



PRODUCTION, MARKETING, AND PRICING PRACTICES AND METHODS OF COW-CALF PRODUCERS

This article is the first part of a three part series that will report the results of the KFMA cow-calf survey conducted in May and June of 2009. Surveys were mailed to all KFMA members with a whole-farm analysis and a cowherd in 2008. Survey participants were asked questions pertaining to production practices, marketing and production methods, risk preferences, and perceived comparative advantages. This part of the series will focus on the production practices as well as marketing and pricing methods used by survey respondents. The second and third parts of the series will discuss risk preferences and perceived comparative advantages of survey respondents, respectively. A word of thanks goes out to all of the cooperating KFMA members and economists.

Table 1 summarizes production practices of survey participants. There were 312 survey respondents. Approximately 80 percent of the farms did not utilize artificial insemination. Of the 20 percent that used artificial insemination, 65 percent reported typically having a 40 to 70 percent success rate of bred cows through artificial insemination. Approximately 67 percent of the surveyed producers culled open cows immediately and sold them. When asked about reasons for keeping an open cow, the most common response was to cull every cow

with no second chances. However, from 24 to 30 percent of the producers surveyed may keep an open cow if it was the first time that the cow was open, the cow had good previous production performance based on reproductive records, or was perceived to be a high quality cow.

Survey participants were asked a question related to their participation in the following production management programs: retained ownership, certified feeder cattle programs (e.g., Red Angus Feeder Calf Certification Program), product specified feeder cattle programs (e.g., Angus Source®), and pasture to plate alliances. Approximately 37 percent of the survey respondents retained ownership of their calves. Approximately 11 percent, 3 percent, and 1 percent of the survey respondents participated in product specified feeder cattle, certified feeder cattle, and pasture to plate alliance programs, respectively. When producers were asked how much more their expected return would need to be to convince them to retain and feed calves over to sell in March if they typically market their spring-born calves at weaning in November, the most common response, 35 percent of the survey respondents, was that they would consider retaining their calves to sell in March if their expected return would be 10 percent higher. Only 15 percent of the respondents indicated they would not consider carrying them over.

Survey participants were also asked what they typically did with their calves each year after weaning. Questions were broken into two

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groupings: steers and heifers. Possible responses were “Always”, “Often”, “Sometimes”, “Seldom”, or “Never” in which the respondent could circle the response that best fit their production decisions. For steer calves, 28 percent of the respondents reported always selling steers after weaning, 28 percent always backgrounded their steers then sold them, and 10 percent always retained steers through finishing. For heifer calves, 29 percent reported always retaining heifers as replacements, 19 percent always sold heifers after weaning, 25 percent always backgrounded heifers and then sold them, and 8 percent always retained heifers through finishing.

In order to further examine respondents’ preferences for either retaining ownership of their calves or not, they were asked two questions that allowed them to indicate reasons for retaining ownership or reasons for not retaining ownership. Reasons to retain ownership and for not retaining ownership are listed in table 1. The reason to retain ownership with the most responses, 36 percent of survey respondents, was that producers see the risk worthwhile to earn the potential of more dollars per head by retaining ownership of their feeders. A large proportion of respondents (47 percent) reported they do not retain ownership because they do not want to take the risk involved with ownership of feeders. The second most common response for not retaining ownership was the desire to receive revenue earlier, rather than waiting until calves were backgrounded or finished (35 percent of the respondents).

A question was asked pertaining to whether survey participants use their pasture ground for reasons other than grazing. Results are reported in table 1. The most common response (36 percent of survey respondents) was to use their pasture for hunting. Other uses of pasture included recreation, energy development, and agritourism.

Marketing and pricing methods used by survey respondents are summarized in table 2. In terms of marketing methods of calves sold annually, selling them at a local auction barn was by far the most common method. However, 15 percent of the producers utilized direct marketing. Cash only pricing methods were the most popular (90 percent of survey respondents). Approximately 5 percent of the producers used forward contracting or marketing agreements.

Looking forward into the next two years, producers were asked how they envisioned their cattle herd and crop acreage changing; they were given the choices of expanding in size, reducing in size, or remaining the same size for each option. Figure 1 summarizes the responses to this question. The majority response for both the beef cow herd and crop acreage was to remain the same size. Interestingly, a higher percentage of the respondents planned on expanding their beef cow herd rather than expanding their crop acreage.

In summary, production, marketing, and pricing practices and methods vary considerably among cow-calf producers. Approximately 79 percent of the farms sell their calves in a local auction barn while 90 percent of the farms use only cash pricing methods to sell their calves. Approximately 37 percent of the farms surveyed retain ownership of their calves. In addition to discussing the risk preferences of survey participants, the second article in this series will evaluate how risk preferences of the cow-calf survey respondents’ impact retained ownership. The third article will discuss differences in perceived comparative advantages among producers.

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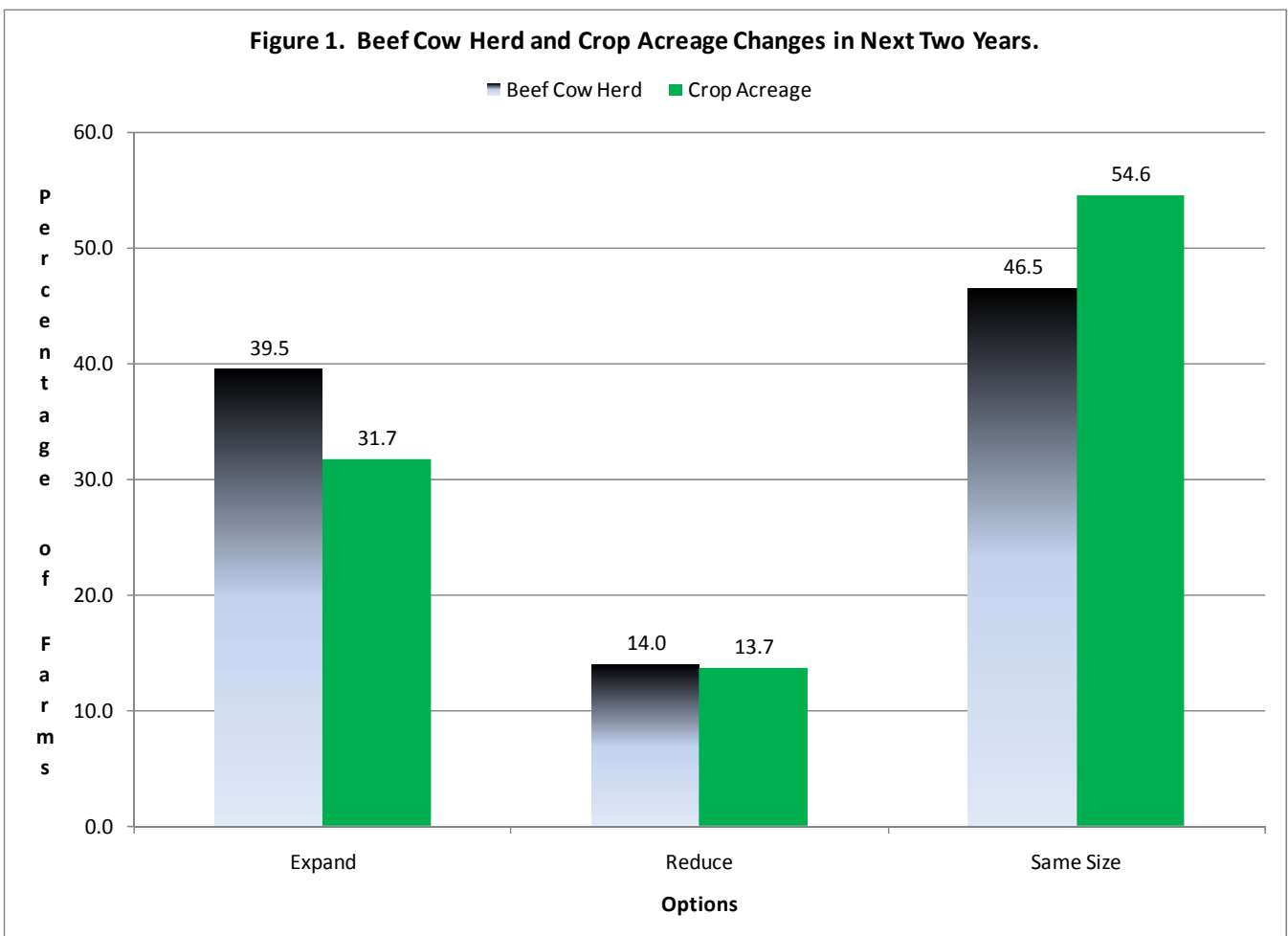
Table 1. Production Practices of Cow-Calf Survey Participants.

Practice	% of Farms
<u>Calving Season</u>	
Calve in the Spring	75.8%
Calve in the Fall	23.2%
<u>Artificial Insemination</u>	
Use Artificial Insemination	20.2%
<u>Culling Open Cows</u>	
Cull Immediately and Sell	66.8%
Reasons to Keep an Open Cow:	
Cull Every Cow; No Second Chance	34.3%
Cull Based on Quality	29.8%
Cull Based on Reproductive Records	26.9%
Cull Based on Whether First Time Open	23.7%
<u>Retained Ownership</u>	
Retain Ownership of Calves	37.2%
Reasons to Retain Ownership:	
See risk worthwhile	35.6%
Get a good return for genetic improvements	16.4%
Receive performance data	13.1%
Receive carcass data	12.5%
Reasons for Not Retaining Ownership:	
Don't want to take risk involved	46.8%
Want to receive revenue earlier	34.6%
Don't have a relationship established with feedlot	25.6%
Don't receive additional profit	17.3%
<u>Alternative Uses of Pasture</u>	
Hunting	36.2%
Recreation	9.0%
Energy Development	8.7%
Agritourism	0.6%

Table 2. Marketing and Pricing Methods of Cow-Calf Survey Participants.

Practice	% of Farms
Marketing Method	
Direct Marketing	15.4%
Local Auction Barn - Normal Sale	70.0%
Local Auction Barn - Special Graded Sale	8.7%
Video Auction	3.4%
Pricing Method	
Forward Contracting or Marketing Agreement	4.6%
Futures Hedging	1.5%
Futures Options	2.0%
Cash Only	90.0%

Figure 1. Beef Cow Herd and Crop Acreage Changes in Next Two Years.



MEASURING SCOPE EFFICIENCY FOR CROP AND BEEF FARMS

Both the percent of income from livestock and the percent of farms with livestock income in Kansas have declined over the last 30 years. Though this decline has occurred for beef, swine, and dairy, the percentage decline is not near as large for beef as it is for swine and dairy. Moreover, the majority of farms still have a beef enterprise. In 2008, approximately 63 percent of KFMA farms had a beef enterprise. The existence of economies of scope or scope efficiency for a combination of crop and beef enterprises would help explain the persistence of this farm type. Scope efficiency exists when the total cost of producing two or more enterprises together on the same farm is less than the total cost of producing the enterprises on separate farms. This article examines scope efficiency for a sample of KFMA crop and beef farms.

Scope and economic efficiency were estimated using linear programming. Scope efficiency compares the cost of producing individual outputs separately to the cost of producing outputs jointly. If scope efficiency is greater than zero, there is a cost advantage associated with producing crop and beef enterprises on the same farm. Scope efficiency could lead to improvements in economic efficiency which measures a farm's ability to produce at the lowest possible cost for a given level of output or on the cost frontier. Economic efficiency indices vary between zero and one with one representing an economically efficient farm.

Scope and economic efficiency estimates are summarized for several farm size categories below. Three measures of farm size are utilized: value of farm production, total acres, and beef income. The mean and standard deviation are used to categorize farms into total acre and beef income groups.

Efficiency estimates were obtained using a sample of KFMA farms with continuous data from 2004 to 2008. Given the focus on crop

and beef farms, farms typed as swine, dairy, or turkey were not included in the analysis. Table 1 contains summary information for the sample of farms. The standard deviation for each variable can be found in parentheses. Information is summarized for all farms with crop and/or beef enterprises, and for beef farms or farms that produced at least some beef. It is important to note that most of the beef farms also produced crop enterprises and received income from government payments, crop insurance, custom work, and/or patronage dividends. It is also important to note that five-year averages of output and input data were used to estimate scope and economic efficiency. Using five-year averages reduced the impact of weather in a particular year on efficiency.

Inputs were divided into five categories: labor, crop inputs, fuel and utilities, livestock inputs, and other. Labor included hired as well as family and operator labor. Crop inputs included seed, fertilizer and lime, crop marketing and storage, herbicide and insecticide, and crop insurance. Livestock inputs included dairy expense, feed purchased, veterinarian expense, and livestock marketing and breeding expense. The "other input" represented capital and miscellaneous expenses and included repairs, machine hire, conservation, interest, cash farm rent, real estate and personal property taxes, general farm insurance, organization fees, dues, and publications, and depreciation.

Data for all of the sample farms were used to estimate scope and economic efficiency. To effectively measure scope efficiency, farms with various enterprise combinations were needed. Given the focus of this study, scope and economic efficiency results discussed below are presented only for the farms with a beef enterprise (i.e., beef farms).

The average scope efficiency index was 0.2527 indicating that joint production of beef and crop

enterprises on the same farm reduced cost approximately 25 percent. The average economic efficiency index was 0.6753 indicating that, on average, farms could reduce cost by approximately 32 percent by producing at the lowest possible cost for a given level of output or on the cost frontier.

Table 2 presents correlation between efficiency, and income, expense, and farm size variables. The income and expense ratios were computed by dividing the income or expense item by value of farm production. Correlation is a statistical measure of how variables move together and is bounded by -1.0 and 1.0. A value of -1.0 indicates two variables move together perfectly, but in opposite directions, while a value of 1.0 indicates two variables move up and down together proportionally. Values close to zero indicate the two variables have little relationship to each other. Note that scope efficiency is significant and negatively correlated with feed grain and oilseed income, and significant and positively correlated with beef income. This indicates that farms with relatively larger amounts of feed grain and oilseed income have lower scope efficiency indices while farms with a relatively larger amount of beef income have higher scope efficiency indices. Examining the correlation between scope efficiency and the expense ratios, it is evident that farms with relatively larger labor, fuel and utility, and other expense ratios have higher scope efficiency indices. This result suggests that farms with higher scope efficiency indices use joint production to lower these input ratios. This result is very intuitive. Controlling labor and

capital expenses are often cited as reasons for producing both crop and beef enterprises. Finally, scope efficiency is significant and negatively correlated with farm size while economic efficiency is significant and positively correlated with farm size. In other words, larger farms have lower scope efficiency indices and higher economic efficiency indices.

Following up on the relationship between efficiency and farm size, Table 3 presents scope and economic efficiency indices by farm size category. Regardless of the farm size measure used, the largest farm size category had significantly lower scope efficiency indices and significantly higher economic efficiency indices. It is important to note, however, that even though the scope efficiency index for the largest farm size categories is significantly lower than indices for smaller farms, it is still significantly greater than zero indicating that scope efficiency is still important on larger farms.

Given the results presented in this article, the crop/beef farm type is likely to remain a common farm type in Kansas. There are significant cost advantages associated with producing both crop and beef enterprises on the same farm. These cost advantages are particularly strong for smaller farms which use diversification to reduce per unit labor and capital costs.

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Table 1. Summary Statistics for a Sample of Crop and Beef Farms.

Variable	All Farms	Beef Farms
Number of Farms	817	563
<u>Efficiency</u>		
Scope	N/A	0.2527 (0.1765)
Economic	0.6698 (0.1244)	0.6753 (0.1219)
<u>Income</u>		
Feed Grains	98,077 (140,363)	87,818 (127,865)
Hay and Forage	13,141 (37,992)	13,913 (39,307)
Oilseeds	68,265 (89,838)	65,596 (88,500)
Small Grains	64,124 (69,613)	60,385 (65,887)
Beef	53,162 (164,458)	77,146 (193,434)
<u>Expenses</u>		
Labor	58,582 (35,445)	59,001 (36,044)
Crop Inputs	101,185 (99,291)	96,963 (95,142)
Fuel and Utilities	29,489 (31,202)	28,696 (24,738)
Livestock Inputs	23,801 (173,665)	33,962 (208,410)
Other	177,002 (130,559)	182,484 (131,796)
<u>Farm Size</u>		
Value of Farm Production	343,444 (310,908)	341,890 (307,731)
Total Acres	1,905 (1,275)	2,046 (1,322)

Table 2. Correlation Between Efficiency, and Income, Expense, and Farm Size.

Variable	Scope Efficiency	Economic Efficiency
<u>Income Ratios</u>		
Feed Grains	-0.3727*	0.1619*
Hay and Forage	0.0449	-0.1631*
Oilseeds	-0.1152*	-0.0290
Small Grains	0.0355	-0.0938*
Beef	0.2201*	0.1246*
<u>Input Ratios</u>		
Labor	0.7870*	-0.3176*
Crop Inputs	-0.1983*	-0.1815*
Fuel and Utilities	0.4812*	-0.2696*
Livestock Inputs	0.0221	0.2028*
Other	0.5802*	-0.5397*
<u>Farm Size</u>		
Value of Farm Production	-0.6165*	0.4568*
Total Acres	-0.5820*	0.3109*
Beef Income	-0.1510*	0.2398*

Note:

An asterisk indicates that the efficiency index was significantly different from zero at the 5% level.

Table 3. Scope and Economic Efficiency by Farm Size Category.

Farm Category	Number of Farms	Scope Efficiency	Economic Efficiency
<u>Value of Farm Production</u>			
Less than \$100,000	70	0.5999 ^{*a}	0.6199 ^a
\$100,000 to \$250,000	204	0.3079 ^{*b}	0.6390 ^a
\$250,000 to \$500,000	182	0.1557 ^{*c}	0.6812 ^b
Greater than \$500,000	107	0.0850 ^{*d}	0.7705 ^c
<u>Total Acres</u>			
Less than 724	54	0.5721 ^{*a}	0.6367 ^a
724 to 3,368	446	0.2328 ^{*b}	0.6699 ^a
Greater than 3,368	63	0.1194 ^{*c}	0.7463 ^b
<u>Beef Income</u>			
Less than \$270,580	543	0.2576 ^{*a}	0.6703 ^a
Greater than \$270,580	20	0.1184 ^{*b}	0.8094 ^b

Notes:

An asterisk indicates that the scope efficiency index was significantly different from zero at the 5% level.

An unlike superscript in the scope efficiency or economic efficiency column indicates that the indices are significantly different across size categories.

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.

A recent USDA-ERS article written by Harris et al. summarizes recent income, equity, and financial performance projections for U.S. farms. Average net farm income and net cash income are projected to decline by 34.5 and 28.4 percent, respectively, in 2009. The largest declines in average net cash farm income are expected for beef cattle (-26 percent), hog (-52 percent), and dairy (-82 percent) operations. Equity is expected to also decline as farm-sector asset values drop by 3.5 percent. Farm financial ratios, though lower than those experienced in the last couple of years, are expected to remain strong compared to levels experienced in 1980s and 1990s. For those wanting additional information, the full article is posted on my contributor site under "Recommendations for Further Reading".

The Center for Farm Financial Management has recently posted an online workshop series that illustrates and discusses how to use and interpret financial statements. The workshop series first covers basic financial statements such as the balance sheet, income statement, and cash flow statement. The series then covers important financial ratios and measures. The online workshop series can be accessed through the home page for the Center for Farm Financial Management (www.cffm.umn.edu).

An article written Craig Hakkio and William Keeton of the Federal Reserve Bank of Kansas City discusses financial stress in the U.S. economy. As the authors indicate, there will come a point when the Federal Reserve will need to remove liquidity from the economy. A

measure of financial stress would help the Federal Reserve determine the time frame for these actions. The article presents a new index of financial stress called the Kansas City Financial Stress Index (KCFSI). The authors contend that their measure captures key features of financial stress and provides valuable information pertaining to future economic growth. Key features of financial stress include increased uncertainty about the fundamental value of assets, increased uncertainty about behavior of other investors, increased asymmetry of information between lenders and borrowers, decreased willingness to hold risky assets (flight to quality), and decreased willingness to hold illiquid assets (flight to liquidity). Asymmetry of information is said to exist when borrowers know more about their true financial condition than lenders, or when sellers know more about the true quality of assets than buyers. Information gaps tend to worsen during periods of financial stress. More information on this new financial stress measure can be found in the full article posted on my contributor site under "Recommendations for Further Reading".

As indicated in last month's newsletter, a recent book by Johnny Taylor, Jr. and Gary Stern entitled "The Trouble with HR: An Insider's Guide to Finding and Keeping the Best Talent" does a good job of discussing how to select, train, and retain employees. In particular, the authors discuss the importance of hiring for the long-term. Approaches that can be used to hire for the long-term include letting the detailed job description dictate the choice, asking the right questions, thinking about the future, and being straight about the job. If you have several employees, it is particularly important to determine how potential hires would handle challenges and conflicts. Also, if a candidate has good skills, but seems to be interested in being promoted in the near future and is likely to switch jobs after a short time on the job,

choose someone else. Finally, a thorough job description will help you hire the right employee, not just an employee that “feels right”. More information on this topic can be found in the book.

The web site for the Council of Economic Advisors
(www.whitehouse.gov/administration/eop/cea) contains economic reports and indicators as well as speeches and testimony. The Council of Economic Advisors is an agency within the

Executive Office of the President and is charged with offering the President economic advice on policy issues. Key economic indicators are provided in a publication entitled “Economic Indicators”. This publication provides information on gross domestic product, income, employment, production, business activity, prices, money, credit, security markets, Federal finance, and international statistics.

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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.



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