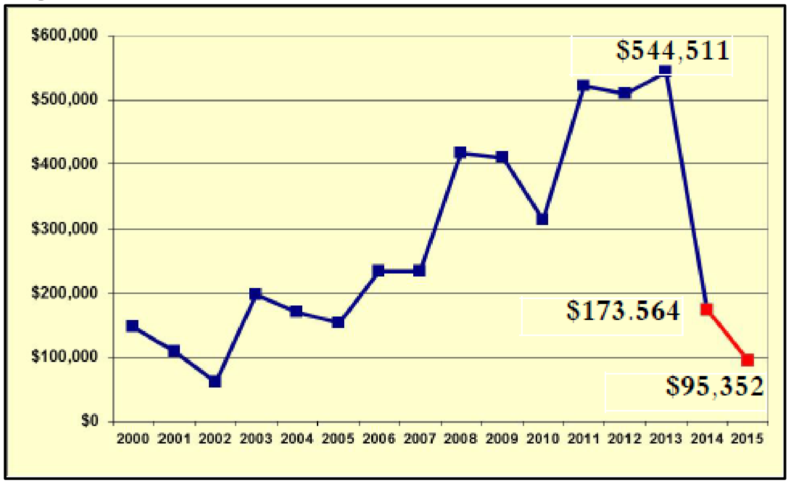
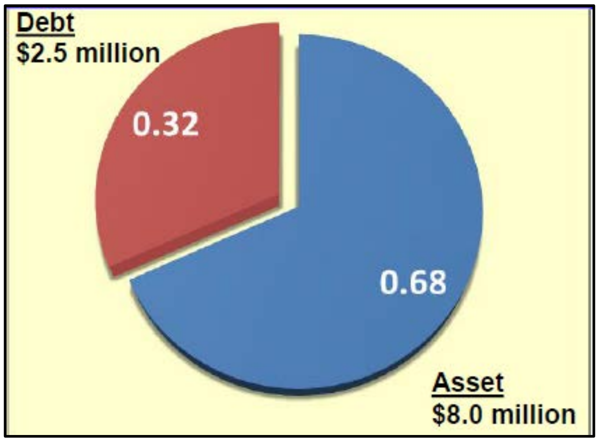


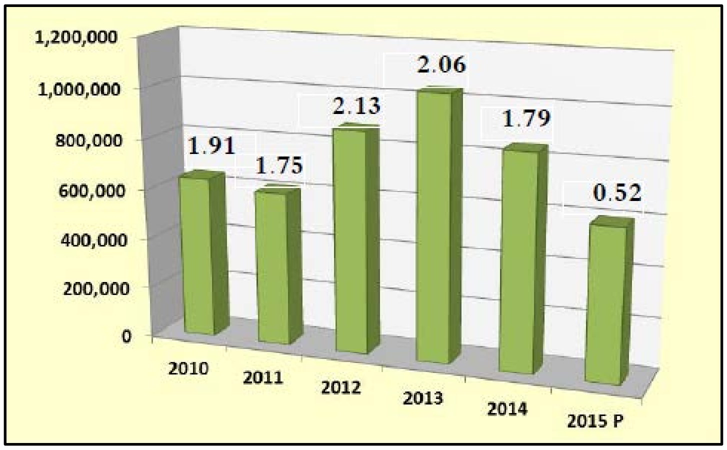
Figure 3. Debt to Asset



USDA projected changes for grain farms also indicated that the average KFBM grain farm would increase total liabilities by approximately $100,000 to $2.5 million against $8 million in total assets. Debt-to-Asset ratio would rise slightly from 0.30 to 0.32. Debt-to-Asset ratio is a common measure of long-term solvency found by dividing total farm liabilities by total farm assets. Agricultural industry financial ratio benchmarks suggest that a debt-to-asset ratio of 30% to 60% marks the area of caution for grain farms (Figure 3).

More significantly, lower net incomes would reduce liquidity, the ability of the business to meet its debt obligations for the next 12 months with current assets. Liquidity is commonly expressed as working capital and working capital ratio, or current ratio. Working capital is current assets minus current liabilities, including principal payments due in the next 12 months. Current ratio compares current assets to current liability. A ratio of 2:1 indicates that current farm assets are twice the amount of current year liabilities.

Figure 4. Working Capital and Current Ratio

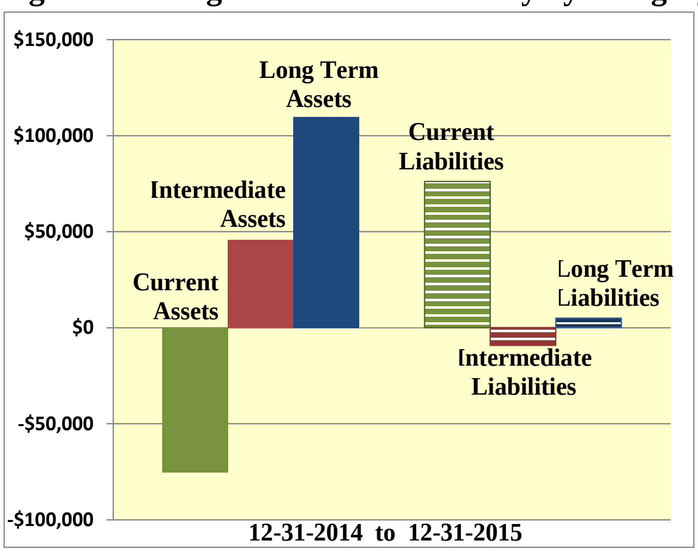


Applying USDA projected changes in grain farm income and expense indicated that working capital on KFBM grain farms would drop nearly $250,000 by the end of the year, and that working capital ratio would also drop from 1.79:1 to 0.52:1. The average KFBM grain farm would not be able to meet debt obligations for the next 12 months with current assets and would likely have difficulty obtaining operating loans (Figure 4).

Actual Returns

Accrual income and expense data was collected from grain farms participating in KFBM during 2015. This data represents a summary of 2015 performance data, both financial and physical, from 160 Kentucky grain farm businesses. Actual Net Farm Income (NFI) averaged $87,560. Actual NFI is close to projected returns suggested based on changes in the November USDA outlook. Note that Actual NFI for these particular farms is 16% of what the average KFBM grain farm earned in 2013 (Table 1).

Figure 5. Change in Asset and Liability by Category



Comparing balance sheets from December 2015 to December 2014 indicates change in financial condition for the average grain farm for the year. A balance sheet represents financial condition at a point in time (Tables 2-3). The average farm had $2.2 million in total liabilities and $7.1 million in total assets at the end of 2015. Increases in long-term and non-farm intermediate-term assets offset the decreases in current assets and increases in current liabilities. Debt-to-Asset ratio rose slightly to 0.31, indicating healthy long-term financial solvency. There was a slight increase in net worth - the difference between total assets and total liabilities (Figure 5).

Liquidity did not fall as drastically for these farms as suggested by using USDA projections. Average working capital fell by $151,551 as year-end inventory fell, use of prepaid expenses dropped off, and farmers used up cash. Current ratio dropped to 1.59:1, indicating an erosion of short-term liquidity, but more than sufficient capital to meet principal obligations for the year.

COMPARING KFBM GRAIN FARMS YEAR-TO-YEAR

Profitability for Kentucky grain farms fell 18% from the previous year. This is based on the experience of 143 farms that participated in the Kentucky Farm Business Management program (KFBM) in both 2014 and 2015. The farms were included in the both the 2015 Preliminary Analysis and the 2014 Annual Summary Data. Profitability, as measured by Net Farm Income (NFI), averaged $99,221 in 2015 compared to $121,049 for the same farms in 2014. On a per acre basis, NFI was $43 in 2015 compared to $54 in 2014 (Tables 4 and 5).

Cost of Production

Cost of production was slightly lower for 2015. Average total non-feed cost for 2015 averaged $824.03 per acre compared to $848.36 per acre for 2014. The $24 per acre difference came mostly from crop and power costs. Crop total, including chemical, seed, and fertilizer, was down 6% (about $16 per acre). Power cost was also down 6% (about $10 per acre), largely due to lower fuel and oil cost. Power cost includes utilities, machinery repair and depreciation, fuel and oil, and light vehicle. Most other costs were nearly unchanged. Purchased feed is not included as a cost of production but is deducted from gross revenue in calculating Value of Farm Production.

Interest on equity charge decreased 2% or about $2 per acre. Equity charge is calculated on the average value of assets for the year. Accrual interest <u>increased</u> 7%, or about $2 per acre. Accrual interest is cash interest paid less the amount payable from last year plus the amount payable for this year. Equity values for inventory, livestock, equipment, and cash on hand were dropping while actual interest owed was increasing. Interest rates remained unchanged over the past year, so the increase in interest owed is due to increased borrowing or unpaid debt.

Very little change in land rent is evident in these farms. Average rent paid per rented acre increased by $1.42 (170.61-169.19). Leasing cost is a reclassification of costs paid by operator on the portion of share rent acres that produced revenue for the <u>landlord</u>. Machinery depreciation per acre remained the same as 2014. This indicates that little new equipment was added on average. Note that straight line depreciation over a longer cost recovery period is used here rather than depreciation reported on the tax return.

Gross Revenue

Gross Farm Returns (GFR) fell 4% or $32.46 per acre, primarily because of decline in crop and tobacco revenues. Farms with greater than 39% of GFR from tobacco revenue are excluded from. Revenue from tobacco averaged 4% of GFR (Figure 6).

Figure 6. Gross Farm Revenue per Operator Acre

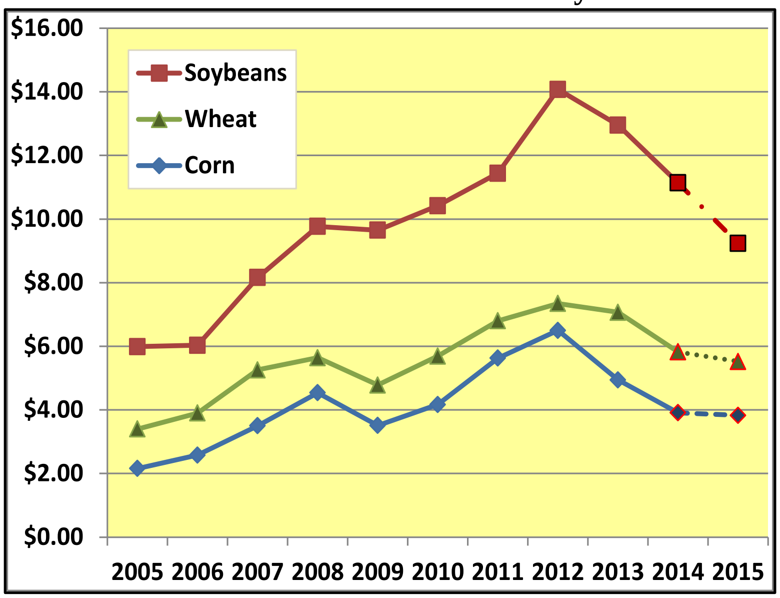
FARM RETURNS	2015	2014	Difference	% Change
Crop Returns	$698.89	$717.89	-19.01	-3%
Livestock Returns Above Feed	13.22	14.66	-1.45	-10%
Custom Work	8.05	8.02	0.04	0%
Other Farm Receipts	31.19	33.00	-1.80	-5%
Tobacco Receipts	31.96	42.19	-10.24	-24%
GROSS FARM RETURNS	**$783.30**	**$815.76**	**-32.46**	**-4%**

Crop insurance receipts were less than half that received in 2014, a loss of $39,776 in gross revenue or $17.71 per acre. However, the decline was offset by miscellaneous income and government payments in Other Farm Receipts, so the net effect was a negative $1.80 in revenue.

Crop Production and Prices

Historic average prices received by all KFBM farms for soybeans, wheat, and corn from 2005-2014 show an upward trend beginning in 2007. The upward trend peaked in 2012 and turned downward for 2013-2014. Adding prices received by KFBM farms in the 2015 preliminary analysis to historic average prices for all KFBM farms suggests that, while soybean prices continued to fall, wheat and corn prices moderated (Figure 7).

Figure 7. Historic Average Prices Received All Farms
2015 Prices Received Preliminary Grain Farms



Soybean yields were mixed as double crop soybean yield improved and full season soybean yield declined. New crop prices for soybeans fell 14-15% compared to 2014. Lower prices and yields reduced full season soybean revenue by $90 per acre. Higher double crop soybean yields increased revenue by almost $12 per acre. Wheat yields were slightly up while prices were slightly down in 2015. Poor quality was an issue in some areas. The net effect was an $8 per acre increase in wheat revenue.

Corn yields averaged 20 bushel per acre more than in 2014. New crop prices received for 2015 corn were about the same as for 2014 crop. This raised corn revenue by $70 per acre.

There was some shift in the corn-soybean-wheat rotation from year to year. Acres planted to corn fell about 6% as these farms increased soybean and wheat production by about 12%.

Financial Condition

Financial analysis of the average KFBM grain farm in this study is mixed. A financial stoplight analysis reveals acceptable liquidity, good solvency, poor profitability, and poor financial efficiency. Stoplight analysis is a graphic representation of financial ratios in a format indicating progression from good through caution to warning based on agricultural industry financial ratio benchmarks (Table 6).

The average grain farm is operating with $2.3 million in total liabilities against $7.5 million in assets. A 31% debt-to-asset ratio is borderline between good and caution, indicating good long-term solvency or financial stability. Grain farms are considered to be at low risk when the ratio of debt to assets is below 30% and at high risk when the ratio approaches 60%.

Note that fair market values of intermediate assets like equipment and breeding stock tend to soften when farm profitability falls and remains comparatively low. Be cautious in valuing assets for balance sheet purposes. Intermediate assets represent a business investment of more than one year and their value should not be tied to fluctuating markets nor inflated unreasonably.

The current ratio measures liquidity, the farm's ability to meet its principal obligations for the year from current assets on hand at first of the year. Current assets include cash, inventory, and prepaid expenses. Principal obligations include operating notes, accounts payable, and the portion of scheduled notes due in the next 12 months. At the end of 2015 the average farm had $1.6 million in current assets against $1.0 million in obligations. That results in a current ratio of 1.6 and about $600,000 in working capital.

Return on assets (ROA) measures the pre-tax rate of return on the investment in farm assets. Return on equity (ROE) compares pre-tax returns to the owners' net worth. Grain farms are considered to be at high risk when the rate of return on assets approaches 1% and return on equity drops below 5%. For 2015, profitability ratios for these farms are approaching high risk compared to all assets and suggest a threatening of owner equity. The threat would be in falling prices for inventory and equipment if the farm is forced to liquidate assets.

Financial efficiency ratios measure how well the farm uses its assets or structures its cost of production. Asset turnover ratio shows how effectively farm assets are used to generate revenue. The average farm generated $0.27 for every $1 of asset. An asset turnover ratio of 20% or less indicates a dangerously inefficient use of farm assets.

The expense ratios divide some part of total operating expense by value of farm production. Operating expense ratio shows that operating cost is nearly 80% of gross revenue. This leaves very little return to debt servicing, operator labor, interest on invested capital, and management. This suggests an erosion of liquidity and inability to obtain financing of operations will follow. Note that depreciation expense ratio is relatively low and that interest expense ratio is low. This suggests that the average KFBM grain farm is using both in an efficient manner and that neither is a major burden on value of farm production.

THE IMPACT OF TOBACCO ON GRAIN NET FARM INCOME

Tobacco was cultivated on 22% of the farms in this study in 2015 (Figure 6). On average, tobacco contributed 4% to GFR and made up 1.3% of acres. There were 13% fewer acres planted in 2015, yields dropped 6%, and two farms dropped the crop in 2015. Prices remained about the same. Tobacco revenue dropped 24% as a result, reducing average GFR $10.24 per acre.

Comparing the 109 grain farms with zero tobacco for both 2015 and 2014 reveals some differences and similarities. Profitability fell 24% from the previous year, compared to 18% for all KFBM grain farms. NFI fell $27,794, resulting in a per acre profit of $38.69 compared to $52.13 in 2014 and -$39.22 per acre management returns (Tables 7-8).

Gross Farm Revenue declined 4% for farms regardless of whether there was tobacco revenue. For zero tobacco farms it was a $33.26 per acre drop. Nearly the entire decline was in crop revenue (Figure 7).

Figure 7. Gross Farm Revenue per Operator Acre

FARM RETURNS	2015	2014	Difference	% Change
Crop Returns	$695.97	$727.00	-31.02	-4%
Livestock Returns Above Feed	15.56	16.78	-1.22	-7%
Custom Work	7.63	7.97	-0.34	-4%
Other Farm Receipts	30.00	30.67	-0.67	-2%
Tobacco Receipts	0.00	0.00	0.00	0%
GROSS FARM RETURNS	**$749.16**	**$782.41**	**-33.26**	**-4%**

Average total non-feed cost was about 3% lower than year before for all farms and for farms without tobacco. Total costs for farms with no tobacco were $23.95 per acre lower in 2015. Crop and power costs were the main areas of cost reduction with $15.03 per acre and $11.52 per acre respectively. Interest charge was the about the same, but accrued interest per acre increased more for zero tobacco farms. Rent per rented acre decreased by an average $3.54 compared to the $1.42 increase for all farms. Size of farm was about the same whether tobacco was present or not. Farms with zero tobacco tend to have slightly more acres under share rent than cash rent.

Bottom line, KFBM grain farms with zero tobacco faired about the same in 2014 as those with less than 39% tobacco revenue. Net Farm Income and management returns were about the same for the two groups on a per acre basis. But the presence of tobacco in the average increased NFI by 10% and management returns by 7% over the group of grain farms with zero tobacco in 2015.

CONCLUSIONS

Lower crop revenues from continued low commodity prices coupled with little change in cost of operation resulted in lower Net Farm Income for 2015 grain farms. Corn prices were relatively steady and yields were up, but gains were offset by falling soybean prices and a shift of acres to soybeans and wheat. Average tobacco revenue was also down because of lower prices, lower yields, and reduced acres. This year’s low profitability is a continuation of a two-year decline for grain farms.

Liquidity was eroded but did not evaporate. Lower profits and reduced liquidity may make it difficult for some farms to obtain sufficient operating loans for 2016 operation. Long-term solvency, however, is still strong and posted a slight increase in net worth.

This year will be critical for the average farm. Continued low profitability in 2016 will further erode liquidity and may move many farms toward high-risk financial conditions in the next year. Farms below the average or those with low equity positions to begin with may already be experiencing high-risk financial conditions. Managers should 1) project how long before declining liquidity restricts financing and continued operation; 2) examine marketing plans and risk management strategies; and 3) evaluate new investments in land and equipment.

USDA projections in February, 2016, suggest a 3% drop in NFI for <u>all</u> farms with much of the drop affecting livestock. A 3% drop would be a leveling off of the trend grain farms have experienced over the past two years. USDA projects net <u>cash</u> income to increase for program crops and operating costs to decrease slightly. The projection is encouraging, but there is a long way to go to finish this season.

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TABLE 1: ECONOMIC MANAGEMENT ANALYSIS
AVERAGE KENTUCKY GRAIN FARM
For Year Ending December 31, 2015

Preliminary Analysis

FARM RETURNS AND COSTS		Operator Totals		Operator Acre
FARM RETURNS				
Crop Returns		1,529,553		689.38
Livestock Returns Above Feed		28,861		13.01
Custom Work		17,336		7.81
Other Farm Receipts		66,390		29.92
Tobacco Receipts		68,711		30.97
GROSS FARM RETURNS		**$1,710,852**		**$771.09**
FARM COSTS				
Soil Fertility		288,857		130.19
Pesticides		135,831		61.22
Seed		187,372		84.45
Crop Total		**$612,059**		**$275.86**
Utilities		22,387		10.09
Machinery Repairs		87,019		39.22
Machine Hire and Lease		57,243		25.80
Fuel & Oil		81,394		36.69
Light Vehicle		532		0.24
Machinery Depreciation		157,719		71.09
Power & Equipment Total		**$406,294**		**$183.12**
Drying		13,323		6.01
Storage		2,119		0.96
Building Repair & Rent		21,056		9.49
Building Depreciation		37,097		16.72
Building Total		**$73,595**		**$33.17**
	Avg Months		Paid Hours/Acre Avg. Wage $/Hr	4.44 $13.20
Labor Unpaid	16.9	45,883		20.68
Labor Paid	47.3	130,040		58.61
Labor Total	**64.2**	**$175,923**		**$79.29**
Vet, Medicine, & Livestock Supply		3,949		1.78
Insurance		71,252		32.11
Miscellaneous		21,965		9.90
Interest Charge Nonland @ 4.95%		129,871		58.53
Other Costs Total		**$227,038**		**$102.33**
Interest Charge @2.85%	Per Acre	71,805		32.36
Taxes	9.05 Owned	5,453		2.46
Cash Rent	183.68 Rented	221,055		99.63
Leasing Cost	183.65 Shared	75,121		33.86
Land Cost		**$373,435**		**$168.31**
TOTAL NON-FEED COSTS		**$1,868,336**		**$842.07**
Gain (Loss) on Mach & Build Sales Less Amortization		8,132		3.67
MANAGEMENT RETURNS		**-$149,352**		**-$67.31**

ECONOMIC RETURN ANALYSIS			
Net Farm Income	**$87,560**	Total Acres	2,605
Interest on Equity Capital	128,076	Tillable Acres	2,440
Unpaid Family Labor	598	Opr Acres	2,219
Operator(s) Labor & Mgmt Income	-41,114	Owned Acres	603
Unpaid Operator Labor	48,051	Share Rent Acres	634
Management Returns	**-$89,165**	Rented Acres	1,203
Net Farm Income Per Operator	**$94,169**	No. Farms in Avg.	160
Labor & Management Income Per Operator	-896	Crop Ins. Inc.	$35,387
Production Per $1 Non-Feed Cost	0.96	Crop Ins. Exp.	$42,808
Farm Production Per Man Year	**$397,533**	Govt Paymnets	$46,201

Kentucky Farm Business Management Program

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TABLE 2: AVERAGE GRAIN FARMER

4/1/2016

PRELIMINARY

BALANCE SHEET

For Year Ending December 31, 2015

Current Assets		**Current Liabilities**	
Bank Balance	85,841	Accounts Payable with Merchants & Dealers	48,563
Savings & CD's	57,245	Lease Payment	9,537
Hedging Account Balance	8,439	Feed Accounts Payable/FSA	119
Marketable Stocks & Bonds	58,456	Commodity Credit Corp Loans	46,696
Accounts Receivable/FSA LDP & CCP's	16,018	Operating/Short Term Loans	706,296
Crops & Feed	1,023,931	Estimated Tax Liability	
		Real Estate	6
Market Livestock	27,850	Income and Social Security	243
		Accrued Interest	30,182
Prepaid Expenses	263,637	Principal Due Within Twelve Months	
		Intermediate Term Notes	99,702
Non-Farm Business/Other	35,637	Long Term Notes	53,159
		Current, IT, & LT Other	48
Total Current Assets	**1,577,054**	**Total Current Liabilities**	**994,551**
Intermediate Assets		**Intermediate Liabilities**	
Assets Under Capital Lease	20,274	Capital Lease/Deferred Portion	10,419
Machinery & Equipment	1,426,311	Intermediate Notes	316,620
Breeding Livestock	30,840		
Non-Farm Business/Other	22,770	Life Insurance Policy Loans	330
Notes Receivable	24,526		
Retirement Accounts	128,182	Other	1,214
Securities Not Readily Marketable	111,047		
Cash Value of Life Insurance	12,331		
Home Furnishings & Personal Items	19,005		
Total Intermediate Assets	**1,795,286**	**Total Intermediate Liabilities**	**328,583**
Fixed Assets		**Fixed Liabilities**	
Farm Real Estate - Bare Land	2,980,425	Real Estate Mortgages	863,441
Buildings & Improvements	459,631	Other	752
Personal Residence	155,570		
Other Non-Farm Real Estate	64,711		
Contracts & Notes Receivable	850		
Non-Farm Business/Other/Amortization	65505		
Total Fixed Assets	**3,726,692**	**Total Fixed Liabilities**	**864,193**
Total Assets	**7,099,033**	**Total Liabilities**	**2,187,327**
		Net Worth	**4,911,706**
		Total Liabilities & Net Worth	7,099,033

Kentucky Farm Business Management Program

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University of Kentucky – College of Agriculture

4/1/2016

TABLE 3: AVERAGE GRAIN FARMER

PRELIMINARY

BALANCE SHEET

For Year Ending December 31, 2014

Current Assets		**Current Liabilities**	
Bank Balance	101,238	Accounts Payable with Merchants & Dealers	35,859
Savings & CD's	62,740	Lease Payment	4,789
Hedging Account Balance	9,690	Feed Accounts Payable/FSA	95
Marketable Stocks & Bonds	54,096	Commodity Credit Corp Loans	40,564
Accounts Receivable/FSA LDP & CCP's	40,559	Operating/Short Term Loans	652,216
Crops & Feed	1,028,175	Estimated Tax Liability	
		Real Estate	8
Market Livestock	36,319	Income and Social Security	2,911
		Accrued Interest	25,704
Prepaid Expenses	291,000	Principal Due Within Twelve Months	
		Intermediate Term Notes	102,833
Non-Farm Business/Other	28,699	Long Term Notes	53,436
		Current, IT, & LT Other	48
Total Current Assets	**1,652,515**	**Total Current Liabilities**	**918,462**
Intermediate Assets		**Intermediate Liabilities**	
Assets Under Capital Lease	13,361	Capital Lease/Deferred Portion	7,276
Machinery & Equipment	1,414,458	Intermediate Notes	329,946
Breeding Livestock	31,235		
Non-Farm Business/Other	21,012	Life Insurance Policy Loans	330
Notes Receivable	24,251		
Retirement Accounts	116,053	Other	276
Securities Not Readily Marketable	98,718		
Cash Value of Life Insurance	12,105		
Home Furnishings & Personal Items	18,332		
Total Intermediate Assets	**1,749,526**	**Total Intermediate Liabilities**	**337,828**
Fixed Assets		**Fixed Liabilities**	
Farm Real Estate - Bare Land	2,895,602	Real Estate Mortgages	752
Buildings & Improvements	445,365	Other	858,452
Personal Residence	150,084		
Other Non-Farm Real Estate	60,866		
Contracts & Notes Receivable	1,494		
Non-Farm Business/Other/Amortization	63,444		
Total Fixed Assets	**3,616,855**	Total Fixed Liabilities	**859,203**
Total Assets	**7,018,896**	**Total Liabilities**	**2,115,493**
		Net Worth	**4,903,404**
		Total Liabilities & Net Worth	7,018,896

TABLE 4: ECONOMIC MANAGEMENT ANALYSIS
AVERAGE KENTUCKY GRAIN FARM
For Year Ending December 31, 2015

Preliminary Analysis on Select Farms

Kentucky Farm Business Management Program
UK COOPERATIVE EXTENSION SERVICE
University of Kentucky College of Agriculture

FARM RETURNS AND COSTS		Operator Totals		Operator Acre
FARM RETURNS				
Crop Returns		1,608,879		698.89
Livestock Returns Above Feed		30,423		13.22
Custom Work		18,542		8.05
Other Farm Receipts		71,809		31.19
Tobacco Receipts		73,563		31.96
GROSS FARM RETURNS		**$1,803,215**		**$783.30**
FARM COSTS				
Soil Fertility		280,616		121.90
Pesticides		139,076		60.41
Seed		200,251		86.99
Crop Total		**$619,943**		**$269.30**
Utilities		22,347		9.71
Machinery Repairs		81,925		35.59
Machine Hire and Lease		66,323		28.81
Fuel & Oil		58,445		25.39
Light Vehicle		152		0.07
Machinery Depreciation		169,780		73.75
Power & Equipment Total		**$398,971**		**$173.31**
Drying		8,650		3.76
Storage		2,686		1.17
Building Repair & Rent		19,437		8.44
Building Depreciation		42,230		18.34
Building Total		**$73,003**		**$31.71**
	Avg		Paid Hours/Acre	4.18
	Months		Avg. Wage $/Hr	$13.28
Labor Unpaid	16.9	44,505		19.33
Labor Paid	46.2	127,720		55.48
Labor Total	**63.1**	**$172,225**		**$74.81**
Vet, Medicine, & Livestock Supply		5,153		2.24
Insurance		74,582		32.40
Miscellaneous		25,369		11.02
Interest Charge Nonland @ 4.95%		132,496		57.56
Other Costs Total		**$237,600**		**$103.21**
Interest Charge @2.85%	Per Acre	76,500		33.23
Taxes	16.80 Owned	6,318		2.74
Cash Rent	170.61 Rented	237,329		103.09
Leasing Cost	145.73 Shared	75,078		32.61
Land Cost		**$395,225**		**$171.68**
TOTAL NON-FEED COSTS		**$1,896,968**		**$824.03**
Gain (Loss) on Mach & Build Sales Less Amortization		9,355		4.06
MANAGEMENT RETURNS		**-$84,398**		**-$36.66**

ECONOMIC RETURN ANALYSIS			
Net Farm Income	$99,221	Total Acres	2,699
Interest on Equity Capital	134,503	Tillable Acres	2,536
Unpaid Family Labor	649	Opr Acres	2,302
Operator(s) Labor & Mgmt Income	-35,931	Owned Acres	635
Unpaid Operator Labor	48,471	Share Rent Acres	668
Management Returns	-84,401	Rented Acres	1,234
Net Farm Income Per Operator	$75,148	No. Farms in Avg.	143
Labor & Management Income Per Operator	-26,454	Crop Ins. Inc.	$35,919
Production Per $1 Non-Feed Cost	0.94	Crop Ins. Exp.	$44,735
Farm Production Per Man Year	$413,054	Accrual Interest	$74,493

TABLE 5: ECONOMIC MANAGEMENT ANALYSIS
AVERAGE KENTUCKY GRAIN FARM
For Year Ending December 31, 2014

Preliminary Analysis on Select Farms

Kentucky Farm Business Management Program
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University of Kentucky College of Agriculture

FARM RETURNS AND COSTS		Operator Totals		Operator Acre
FARM RETURNS				
Crop Returns		1,612,779		717.89
Livestock Returns Above Feed		32,944		14.66
Custom Work		18,011		8.02
Other Farm Receipts		74,129		33.00
Tobacco Receipts		94,785		42.19
GROSS FARM RETURNS		**$1,832,648**		**$815.76**
FARM COSTS				
Soil Fertility		305,700		136.08
Pesticides		144,033		64.11
Seed		190,915		84.98
Crop Total		**$640,648**		**$285.17**
Utilities		22,584		10.05
Machinery Repairs		85,293		37.97
Machine Hire and Lease		56,500		25.15
Fuel & Oil		82,960		36.93
Light Vehicle		152		0.07
Machinery Depreciation		165,159		73.52
Power & Equipment Total		**$412,647**		**$183.68**
Drying		14,356		6.39
Storage		1,758		0.78
Building Repair & Rent		19,741		8.79
Building Depreciation		37,835		16.84
Building Total		**$73,690**		**$32.80**
	Avg		Paid Hours/Acre	4.60
	Months		Avg. Wage $/Hr	$12.14
Labor Unpaid	17.4	43,474		19.35
Labor Paid	49.7	125,637		55.92
Labor Total	**67.1**	**$169,110**		**$75.28**
Vet, Medicine, & Livestock Supply		3,298		1.47
Insurance		71,903		32.01
Miscellaneous		24,123		10.74
Interest Charge Nonland @ 4.95%		133,040		59.22
Other Costs Total		**$232,364**		**$103.43**
Interest Charge @2.95%	Per Acre	75,258		33.50
Taxes	16.27 Owned	5,603		2.49
Cash Rent	169.19 Rented	222,229		98.92
Leasing Cost	149.11 Shared	74,353		33.10
Land Cost		**$377,442**		**$168.01**
TOTAL NON-FEED COSTS		**$1,905,902**		**$848.36**
Gain (Loss) on Mach & Build Sales Less Amortization		7,667		3.41
MANAGEMENT RETURNS		**-$65,587**		**-$29.19**

ECONOMIC RETURN ANALYSIS			
Net Farm Income	$121,049	Total Acres	2,637
Interest on Equity Capital	138,716	Tillable Acres	2,469
Unpaid Family Labor	1,445	Opr Acres	2,247
Operator(s) Labor & Mgmt Income	-19,112	Owned Acres	626
Unpaid Operator Labor	46,479	Share Rent Acres	635
Management Returns	-65,591	Rented Acres	1,208
Net Farm Income Per Operator	$94,682	No. Farms in Avg.	143
Labor & Management Income Per Operator	-8,254	Crop Ins. Inc.	$75,694
Production Per $1 Non-Feed Cost	0.96	Crop Ins. Exp.	$43,541
Farm Production Per Man Year	$415,393	Accrual Interest	$69,582

TABLE 6: FARM FINANCIAL ANALYSIS

UK Farm Management Forms: FA

Name **KFBM Preliminary Average Grain Farm**

Date **31-Dec-15**

Liquidity

Current Ratio	=	Total Current Assets	/	Total Current Liabilities
1.6	=	**$1,673,291.41**	/	**$1,052,937.34**

Working Capital	=	Total Current Assets	-	Total Current Liabilities
$620,354.07	=	**$1,673,291.41**	-	**$1,052,937.34**

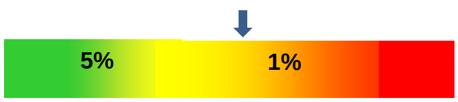
Solvency

Debt/Asset Ratio	=	Total Liabilities	/	Total Assets
31%	=	**$2,313,518.71**	/	**$7,514,593.55**

Equity/Asset Ratio	=	Total Equity	/	Total Assets
69%	=	**$5,201,074.83**	/	**$7,514,593.55**

Debt/Equity Ratio	=	Total Liabilities	/	Total Equity
44%	=	**$2,313,518.71**	/	**$5,201,074.83**

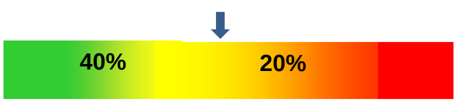
Profitability



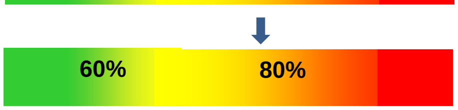
Return on Assets		
	=	Net Farm Income From Operations
	+	Farm Interest Expense
	-	Value of Operator & Family Labor & Mgt
	/	Average Farm Assets [(Beg + End)/2]
1.7%	=	**$89,866.41**
	+	**$74,492.80**
	-	**$49,302.03**
	/	**$6,826,434.30**

Return on Equity		
	=	Net Farm Income From Operations
	-	Value of Operator & Family Labor &Mgt
	/	Average Farm Equity [(Beg + End)/2]
0.9%	=	**$89,866.41**
	-	**$49,302.03**
	/	**$4,545,231.45**

Financial Efficiency



Asset Turnover Ratio	=	Value of Farm Prod.	/	Average Farm Assets
27%	=	**$1,875,987.11**	/	**$6,826,434.30**



Operating Expense Ratio	=	Total Op Exp - Depr	/	Value of Farm Prod.
79%	=	**$1,483,879.45**	/	**$1,875,987.11**

Depreciation Expense Ratio	=	Depreciation Expense	/	Value of Farm Prod.
12%	=	**$227,748.45**	/	**$1,875,987.11**

Interest Expense Ratio	=	Interest Expense	/	Value of Farm Prod.
4%	=	**$74,492.80**	/	**$1,875,987.11**

Net Farm Income from Operation Ratio	=	NFIFO	/	Value of Farm Prod.
5%	=	**$89,866.41**	/	**$1,875,987.11**

University of Kentucky, College of Agriculture, Cooperative Extension Service.

Kentucky Farm Business Management Program
COOPERATIVE EXTENSION SERVICE
University of Kentucky College of Agriculture

TABLE 7: ECONOMIC MANAGEMENT ANALYSIS
AVERAGE KENTUCKY GRAIN FARM
For Year Ending December 31, 2015

Preliminary Analysis Zero Tobacco Grain Farms

FARM RETURNS AND COSTS		Operator Totals		Operator Acre
FARM RETURNS				
Crop Returns		1,607,190		695.97
Livestock Returns Above Feed		35,931		15.56
Custom Work		17,618		7.63
Other Farm Receipts		69,268		30.00
Tobacco Receipts		0		0.00
GROSS FARM RETURNS		**$1,730,007**		**$749.16**
FARM COSTS				
Soil Fertility		272,045		117.81
Pesticides		136,925		59.29
Seed		200,256		86.72
Crop Total		**$609,226**		**$263.82**
Utilities		19,682		8.52
Machinery Repairs		76,848		33.28
Machine Hire and Lease		68,357		29.60
Fuel & Oil		56,544		24.49
Light Vehicle		178		0.08
Machinery Depreciation		167,157		72.39
Power & Equipment Total		**$388,765**		**$168.35**
Drying		8,768		3.80
Storage		3,169		1.37
Building Repair & Rent		18,563		8.04
Building Depreciation		41,064		17.78
Building Total		**$71,564**		**$30.99**
	Avg		Paid Hours/Acre	2.95
	Months		Avg. Wage $/Hr	$13.95
Labor Unpaid	17.1	44,753		19.38
Labor Paid	32.7	95,085		41.18
Labor Total	**49.8**	**$139,838**		**$60.56**
Vet, Medicine, & Livestock Supply		5,662		2.45
Insurance		69,884		30.26
Miscellaneous		25,100		10.87
Interest Charge Nonland @ 4.95%		128,635		55.70
Other Costs Total		**$229,280**		**$99.29**
Interest Charge @2.85%	Per Acre	76,958		33.33
Taxes	14.38 Owned	6,243		2.70
Cash Rent	162.98 Rented	232,622		100.73
Leasing Cost	133.12 Shared	75,588		32.73
Land Cost		**$391,411**		**$169.50**
TOTAL NON-FEED COSTS		**$1,830,085**		**$792.49**
Gain (Loss) on Mach & Build Sales Less Amortization		9,500		4.11
MANAGEMENT RETURNS		**-$90,578**		**-$39.22**

ECONOMIC RETURN ANALYSIS

Net Farm Income	$89,356	Total Acres	2,721
Interest on Equity Capital	130,449	Tillable Acres	2,567
Unpaid Family Labor	772	Opr Acres	2,309
Operator(s) Labor & Mgmt Income	-41,865	Owned Acres	646
Unpaid Operator Labor	48,717	Share Rent Acres	717
Management Returns	-90,582	Rented Acres	1,204
Net Farm Income Per Operator	$70,525	No. Farms in Avg.	109
Labor & Management Income Per Operator	-25,921	Crop Ins. Inc.	$31,175
Production Per $1 Non-Feed Cost	0.94	Crop Ins. Exp.	$41,298
Farm Production Per Man Year	$464,361	Accrual Interest	$75,145

Kentucky Farm Business Management Program
UK COOPERATIVE EXTENSION SERVICE
University of Kentucky College of Agriculture

TABLE 8: ECONOMIC MANAGEMENT ANALYSIS
AVERAGE KENTUCKY GRAIN FARM
For Year Ending December 31, 2014

Preliminary Analysis Zero Tobacco Grain Farms

FARM RETURNS AND COSTS		Operator Totals		Operator Acre
FARM RETURNS				
Crop Returns		1,633,641		727.00
Livestock Returns Above Feed		37,697		16.78
Custom Work		17,905		7.97
Other Farm Receipts		68,911		30.67
Tobacco Receipts		14		0.01
GROSS FARM RETURNS		**$1,758,169**		**$782.41**
FARM COSTS				
Soil Fertility		299,534		133.30
Pesticides		141,237		62.85
Seed		185,822		82.69
Crop Total		**$626,594**		**$278.84**
Utilities		20,370		9.06
Machinery Repairs		82,124		36.55
Machine Hire and Lease		59,688		26.56
Fuel & Oil		78,839		35.08
Light Vehicle		173		0.08
Machinery Depreciation		163,000		72.54
Power & Equipment Total		**$404,193**		**$179.87**
Drying		13,526		6.02
Storage		1,460		0.65
Building Repair & Rent		17,840		7.94
Building Depreciation		37,146		16.53
Building Total		**$69,972**		**$31.14**
	Avg		Paid Hours/Acre	3.01
	Months		Avg. Wage $/Hr	$13.14
Labor Unpaid	17.3	43,011		19.14
Labor Paid	32.5	88,872		39.55
Labor Total	**49.7**	**$131,883**		**$58.69**
Vet, Medicine, & Livestock Supply		3,322		1.48
Insurance		67,638		30.10
Miscellaneous		24,974		11.11
Interest Charge Nonland @ 4.95%		129,198		57.50
Other Costs Total		**$225,132**		**$100.19**
Interest Charge @2.95%	Per Acre	75,662		33.67
Taxes	12.91 Owned	5,513		2.45
Cash Rent	166.51 Rented	221,010		98.35
Leasing Cost	137.38 Shared	74,673		33.23
Land Cost		**$376,858**		**$167.71**
TOTAL NON-FEED COSTS		**$1,834,632**		**$816.44**
Gain (Loss) on Mach & Build Sales Less Amortization		9,144		4.07
MANAGEMENT RETURNS		**-$67,319**		**-$29.95**

ECONOMIC RETURN ANALYSIS

Net Farm Income	$117,149	Total Acres	2,653
Interest on Equity Capital	136,840	Tillable Acres	2,495
Unpaid Family Labor	1,517	Opr Acres	2,247
Operator(s) Labor & Mgmt Income	-21,208	Owned Acres	635
Unpaid Operator Labor	46,115	Share Rent Acres	692
Management Returns	-67,322	Rented Acres	1,168
Net Farm Income Per Operator	$99,927	No. Farms in Avg.	109
Labor & Management Income Per Operator	-2,932	Crop Ins. Inc.	$73,278
Production Per $1 Non-Feed Cost	0.95	Crop Ins. Exp.	$40,108
Farm Production Per Man Year	$474,609	Accrual Interest	$68,020

KENTUCKY FARM BUSINESS MANAGEMENT PROGRAM

The Kentucky Farm Business Management program is a cooperative effort between the Department of Agricultural Economics of the University of Kentucky and four incorporated Farm Analysis Groups. This program was initiated to improve Kentucky farm management in general and specifically to:

- Provide farmers with an individual farm analysis and comparative analysis of farm business records emphasizing information necessary for sound decision making and wise financial planning;

- Provide farmers with objective counseling in developing priorities and alternative plans;

- Provide the public with basic information about business conditions as well as costs and returns on Kentucky farms under current conditions;

- Provide Kentucky farmers, teachers, researchers and lending agencies actual on-farm information about Kentucky farm businesses.

For more information and to see the complete publication of annual summary data, and for other, similar analysis publications, go to http://www.uky.edu/Ag/KFBM.

DEFINITION OF TERMS AND ACCOUNTING METHODS

Sampling Technique
Data from all farm business records certified to be usable for comparative analysis by field staff were aggregated by area, type of farm, size (i.e., tillable acres, number of animal production units, etc.), and management. Illinois Farm Business Farm Management Association's Farm Business Farm Management software was used to compile and summarize the data. It is important to note the farms represented in the KFBM dataset can change from year to year, and that fluctuations within the data could be due to this change of sample.

Type of Farm
Farm type is based on the percent feed fed. To determine percent feed fed, the total value of feed fed to all livestock enterprises is divided by the value of crop returns. However, tobacco revenue is excluded from crop returns for this calculation. Values for percent feed fed can range from zero to infinity. Large values are possible if a farm has limited grain production and thus purchases much of its feed.

Grain farms are defined as farms on which the value of feed fed was less than 40% of the crop returns, tobacco revenue was less than 40% of total gross farm revenue, and the value of feed fed to dairy was less than one-sixth of the crop returns.

Accrual Accounting
Accrual accounting matches the year's cost and returns to the farm's physical production. It differs from cash accounting, which records expenses when paid and income when received. For KFBM purposes, cash records are adjusted to approximate accrual accounting. Changes in inventories of commodities and livestock, accounts receivable, prepaid expenses, and accounts payable are added to or subtracted from cash income and expense records for the calendar or fiscal year. Accrual accounting provides a more realistic reflection of net farm income for the period as well as more accurate income statements and balance sheets in accordance with Farm Financial Standards Council recommendations.

Expense/Cost Items
Total operating expenses include cash operating expenses plus depreciation plus the net effect on expenses when accounting for the accrual change in accounts payable and prepaid expenses. Cash operating expenses include cash outlays for the following non-depreciable items:

· Fertilizer
· Pesticides
· Seed (including homegrown seed)
· Machinery repairs
· Machinery hire and leases
· Fuel and oil (lubricants)
· Farm share of utilities and light vehicle expenses
· Building repairs
· Drying and storage
· Hired labor
· Livestock expense
· Taxes
· Insurance
· Miscellaneous expenses

Purchased feed, grain and livestock are not included because they are deducted from Gross Revenue to calculate the Value of Farm Production.

Depreciation used here is Economic Depreciation. It is calculated on each item using the Alternative Depreciation System (ADS) under the Modified Accelerated Cost Recovery System of the Internal Revenue Code of 1986. ADS imposes straight line depreciation over a longer cost recovery period than the General Depreciation System and other expense deductions allowed for income tax purposes.

Total interest expense includes cash interest paid on operating and term debt plus the net change in accrued interest on farm business debt.

Interest on equity capital is a charge of 2.85 percent on the current value of land and 4.95 percent on non-land items less total interest expense. It is the opportunity cost of investing in the farm business. The non-land charge is calculated by multiplying 4.95 percent times: 1) the average of the beginning and ending of year value of livestock, economic book value of machinery, and building investment; 2) one-half of the average of the beginning and ending of year balance of inventory items; and 3) one-half of the total year's cash operating expense.

Land Charge Total is the sum of land equity charge, real estate taxes, cash rent, and lease cost. Lease cost is the cost calculated to be paid by the landlord for the operator(s) share of acres paid less costs paid by the operator(s) for the landlord on share crop acres.

Unpaid family and operator labor is the opportunity cost of using the operator's own and unpaid family labor in the farm business. A charge of $2,900 per month for unpaid operator and family labor is made for each farm. This labor charge is per labor month and is based on unpaid labor of 2,500 hours per year. Part-time family labor is therefore prorated. Like any other resource, unpaid labor must be accounted for when studying profitability of a farm business.

Revenue Items

Crop returns is the sum of the feed and grain sold, value of all feed fed (except milk), government crop subsidy program payments, and the change in value of feed and grain inventories less the value of crops and feed purchased. Tobacco revenue is excluded from crop returns for this calculation.

Livestock returns above feed is the sum of the sale of livestock and livestock products, value of livestock products consumed, and value of the livestock on hand at the end of the year minus livestock purchases and the value of the livestock on hand at the beginning of the year minus the cost of all feed fed, whether purchased or raised.

Gross farm returns is the sum of cash and accrued value of sales of farm products and services, government payments, and other farm-related revenue less the cost of purchased feed and livestock, plus the change in inventory value for grain and livestock, plus the value of farm products used. Farm products used are products consumed on farm and not sold. Also called *value of farm production.*

Net Farm Income is the value of farm production less total operating expenses, less total interest expense plus net gain or loss on machinery and buildings sold. Net Farm Income includes returns to the farm for unpaid family and operator labor, the interest on invested capital, and management. It is the net total earnings to the farm operator(s).

Management return is the residual after a charge for unpaid operator labor is deducted from operator(s) labor and management income.

Operator-only refers to the revenue, costs, production, and returns that accrue to the farmer(s) involved in the farm's management and NOT that of landlords.

Other Terms Used in this Report

Inventory value of crops and livestock is based on average year-end prices reported for the four KFBM areas in the Kentucky Department of Agriculture Market Reports and the USDA Agriculture Marketing Service reports.

Old Crop is any crop that was produced in a prior year, but inventoried and held for sell in the current year.

New Crop is any crop that was produced in the current year.

Operator Acres is owned and cash rented acres plus the operator's share of tillable acres under crop share leases.