



POTENTIAL IMPACT OF CREDIT CRISIS ON PRODUCTION AGRICULTURE, PART II

This article is the second of a three part series that examines the impact of the current credit crisis on production agriculture. The first part of the series discussed why production agriculture is vulnerable to the current macroeconomic environment and contrasted current average liquidity and solvency measures to those in the 1970s, 1980s, and 1990s (see December KFMA newsletter). This part of the series will discuss long-term trends in agricultural interest rates and farm loan repayment rates. The third part of the series will update credit quality ratings for KFMA farms.

Table 1 presents annual agricultural interest rates for operating, intermediate, and real estate loans in Kansas from 1988 to 2008. The average interest rate on operating loans in 2008 was the third lowest over the 21 year period. For intermediate and real estate loans, the average interest rate in 2008 was the second lowest. Interest rates in the fourth quarter of 2008, the latest quarter available, were 7.11, 7.11, and 6.61 for operating, intermediate, and real estate loans, respectively. A longer term perspective on interest rates is provided in Figure 1 which illustrates trends in the prime interest rate since 1949. The average prime interest rate was 5.09 percent in 2008. Since 1973, there has only been three years that had a lower prime interest rate than the 2008 rate: 2002, 2003, and 2004. The prime interest rate

exceeded 15 percent in 1980 and 1981. The information pertaining to interest rates above, illustrates that the interest rates faced by producers today are relatively low. If interest rates migrate towards the long term average or those experienced in the early 1980s, farms with high levels of debt will be financially vulnerable. Current monetary policies could result in relatively higher inflation rates which would likely result in an increase in interest rates. Consumers and firms have gotten used to relatively low and stable inflation rates. This is due to the fact that inflation in the United States has been quite stable for the last couple of decades. The United States has not experienced double digit inflation since 1980. Given the possibility of higher inflation rates, farms should create contingency plans for a scenario with higher interest rates.

Figure 2 presents a diffusion index of loan repayment rates derived from a survey of agricultural lenders conducted and summarized by the Federal Reserve Bank of Kansas City. Agricultural lenders respond to each survey question by indicating whether conditions during the current quarter are higher than, lower than, or the same as in the year-earlier period. The index numbers are computed by subtracting the percent of agricultural lenders responding "lower" from the percent that responded "higher" and adding 100. Thus, a decrease in the index suggests that repayment rates are worsening. In response to strong financial performance of farms and ranches, the index increased from the fourth quarter of 2006 to the first quarter of 2008. Since that time, the index

Also in this newsletter:

- Benchmarking and Trend Analysis Pg 4
- Recommendations for Further Reading Pg 7

has deteriorated. However, the index is still considerably higher than it was in 2001 and 2002, when farm incomes were below the long-run average.

In summary, current farm interest rates are relatively low compared to those experienced in the 1970s, 1980s, and 1990s. Farms with high debt to asset ratios would find it difficult to service debt if interest rates increased sharply in response to recent monetary policy actions. This is particularly true for farms with a debt to asset ratio above 0.70. Approximately 11 percent of KFMA farms have debt to asset ratios above 0.70. This article also noted the deterioration in loan repayment rates in recent months. The strong average financial performance experienced by most farms during the last couple of years has mitigated loan

repayment problems.

The current credit crisis has increased uncertainty. It is particularly important during uncertain times, to use both internal and external benchmarks of key financial measures to gauge a farm's competitive position. Internal benchmarking involves comparing financial measures for a particular farm over time. This type of benchmarking answers questions such as the following: Is the liquidity of our farm improving or deteriorating over time? External benchmarking involves comparing financial measures with similar farms. For more information on benchmarking, see the benchmarking article in this newsletter.

*Michael Langemeier, Professor
Department of Agricultural Economics*

Table 1. Historical Agricultural Interest Rates.

Year	Operating Loans	Intermediate Loans	Real Estate Loans
1988	11.92	11.85	11.29
1989	12.58	12.51	11.81
1990	12.21	12.12	11.42
1991	11.20	11.15	10.37
1992	9.70	9.72	8.94
1993	8.99	9.01	8.33
1994	9.41	9.41	8.86
1995	10.33	10.32	9.62
1996	9.98	9.79	9.08
1997	10.03	9.87	9.20
1998	9.81	9.61	8.81
1999	9.72	9.55	8.83
2000	10.46	10.24	9.53
2001	8.88	8.73	8.06
2002	7.86	7.87	7.39
2003	7.29	7.31	6.75
2004	7.35	7.37	6.92
2005	8.18	8.13	7.58
2006	9.08	9.01	8.33
2007	9.05	8.89	8.18
2008	7.40	7.34	6.91

Source: Federal Reserve Bank of Kansas City, Kansas rates.

Figure 1. Prime Interest Rate

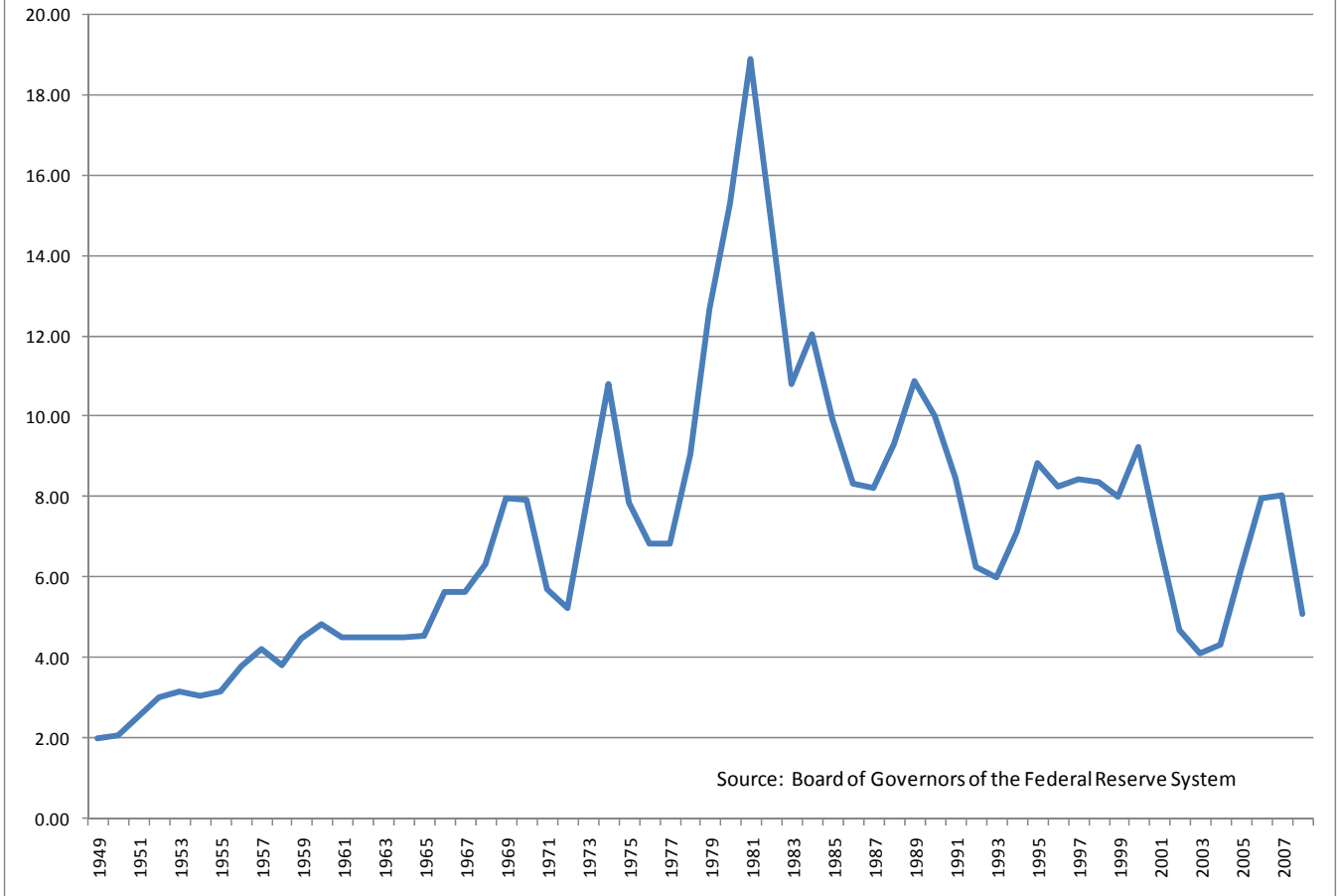
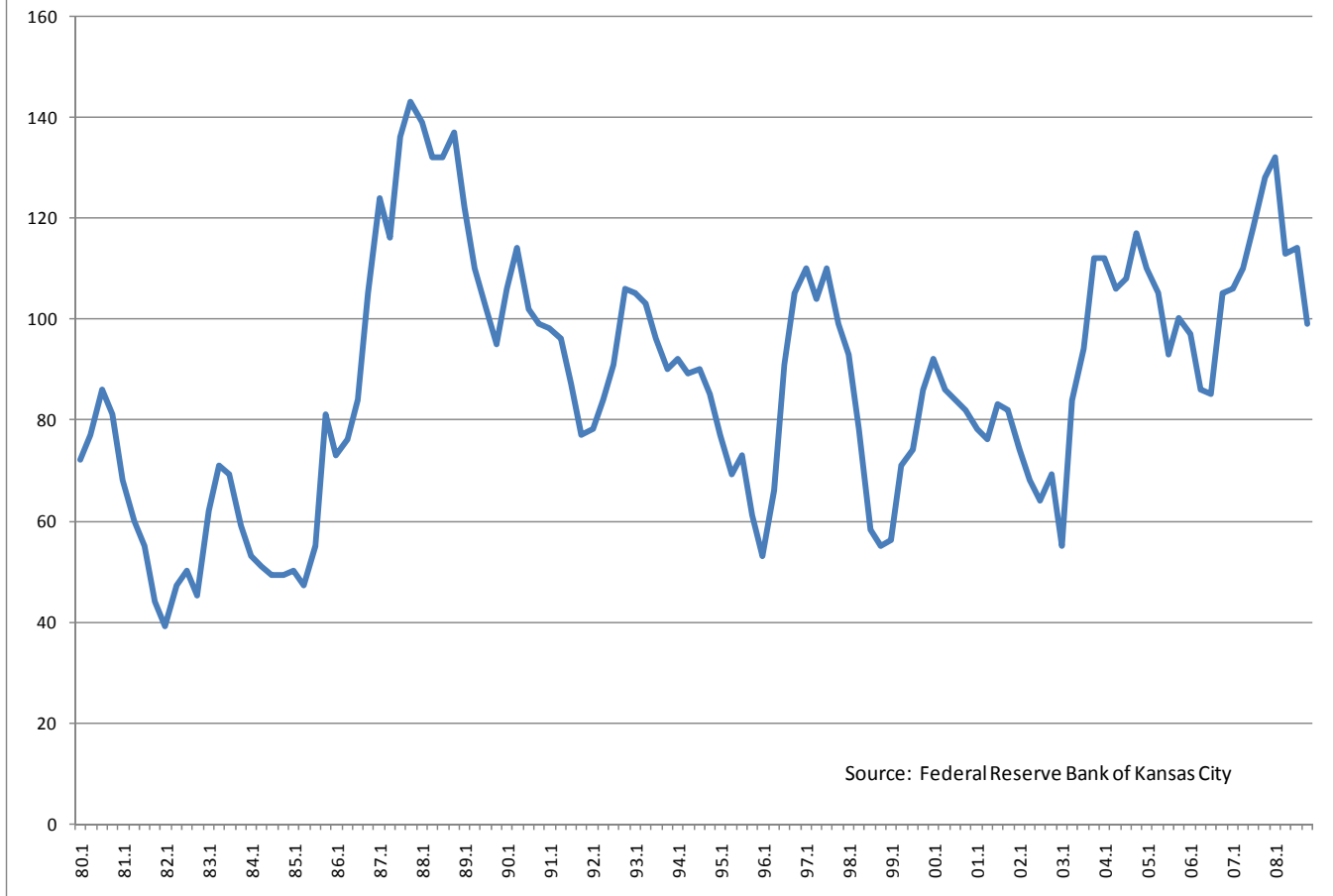


Figure 2. Loan Repayment Rates, Diffusion Index



BENCHMARKING AND TREND ANALYSIS

Benchmarking is a process that can be used to identify and implement internal and external best management practices. Moreover, benchmarking can be used as an early warning signal of organizational problems and is an important component to a continuous improvement program. Both internal and external benchmarking is important to farms and ranches. Internal benchmarking involves an examination of the trend in an individual farm's performance. The benefits of internal benchmarking include the establishment of a baseline of acceptable performance, the identification of gaps in existing performance, and the establishment of standards involving common practices and procedures. External

benchmarking involves comparing an individual farm's performance to that of similar farms. External benchmarking is a key ingredient in the determination of whether an individual farm has a competitive advantage.

Financial ratios are commonly used to benchmark farms and ranches. Table 1 illustrates financial ratios for a case farm for the 2003-2008 period. The layout in Table 1 is similar to the layout found on the last page of a KFMA member's whole-farm analysis report. Definitions of the financial ratios can also be found on the last page of this report. This case farm would be typed as a crop/cowherd farm. The farm has a cowherd and produces grain

sorghum, wheat, alfalfa, and soybeans. To ensure brevity, this newsletter article will focus on the operating profit margin, the asset turnover ratio, the debt to asset ratio, and the current ratio.

The operating profit margin is computed by adding cash interest paid and subtracting unpaid labor from net accrual farm income, and then dividing the result by value of farm production. The operating profit margin for the case farm ranged from 0.168 (16.8 percent) in 2003 to 0.244 (24.4 percent) in 2007. The last two columns in Table 1 can be used to benchmark the case farm externally or with other farms. Because the example illustrated is a case farm, state averages are used in the last column. The whole-farm analysis report for KFMA members contains benchmark information for their association. The operating profit margin for the case farm for the 2003-2007 period, 0.199 or 19.9 percent, was higher than the state average, 0.137 or 13.7 percent. It is often helpful to benchmark by farm type. The average operating profit margin for the crop/cowherd farm type was only 5.2% over the 2003-2007 period. Thus, the operating profit margin for the case farm is considerably higher than that for the average crop/cowherd farm. For more information on benchmarks by farm type, see the paper article entitled "Financial Performance and Farm Type" on my contributor site on AgManager. This case farm would be in the top quartile in terms of the operating profit margin for all KFMA farms, but its operating profit margin ratio would be below the average for this group. The top quartile of KFMA farms with continuous data from 2003 to 2007 had an operating profit margin of 25.6 percent.

The asset turnover ratio is computed by dividing value of farm production by average total assets. The asset turnover ratio for the case farm has also increased since 2003. However, using the information in the last two columns, the average asset turnover ratio for the case farm, 0.236, was below the state average, 0.316. It is important to note that this farm type tends to have

relatively lower asset turnover ratios. In fact, the average asset turnover ratio for this farm type over the 2003-2007 period was 0.201.

Due to differences in risk preferences between farmers and ranchers, it does not make a lot of sense to benchmark the debt to asset ratio or the current ratio with other farms and ranches. However, it is still important in most cases to examine trends for a particular farm. The debt to asset ratio has been trending downward and the current ratio has been trending upward for the case farm. A current ratio above 2 is usually used as a standard. The case farm had a current ratio below 2 from 2003 to 2005, and above 2 thereafter. Increased profits likely contributed to the trends in these ratios. The trends in the debt to asset and current ratios would have been different if the case farm had made a major asset purchase, such as land, during the 2003-2008 period. Major asset purchases often require the sale of current assets to help make the down payment and an increase in long-term debt. The sale of current assets would impact the current ratio while the increase in long-term debt would impact the debt to asset ratio.

As a final note on the information in Table 1, it is important to keep in mind when examining the profitlink business trend analysis on the last page of the whole-farm analysis report for an individual KFMA farm that capital gains or losses on land are not included in the return on assets or the return on equity figures presented. Including capital gains or losses, particularly in recent years, would typically increase these ratios. A producer wanting to compare these ratios to the returns from off-farm investments would need to include capital gains or losses on land in their computation of these ratios.

Table 2, using information from the case farm, illustrates benchmarks of whole-farm information. The layout in this table is similar to the layout found on the last page of a KFMA member's whole-farm analysis report. The first seven items represent internal benchmarks. Trends in these measures for individual farms

are important to examine and relate to trends in financial ratios. For instance, if a farm is growing, this growth will likely impact profitability measures such as the operating profit margin as well as the current asset ratio and debt to asset ratio. It is particularly important to examine trends in the change in net worth measure. One of the goals of most businesses is to improve net worth over time so it is important to check whether the five-year average (2003-2007 in this case) is positive. Also, if there is a large difference between net farm income and the change in net worth, the farm may be using a large proportion of net farm income or earnings for non-farm uses. Depending on the goals of the farm and the farm's business structure, this may or may not be problematic. However, for a farm to grow over time, a portion of net farm income needs to be retained and used for this growth.

The last six items in Table 2 are typically benchmarked using data from other farms. Individual KFMA farms can benchmark these measures with farms in their association. Gross crop value per acre is relatively lower, and machinery investment per acre and crop machinery cost per acre are relatively higher for the case farm. For the case farm, gross crop value, machinery investment, and crop machinery cost per crop acre and harvested acre are the same. This would not be the case for farms that have fallow or double crop acres.

Updated benchmark information for 2008 will be presented in a future newsletter. Also, when the 2008 summary information becomes available, benchmarks will be computed by farm size and farm type.

*Michael Langemeier, Professor
Department of Agricultural Economics*

Table 1. Profitlink Business Trend Analysis for Case Farm, Financial Ratios.

Financial Ratios	2003 Your Farm	2004 Your Farm	2005 Your Farm	2006 Your Farm	2007 Your Farm	2008 Your Farm	2003-2007 Average	2003-2007 State Avg
Operating Expense Ratio	0.515	0.511	0.534	0.503	0.494	0.545	0.511	0.637
Interest Expense Ratio	0.061	0.059	0.066	0.071	0.071	0.065	0.066	0.060
Depreciation Expense Ratio	0.086	0.081	0.077	0.069	0.069	0.065	0.076	0.083
Net Farm Income Ratio	0.339	0.349	0.323	0.357	0.366	0.325	0.347	0.221
Operating Profit Margin Ratio	0.168	0.184	0.174	0.226	0.244	0.206	0.199	0.137
Asset Turnover Ratio	0.236	0.249	0.212	0.235	0.246	0.260	0.236	0.316
% Return on Assets	0.039	0.046	0.037	0.053	0.060	0.054	0.047	0.043
% Return on Equity	0.040	0.047	0.031	0.049	0.055	0.046	0.044	0.036
Current Ratio	1.467	1.690	1.768	2.250	2.844	3.425	2.004	2.441
Debt to Asset Ratio	0.353	0.331	0.264	0.241	0.220	0.200	0.282	0.310

Table 2. Profitlink Business Trend Analysis for Case Farm, Whole Farm Information.

Whole-Farm Information	2003 Your Farm	2004 Your Farm	2005 Your Farm	2006 Your Farm	2007 Your Farm	2008 Your Farm	2003-2007 Average	2003-2007 State Avg
Value of Farm Production	173,322	183,292	191,634	216,182	236,671	258,930	200,220	304,166
Net Farm Income	58,748	63,928	61,917	77,162	86,539	84,040	69,659	67,161
Change in Net Worth	25,769	29,961	21,961	41,218	49,420	45,240	33,666	43,748
Working Capital	-52,603	-38,127	-31,480	-3,912	31,573	54,034	-18,910	174,237
Total Acres Operated	2,080	2,080	2,080	2,080	2,080	2,080	2,080	1,889
Total Crop Acres	800	800	800	800	800	800	800	1,239
Harvested Acres	800	800	800	800	800	800	800	1,176
Gross Crop Value per Crop Acre	172	204	191	227	258	336	210	223
Machinery Investment per Crop Acre	160	160	160	160	172	188	162	130
Crop Machinery Cost per Crop Acre	59	61	65	67	72	81	65	55
Gross Crop Value per Harv Acre	172	204	191	227	258	336	210	234
Machinery Investment per Harv Acre	160	160	160	160	172	188	162	137
Crop Machinery Cost per Harv Acre	59	61	65	67	72	81	65	58

RECOMMENDATIONS FOR FURTHER READING

The purpose of this section of the newsletter is to briefly discuss articles and web sites that may be of interest to readers. In general, the articles discussed will not report on original research. Rather, the articles will contain citations to web sites and articles that discuss topics of general interest.

Farm Journal has recently posted and discussed seven habits of successful farmers on the AgWeb web site (www.agweb.com). As indicated on the web site, there are many ways to define success. Examples include profitability, and happiness at work and home. Of course, these definitions are not mutually exclusive. The seven habits are applicable to operations of all sizes and include the following items: technology, building a business plan, goals, legacy (strategy for the next generation), relationships, importance of learning, and mentoring.

Alan Auerbach and William Gale discuss the impact of recent tumultuous economic events and policy interventions on federal budget projections in a recent paper entitled “The Economic Crisis and Fiscal Crisis: 2009 and Beyond” which is published on the web site of the Tax Policy Center (www.taxpolicycenter.org). The authors’ conclusions are rather sobering. The authors indicate that in 2009 the federal deficit will be larger as a share of the economy than at any time since World War II. The current budget deficit is due to the weak economy, as well as past and recent government policies. Under optimistic assumptions, the deficit is projected to average at least \$1 trillion per year for the 10 years after 2009. The previous record deficit was \$455 billion in fiscal year 2008. The longer run picture is even bleaker. The authors estimate the fiscal gap, the immediate and permanent increase in taxes or reduction in spending that would keep the long-term debt/GDP ratio at the current level, to be

between \$1 trillion and \$1.3 trillion per year in current dollars. The authors will periodically update their estimates and post them to the web site for the Tax Policy Center. The above analysis was taken from their estimates as of February 19, 2009.

Markus Brunnermeier has recently written a paper a paper entitled “Deciphering the Liquidity and Credit Crunch 2007-08” (NBER Working Paper 14612). The paper describes the main events leading up to the credit crisis and factors that amplified the losses in the mortgage market. Key factors leading up to the crisis were the low interest rate environment of the early and mid 2000s, and a major transformation of the banking system. Numerous banks went from issuing and holding loans until they are repaid to an “originate and distribute” banking model. The combination of a low interest rate environment and the transformation of the banking system led to a lowering of banking standards and unprecedented credit expansion. The author discusses why liquidity dried up in some financial markets resulting in severe financial problems for banks heavily involved with mortgage lending activities. The paper by Markus Brunnermeier can be accessed on my contributor site on the AgManager web site (www.agmanager.info).

A recent article written by Samuel Gregg and published in *Public Discourse*, an online publication of the Witherspoon Institute, discusses recent federal legislation related to mortgage relief. As noted by the author, home ownership has many positive aspects to it so it is not surprising that the federal government has developed a mortgage relief plan that would use taxpayers’ money to help millions of homeowners avoid foreclosure and to purchase stock in Fannie Mae and Freddie Mac. However, there are economic ramifications involved with this relief plan. As recognized by many economists, a portion of the assets held by

American and European banks are toxic and were premised on an inflated housing market. One of the fastest ways to allow the market price for homes to adjust is to permit the market to stabilize or reach a new equilibrium without government intervention. The mortgage relief plan may just delay the inevitable. More importantly, the government plan may encourage more risky decision making in the future. The willingness to take on high risk is often associated with the prospect of high gain. There is also a flip side. Those that take on high risks must also be willing to accept the possibility of large losses. Failure to do so may have a negative impact on how risk is viewed in the future. The article by Samuel Gregg was

written on March 6 and can be accessed on the following web site:

www.thepublicdiscourse.com.

The web site for the Federal Reserve Bank of Kansas City (www.kc.frb.org) contains a wealth of information on the U.S. and Tenth Federal Reserve District economies including data and research pertaining to production agriculture. Of particular interest, is the bank's quarterly *Survey of Agricultural Credit Conditions*. This survey provides current indicators of financial performance of Tenth District agriculture.

*Michael Langemeier, Professor
Department of Agricultural Economics*

The Kansas Farm Management Association (KFMA) Newsletter is distributed monthly to provide farm management information to farm decision makers. Further farm management information can be found on the KFMA program website: www.agmanager.info/kfma; and, on the Extension Agricultural Economics website: www.agmanager.info. The Newsletter is edited by Michael Langemeier, Professor, Department of Agricultural Economics, Kansas State University.



Kansas State University Agricultural Experiment Station and Cooperative Extension Service.
K-State Research and Extension is an equal opportunity provider and employer. Issued in furtherance of Cooperative Extension Work, Acts of May 8 and June 30, 1914, as amended. Kansas State University, County Extension Councils, Extension Districts and United States Department of Agriculture Cooperating, Fred A Cholic, Director.
