Cow-Calf Profitability: Where to Focus Management for Success

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What factors affecting profitability are Kansas cow-calf producers able to persistently manage?

What factors drive profitability of Kansas cow-calf producers?

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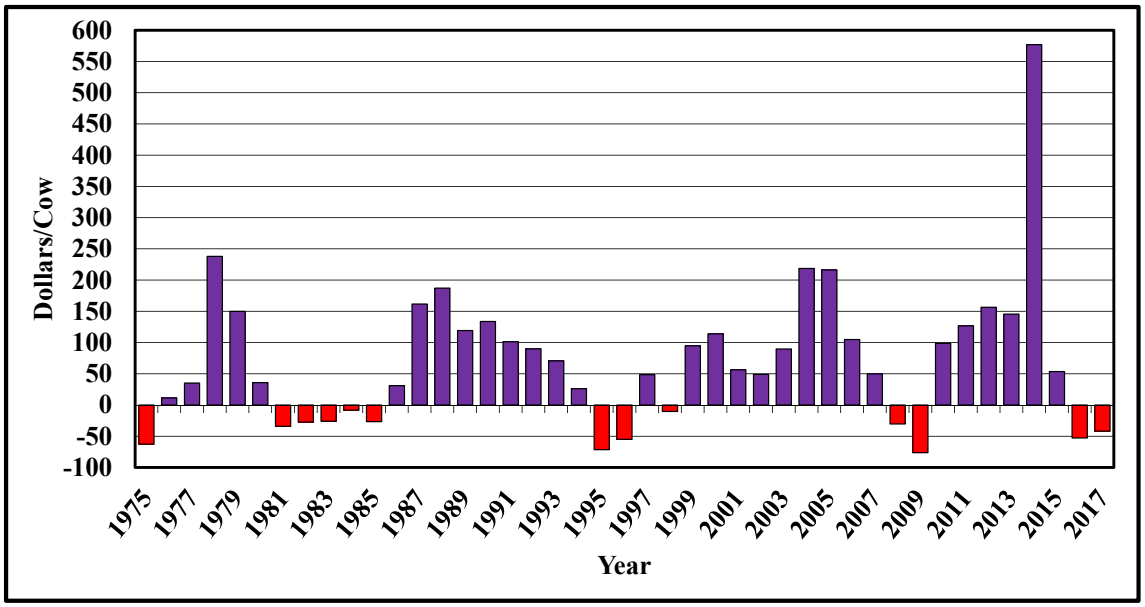
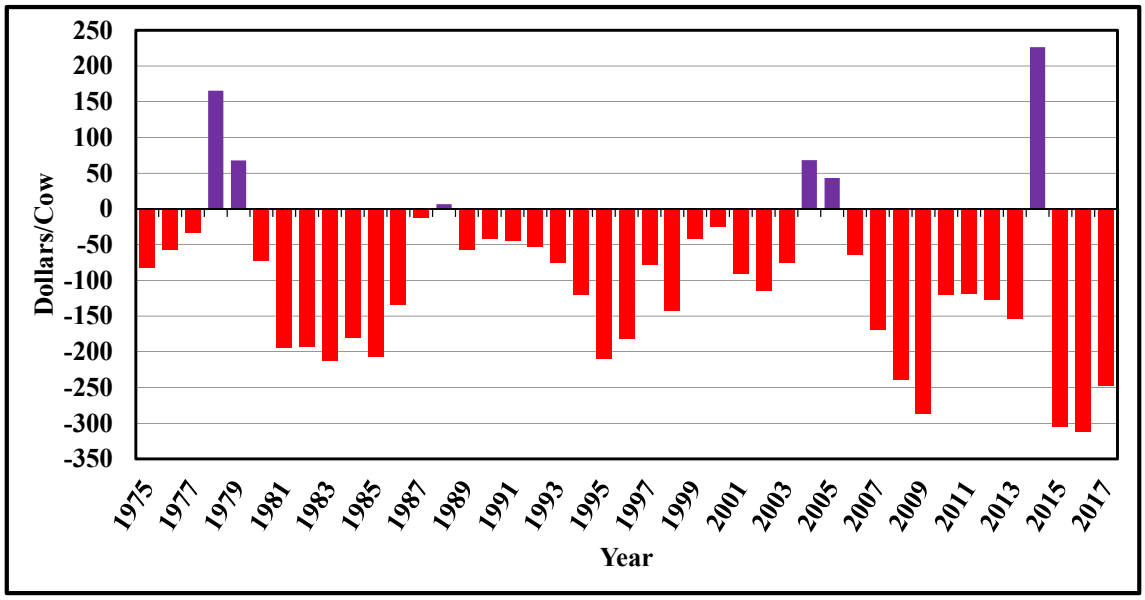
Return Over Variable Cost



Return Over Total Cost



Return Over Total Cost

- Positive only 6 of 43 years
- Average return of -$100.02 per cow
- Difference of $538 over 2-year span
  - Record high average in 2014 of $226
  - Record low average in 2016 of -$312

- Some producers lose money even in “good years”
- Some producers make money even in “hard years”

What factors affect profitability and
can be persistently managed over time?

Data

- 2013 – 2017 KFMA cow-calf enterprises
  - 69 enterprises with data in at least 3 of 5 years
- Divided into 3 profitability groups
  - High-, middle- and low-profit
  - 23 enterprises per group
- Multi-year average for each producer
  - Weather, chance, etc. could influence profits

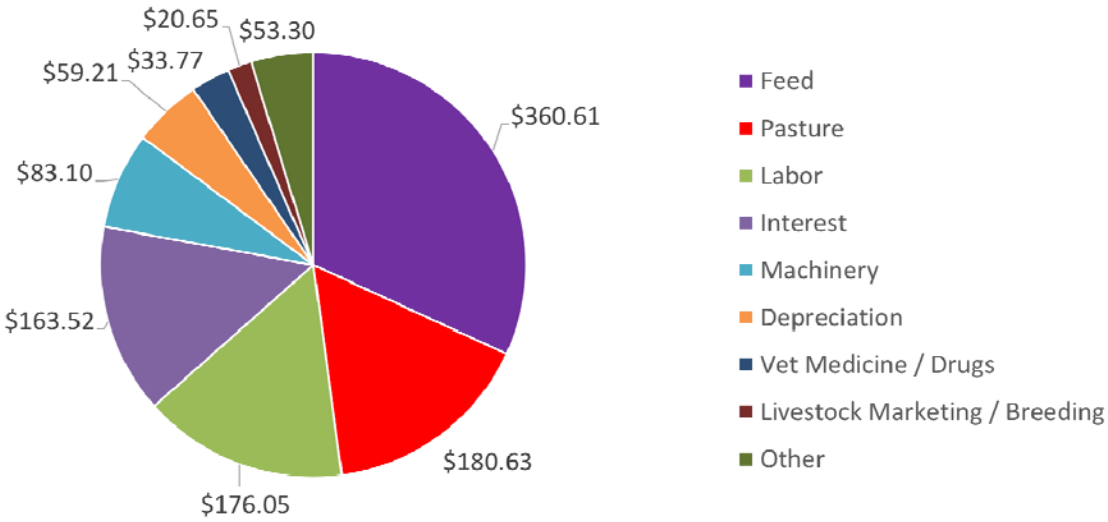
Gross Income

	High 1/3	Mid 1/3	Low 1/3	Difference between High and Low
Number of calves sold				
Number of cows in herd				
Labor allocated to livestock, %				
Weight of calves sold, lbs.				
Calves sold per cow in herd				
Calf sales price / cwt				

Gross Income

	High 1/3	Mid 1/3	Low 1/3	Difference Between High and Low
Number of calves sold	176	120	95	85%
Number of cows in herd	190	130	105	81%
Labor allocated to livestock, %	36.0	31.6	24.6	46%
Weight of calves sold, lbs.	649	626	603	8%
Calves sold per cow in herd	0.925	0.924	0.904	2%
Calf sales price / cwt	$176.24	$173.11	$174.20	1%

Total Cost Per Cow (all producers)



Total Cost Per Cow

	High 1/3	Mid 1/3	Low 1/3	Difference Between High and Low
Feed	$287.79	$387.00	$407.05	-29%
Pasture	$192.54	$160.76	$188.60	2%
Labor	$167.97	$180.69	$180.40	-7%
Interest	$157.85	$157.06	$175.66	-10%
Machinery	$81.66	$77.36	$90.28	-10%
Depreciation	$46.90	$53.13	$77.61	-40%
Vet Medicine / Drugs	$29.04	$37.35	$34.93	-17%
Livestock Marketing / Breeding	$8.81	$30.09	$23.06	-62%

Net Return

	High 1/3	Mid 1/3	Low 1/3	% Different
Gross Income	$1,079	$969	$862	25%
Total Cost	$1,017	$1,141	$1,234	(18%)
Net Returns to Management	$61.45	-$171.84	-$372.28	(117%)

- Difference in Average Net Returns: $433.73
  - 49.9% of differences is due to differences in gross income per cow
  - 50.1% is due to differences in costs
- 55% of the differences in cost between high- and low-profit farms can be attributed to differences in feed cost

For more information, see the full factsheet:

"Differences Between High-, Medium-, and Low-Profit Cow-Calf Producers: An Analysis of 2013-2017 Kansas Farm Management Association Cow-Calf Enterprises"

on AgManager.info

What are the main drivers of net return over the last 16 years for Kansas Farm Management Association cow-calf producers?

Past Studies

- "Payoffs to Farm Management: How Important is Crop Marketing?" (Nivens, Kastens, Dhuyveter, 2002)
  - Cost, Yield, Price, Technology Adoption, Planting Intensity, Government Payments, Enterprise Size, Risk
- "What is Driving Economic and Financial Success of US cow-calf Operations?" (Nehring, et. al, 2014)
  - Enterprise size, Breeding cow inventory, Proportion beef, Stocker and finisher dummy variables, Off-farm income
- "Factors Affecting Beef Cow-Herd Costs, Production, and Profits" (Ramsey, et. al, 2005)

Net Return = f (total variable cost, enterprise size, enterprise size squared, price, production, production squared, proportion of labor devoted to beef enterprise, nonfarm income)

Variable	Expected Sign
Total Variable Cost	(-)
Enterprise Size	(+)
Enterprise Size Squared	(-)
Price	(+)
Production	(+)
Production Squared	(-)
Proportion of Labor Devoted to Beef Enterprise	?
Nonfarm Income	?

Data

- 2002 – 2017 time period
- 3,059 observations from 746 KFMA cow-calf enterprises
  - 1,574 observations from cow-calf operations that sold at weaning
  - 1,485 observations from cow-calf operations that sold calves as feeders

Variables

- Net Return: Gross Income – Total Cost
- Total Variable Cost ($)
- Enterprise Size: beginning breeding cow inventory (head)
- Enterprise Size Squared
- Price: Dollars / cwt
- Production: Lbs. / cow
- Production Squared
- Beef Diversification: percent of total farm labor allocated to beef enterprise
- Nonfarm Income: total household income earned off-farm ($)

	Sold calves at weaning		Sold feeders	
	Mean	Standard Deviation	Mean	Standard Deviation
Net Return	(16,466)	61,139	(17,033)	41,567
Total Variable Costs	70,938	92,599	84,120	74,967
Enterprise Size	125	132	127	90
Price ($ / cwt)	125.97	39.47	116.39	37.67
Production (lb. / cow sold)	590	296	762	306
Beef Diversification (percentage of total farm labor allocated to beef enterprise)	37.52	24.35	33.14	18.27
Nonfarm Income	32,653	54,991	25,583	45,258

Sold Calves at Weaning

- Total Variable Cost
  - "For every $1 increase in TVC, Net Return declines by $0.90"
- Enterprise Size
  - "For every one-cow increase in enterprise size, Net Return increases by $485.12"
- Production
  - "For every pound per cow increase in net sales, Net Return increases by $74.84"
- Production Squared
- Price
  - "For every $1 increase in price ($/cwt), Net Return increases by $345.63"
- Nonfarm Income
  - "For every $1 increase in nonfarm income, Net Return decreases by $0.035"

All Enterprises

(both weaned calves and feeders)

- Production
  - "For every pound per cow increase in net sales, Net Return increases by $49.95"
- Production Squared
- Total Variable Cost
  - "For every $1 increase in TVC, Net Return declines by $0.76"
- Enterprise Size
  - "For every one-cow increase in enterprise size, Net Return increases by $449.17"
- Price
  - "For every $1 increase in price ($/cwt), Net Return increases by $195.14"
- Nonfarm Income
  - "For every $1 increase in nonfarm income, Net Return decreases by $0.028"

Conclusions

- Cost and size matter
- Managing price is less important than managing cost
- Nonfarm Income is significant, but not a major driver

Future Research

- What is the impact of feed efficiency on profitability?
- How does labor efficiency influence profitability?
  - Off-farm employment? Balance between crop and beef enterprises?
- Do more profitable farms have a narrower calving season?

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