University of Kentucky
College of Agriculture, Food and Environment
Cooperative Extension Service

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Economic Considerations for Cowherd Management

COW-CALF PROFITABILITY CONFERENCES

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KENTUCKY BEEF NETWORK

KADF
KENTUCKY AGRICULTURAL DEVELOPMENT FUND

A huge thanks to the Agricultural Development Board for funding this program through the Kentucky Beef Network!

OUTLINE FOR DISCUSSION

- How big of a problem are open cows?
- Is getting bred enough?
  - The importance of timing
  - The importance of lot size
- Can I chase weaning weight too much?
  - Cost vs value of higher weaning weights
  - Can cows get too big?

WHAT IS WEANING RATE?

- Percent of cows (exposed) that wean a calf each year
  - Breeding and calf survival to weaning
- Ex: expose 30 cows to bull
  - 27 / 30 = 90%
  - 24 / 30 = 80%
- Similar to a yield measure when combined with weaning weight
  - Lbs of weaned calf per cow
  - 550 lb avg weaning weight x 90% weaning rate = 495 lbs of wean calf per cow

IMPORTANCE OF WEANING RATE

- Arguably, most important measure for cow-calf operation
- Good operations should be in the 90%'s
- Likely some operations in the 70%'s
- Has major impact on revenues and ability to cover costs
- Converts revenue per calf sold to revenue per cow

RETURN TO LAND AND LABOR PRE-CONFERENCE (INTRO SLIDE) $1.50/LB STEER-HEIFER AVG.

Adjusted Revenue	$702 / cow
Specified Cash Costs	– $440 / cow
Depreciation / Interest	– $150 / cow
Net Return to Land/Labor	***+$112 / cow***

This was based on an 85% weaning rate!

WEANING RATE IMPACT ON RETURNS

REVENUE PER CALF: $825 (550 LB @ $1.50)

% Weaning Rate	Revenue per Cow	Return to Land and Labor
90%	$743	$153
85%	$702	$112
80%	$660	$71
75%	$619	$29

SO WHAT ABOUT OPEN COWS?

- I don't advocate keeping open cows
- I have heard cases made for young cows (2nd calf)
  - Probability of being open is higher in next year
- Some will often roll a cow from spring to fall or vice versa
  - This is really a question of timing
- Bottomline: open cows are a huge drain on your profits!

IS JUST GETTING BRED ENOUGH?

- Calving each year vs every 12 months
- No calving season? Start by managing calving interval
  - Track birth dates and look for long breaks
- A 15 month calving intervals means she is open once every 5 years!
  - 4 calves in 60 months

WHAT DO LATE CALVING COWS COST?

- Weaning weight = lbs = $
  - Likely to calve late again
- Each cycle missed is 21 days and probably 40+ lbs
  - Likely worth $30 to $40 in revenue

CALVING DATES AND STEER WEIGHTS BY CYCLE BRED

	1st	2nd	3rd	4th	5th
Avg birthdate	2-25	3-18	4-8	4-29	5-20
Avg Wean weight	582	540	498	456	414

Assumptions: First calf born on February 15th, 85 lb birthweight, 2 lbs gain per day

WHAT DO LATE CALVING COWS COST?

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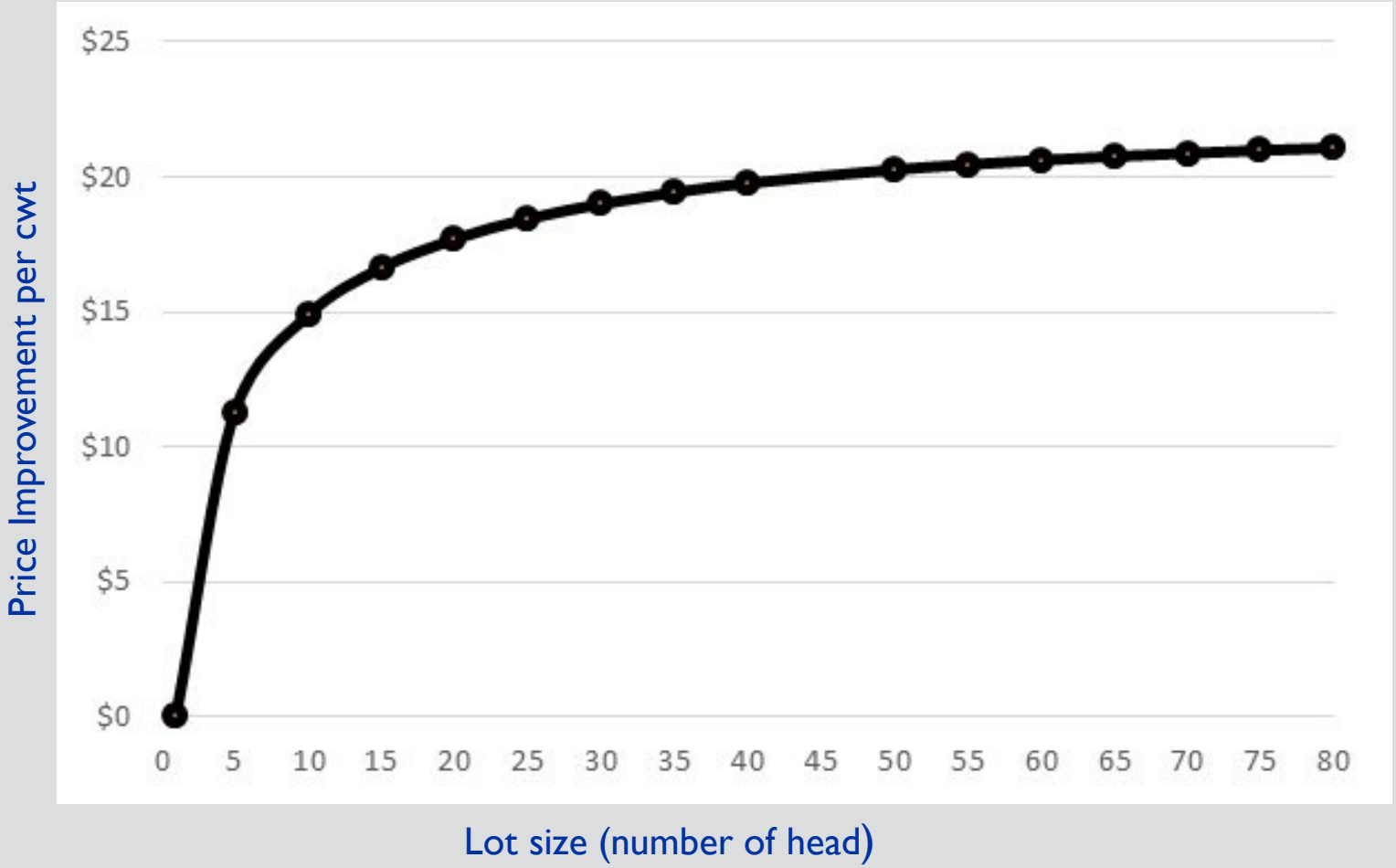
- Yards like to keep weight range 50-75 lbs
  - More important on smaller groups

LOT SIZE IMPACTS (HALICH AND BURDINE, 2015)



Data: Bluegrass Stockyards CPH Sales 2005-2012

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ESTIMATED BREEDING DISTRIBUTION

Bred on 1st cycle	40% of cows exposed
Bred on 2nd cycle	25% of cows exposed
Bred on 3rd cycle	10% of cows exposed
Bred on 4th cycle	5% of cows exposed
Bred on 5th cycle	5% of cows exposed

REVENUE PER CALF BY CYCLE BRED

	Without lot size	With lot size	Diff from cycle 1+2
Cycle 1+2	$723	$814	
Cycle 3+4	$704	$748	($66)
Cycle 5	$642	$649	($165)

Assumptions: Base price $1.40 / lb for 550 lb steer, $15 / cwt price slide, lot size impact from Halich and Burdine (2015), 50 cow herd.

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- Fewer late calving cows = smaller lots
  - Total impact likely $150+ per calf (weight and lot size)

CONCLUSION LATE CALVERS

- Impact of late calves is larger for smaller herds
  - Fewer late calves = even smaller lot sizes
- Higher prices / narrower price slides increase the penalty on late calves
- Impact on overall herd may seem minimal, but…
  - Ie: 5% late calvers costs $150 each
- Likely a perpetual problem
- Use culling as a tool

CAN I BE TOO FOCUSED ON WEANING WEIGHT?

WHAT ARE ADDITIONAL LBS OF WEANING WEIGHT TRULY WORTH?

PRICE VS VALUE OF GAIN

- One of the most common mistakes make in economic analysis of cattle operations
- Additional lbs are not worth "average price"
- Price slide – price per lb decreases on all lbs, as calves get larger

VALUE OF GAIN ILLUSTRATION

- Assume a price slide of $10 per cwt
  - Price decrease by $0.10 per lb for each additional 100 lbs
- 550 lb steer @ $140 per cwt = $770
- 600 lb steer @ $135 per cwt = $810
- $810 - $770 = $40
- Value of gain: $40 / 50 lbs = **$0.80 per additional lb**

VALUE OF GAIN ON PER LB BASIS

	Baseline: 550 lb calf Price			
Price Slide	**$1.20**	**$1.40**	**$1.60**	**$1.80**
$5 per cwt	$0.90	$1.10	$1.30	$1.50
$10 per cwt	$0.60	$0.80	$1.00	$1.20
$15 per cwt	$0.30	$0.50	$0.70	$0.90
$20 per cwt	($0)	$0.20	$0.40	$0.60
$25 per cwt	($0.30)	($0.10)	$0.10	$0.30

VALUE OF ADDITIONAL 50 LBS OF WEANING WEIGHT

	Baseline: 550 lb calf Price			
Price Slide	**$1.20**	**$1.40**	**$1.60**	**$1.80**
$5 per cwt	$45	$55	$65	$75
$10 per cwt	$30	$40	$50	$60
$15 per cwt	$15	$25	$35	$45
$20 per cwt	($0)	$10	$20	$30
$25 per cwt	($15)	($5)	$5	$15

INCREASED WEANING WEIGHT ISN'T FREE

- Did you buy bulls with more growth traits?
- Did you improve your forage program?
- Are you creep feeding?
- Have your cows gotten larger?

- All of these things potentially have a cost
- This must be weighed against the increase revenue

CREEP FEEDING ILLUSTRATION

- Creep feeding will increase weaning weight
- You have to decide if it is worth the additional cost
- The value of the additional lbs should exceed the additional cost of the creep feed
  - Also time, creep feeder, etc.?

VALUE OF GAIN MINUS CREEP FEED COST
30 LBS OF ADDITIONAL WEANING WEIGHT

	Value of Gain Per Lb				
Creep : Gain	**$0.60**	**$0.70**	**$0.80**	**$0.90**	**$1.00**
6 : 1	($0)	$3	$6	$9	$12
8 : 1	($6)	($3)	$0	$3	$6
10 : 1	($12)	($9)	($6)	($3)	$0
12 : 1	($18)	($15)	($12)	($9)	($6)

Note: This table considers feed cost ($200 per ton), conversion (as fed), and value of gain only. It excludes labor and capital.

VALUE OF GAIN MINUS CREEP FEED COST

30 LBS OF ADDITIONAL WEANING WEIGHT

HIGHER FEED COST

	Value of Gain Per Lb				
Creep : Gain	**$0.80**	**$0.90**	**$1.00**	**$1.10**	**$1.20**
6 : 1	$2	$5	$8	$11	$14
8 : 1	($6)	($3)	$0	$3	$6
10 : 1	($14)	($11)	($8)	($5)	($2)
12 : 1	($21)	($18)	($15)	($12)	($9)

Note: This table considers feed cost **($250 per ton),** conversion (as fed), and value of gain only. It excludes labor and capital.

CAN COWS GET TOO BIG?

- Cows have been getting bigger for decades
- EPD's, focus on efficiency, etc.
- It is well known that larger cows cost more to maintain
- Few farmers truly know their cost of production
- Even if they do, they know this "on average"

WEANING WEIGHTS AND REVENUES
$1.50 CALF MARKET & $15 / CWT SLIDE

- 550 lb calf = $825 revenue
  - 550 lbs @ $1.50
- 500 lb calf = $788 revenue
  - 500 lbs @ $1.575
- 450 lb calf = $743 revenue
  - 450 lbs @ $1.65
- Who get's culled?

WHAT COSTS INCREASE WITH COW SIZE?

- Winter feed (hay)
- Pasture
- Mineral
- Vet / medicine
- Breeding
- Trucking
- Marketing

WHAT DO WE KNOW?

- Previous work has show calf weight increases with cow size
  - But not proportionally (will be exceptions)
- Tracking individual cow revenue is possible
- Tracking individual cow costs is not
- Our concept: use average cow costs and adjust for different sized cows

HOW DID WE ADJUST COSTS FROM BASIC BUDGET?

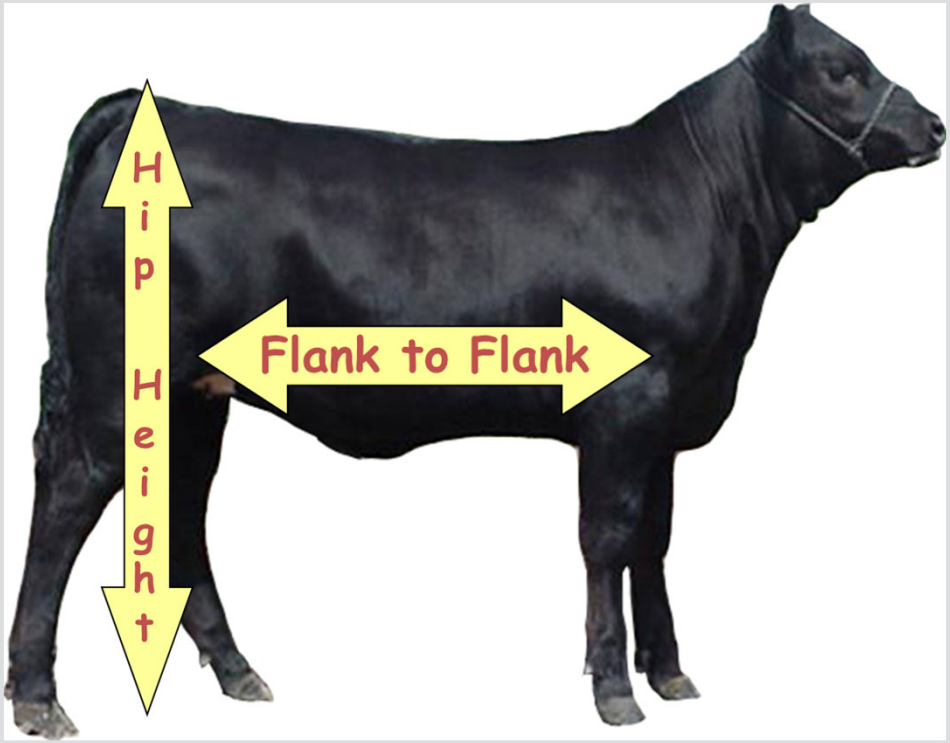
- Costs that increase proportionally with cow size
  - Feed, pasture, mineral, water
- Costs that don’t change with cow size
  - Breeding
- Cows that increase with cow size at 50% proportionality
  - Vet / med, transportation, other
- We adjusted bred heifer value and cull cow value for larger cows

WHAT WERE OUR BASIC CONCLUSIONS

- Each additional 100 lbs of mature cow size -> need another 50 lbs of weaned calf
- 1,400 lb cow needs to wean 100 lbs more calf than a 1,200 lb cow
- Capturing mature cow weights is ideal, but..
- Calibrate estimation though cull cow weight?
- What do you suppose was our biggest pushback?

FEEDER CATTLE GRADING: FRAME SIZE

- Frame based on expected weight when fed to 0.5” of backfat
- Significant price discount on small framed calves
  - $20 per cwt (Burdine et al., 2014)
  - $10 per cwt (Halich and Burdine, 2015)



FEEDER CATTLE FRAME SCORES
WEIGHT RANGE TO REACH 0.5" BACKFAT

	Large Frame	**Medium Frame**	**Small Frame**
Steers	> 1,250 lbs	1,100 to 1,250 lbs	< 1,100 lbs
Heifers	> 1,150 lbd	1,000 to 1,150 lbs	< 1,000 lbs

COW SIZE CONCLUSIONS

- Make mature cow size part of your culling criteria
  - Danger of ignoring it = driving up costs
- Many larger cows could be culling candidates
  - 50 lbs weaning weight per 100 additional lbs cow size
- On average, most operations are a long way from weaning small-framed calves

FINAL THOUGHTS ON HERD MANAGEMENT

- Focus on weaning rate – open cows are a profit drain
- Getting bred isn't enough – timing matters
- Don't exclusively focus on weaning weight
  - Consider costs and tradeoffs
- Use culling as a tool
  - Open cows, late calvers, large cows that wean smaller calves, etc.

CONTACT INFORMATION

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