COW HERD REPLACEMENT

John Dhuyvetter

NCREC

NDSU Extension

Discussion Outline

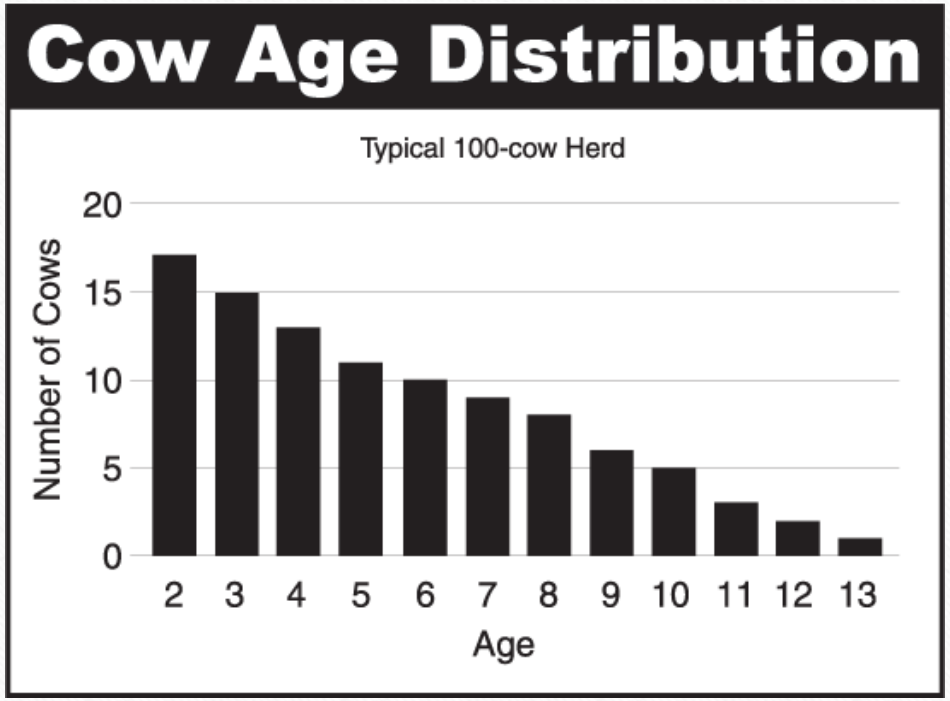
- Cow Ownership Costs
- Cow Longevity
- Culling Reasons and Rates
- Depreciation-Replacement Cost
- Replacement Strategies
- Raising or Buying Replacements
- Heifer Selection and Management
- Maternal Trait Economic Value

COW COSTS

- **Ownership $160**
  - Interest
    - Finance or return on investment
    - 3% of $1500 = $45
  - Death loss
    - 1.5% of $1000 = $15
  - Depreciation
    - $1500 – $780 = $720/7yrs = $100
- **Operating $550**
  - Feed and pasture $400
    - 6 bales @ $40 = $240
    - 8 acres @ $16 = $130
    - 50 lbs salt & mineral = $30
  - Health & Breeding $50
  - Labor/Equipment/Fuel $100

Cow Longevity

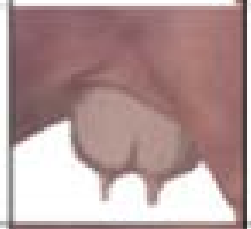
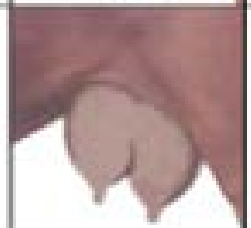
- ND CHAPS
  - Avg cow age 5.6 yrs – herd growth
  - Culling rate 14%, Replacement Rate 17%
  - Keep as long as productive and not likely to die or become problem and sell in time frame of high value cull price



Culling Cows (4 "Os")

- Reasons
  - Aborted or Lost Calf 1+4%
  - Didn't Breed or Very Late 5+3%
  - Bad Udder 1-2%
  - Structurally Unsound 1-2% eyes, hips, feet, jaw, …
  - Bad Temperament 1-2%
  - Low Producing ?????

Udder Scores

Udder Suspension			Teat Size		
Score	Description	Example	Score	Description	
9	Very Tight		9	Very small	
7	Tight		7	Small	
5	Intermediate/moderate		5	Intermediate/moderate	
3	Pendulous		3	Large	
1	Very pendulous, broken floor		1	Very large, balloon-shaped	

Cull and Replacement Prices 2016

Keene	3	black	1298	62.00
Keene	2	black	1298	60.00
Richardton	1	black	1305	59.50
manning	1	red	1310	58.00
Belfield	1	black	1320	61.00
Belfield	1	black	1325	58.50
Keene	1	black	1335	58.00
New England	2	black	1345	58.00
New England	2	blkbwf	1363	58.50

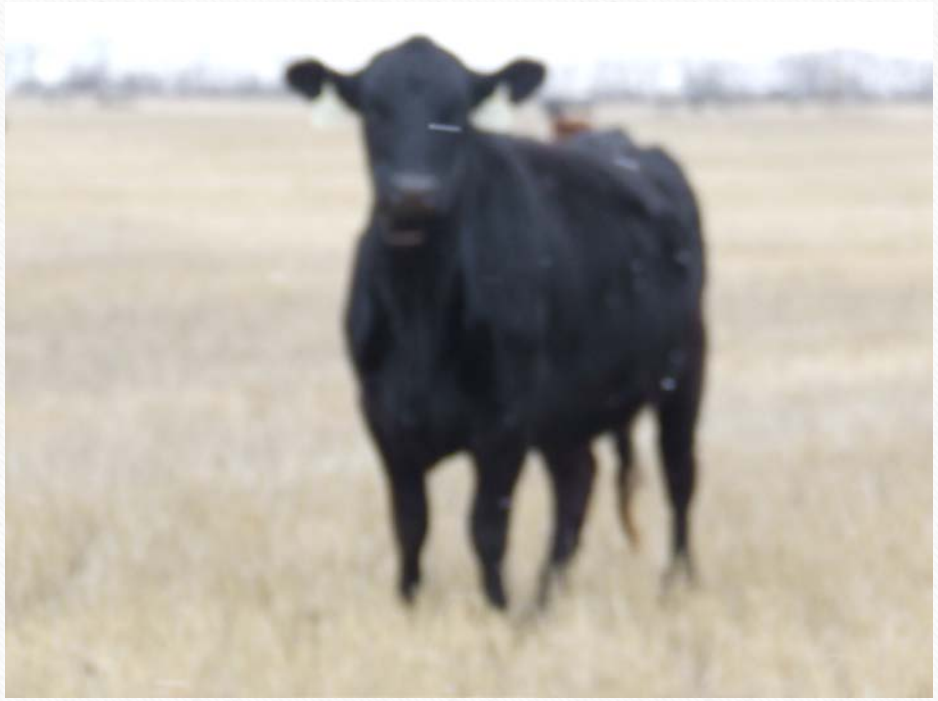
Hebron	20	F1 Bwf	1099	1500.00
Baker,MT	50	Black	1017	1460.00
Sidney,MT	5	RdBldy	1086	1410.00
Sidney,MT	6	Bwf	1198	1400.00
Glen Ullin	9	Bwf	1051	1375.00
Baker,MT	4	Black	1137	1325.00
Glen Ullin	19	Bwf	1027	1300.00
Glendive,MT	15	Black	977	1250.00
Glendive,MT	8	Black	996	1175.00

Managing Replacement Cost

- A. Replacement female Price (low cost heifer dev)
- B. Cull Cow Value (maximize salvage)
- C. % of Herd Replaced (minimize culling)

- (A –B) * C =
- ($1440 – 773) * 14 %= $94 per cow in herd
- ($1200 – 850) * 12% = $42 per cow in herd

Culling is Costly but - failing to cull for fertility, structure, disposition, and productivity leads to creating greater problems in the future



Strategies

- Purchase young bred females or pairs
- Retain pool of heifers that are developed and bred for herd replacements
- Maintain static herd size – replacing culls with a constant replacement rate
- Allow herd to reduce under high cattle prices – low replacement rate
- Expand herd under low cattle prices by retaining greater numbers for breeding

Raise vs Buy

Raise

- Greater opportunity for information
- More accurate selections for genetic merit
- Minimize unfavorable permanent non-genetic effects – better adapted
- Biosecurity

Buy

- Sires selected to maximize steer value
- Eliminates need for calving ease heifer bulls
- Maximize heterosis and complementarity
- Use all pasture and feed resources for income generating cows

Raise vs Buy Economics

(1000 acres @ $15 - 600 bales @ $40 - $2500 supplement)

		BUY	Herd $	RAISE	Herd $
#cows		100		90	
#cows culled		14		13	
#cows die		1		1	
#bred heifers purchased & $		15 * 1500	- 22500	0	
#heifers retained as weaners		0		17	
Cull weight & price & #		1300 *.55 * 14	+ 10010	1300*.55 * 16	+ 11440
Calf weight & price & #		575 * 1.28 * 96	+ 70656	550 * 1.35 * 69	+ 51233
Feed & pasture & supplement			- 41500		- 41500
			$16666		$21173

Selecting Replacement Heifers

- Sired by right type bulls – from a herd that manages cows like you do
    - mature size, optimal milk, fleshing ability, fertility, stayabilty, soundness, docility
- Date of birth and age –
- Moderate birth weight and size –
- Adequate growth and fleshing on high roughage –
- Desired temperament –
- Bred early in limited season –
- Positive genomic profile -
- Sound older dam if identification and records -

Genomic Testing

- Replacement Heifer Tests
  - ZOETIS
    - GeneMax -feeder
    - GeneMax Advantage -cow, feeder, total
      - COW 1-100: **CEM, WW, HP, MW** outliers: **Cost, Docility parentage**
      - FEEDER 1-100: **ADG, CAR WT, MARB, REA, FAT** outliers: **Tenderness**
      - TOTAL 1-100
  - NEOGEN
    - Igenity Silver - 6 traits
    - Igenity Gold - 13 traits
      - Includes**: BW, CE, Stay, HP, Milk, Doc, Tend, Marb, REA, Fat , ADG, RFI, parentage**

Don't overlook Heterosis

- Crossbred Cow Heterosis
  - Calving Rate +6.6%
  - Calf survival +2.0%
  - Birth Weight +1.6%
  - Weaning Wt +4.2%
  - Longevity +38%
- Improvement in weight weaned per cow exposed from crossbreeding
  - Sire breed rotation +16%
  - 4-breed composite +15%
  - 2-breed rotation +16%
  - Terminal x F1 +28%
  - Terminal x composite +22%

Heifer Development

"don't under estimate the value of heifer selection and development on the profitability of the cowherd"

- Evaluate, identify, and develop heifers into cows that do their job
  - Breed and calve in season
  - Calve and raise calf to fall with out problems
  - Wean a marketable high value calf
  - Flesh up in fall and winter on modest feed input
- Fairly easy to manage
  - Wean at 550 lb
  - Grow at 1.5 lb/da
  - YW 750 lb
  - Puberty 12-13 mon
  - Conceive 14-15 mon
  - Calve 1100 lb

Management from conception to weaning

- Nutritional insult in utero has lasting effects on fertility, health, and efficiency
- Best not to implant particularly at birth and weaning. One implant at 2-3 months minimal effects
- Fat deposition from creep feeding detrimental to future productivity and adds to cost
- Bigger heavier earlier born heifers will be easiest and cheapest to develop and are indicative of fertility and growth rate
- Retain more heifers than your replacement rate requires to allow for additional culling latter
- Do not retain heifers extreme in frame or type, with wild dispositions, or structurally unsound
- Preweaning vaccination (7-4-1)

Management from weaning to breeding

"Time spent in the heifer pen will gentle and can be used to teach low stress handling,"

- Heifer weights are helpful to plan feeding and growth targets
- Heifers need to reach puberty by 12-13 months to breed at 14-15 months and calve at 2 yrs of age
- Puberty determined by age and weight with most heifers puberal by 1 year of age at weights 700-800 lbs. Breed and genetic variation with mod-high heritability
- Feeding an ionophore and deworming hastens puberty
- Booster and bangs vaccination, BVD testing
- Target weight concept of 60 - 65% estimated mature weight at breeding effectively achieves high breeding success
- Feed high forage ration supplemented to achieve gain (typically 1.25-1.75) to reach target weight
- Breeding affected little by pattern of growth but can relate to some feed savings
- Avoid ration changes at start of breeding

Breeding Management

- Prebreeding vaccination
- Mating 20-30 days prior the main cow herd has advantages
  - Greater calving supervision, longer postpartum
- Limit breeding season to eliminate late bred heifers with high subsequent culling rate
- Estrus synchronization can enable three breeding opportunities in 45 day season
- Breed to bulls selected for calving ease
  - Breed is important, CE epd best tool
  - AI allows use of proven sires
- Early pregnancy testing to best market open heifers

Bred Heifer Management

- Feed to weigh 85% of expected mature weight at calving and BCS of 5.5-6.0
- Typically need to gain 1 lb/day over winter
- Id and keep calving record
- Separate from cowherd to facilitate special care or greater nutrition
- Check frequently through calving and assist as needed
- Feeding 2-4% added fat and by-pass protein may increase rebreeding rates under marginal forage

Value of Maternal Traits

- cows that last a long time
- high calf wt relative to feed
-

		1	2	3	4
Mature weight		1500	1300	1100	1500
# of calves		4	6	8	8
Calf weaning wt		640	610	550	640
Daily feed intake		42	36	32	42
Life feed cost		1840	2365	2803	3679
Annual non feed		150	150	150	150
Calf value per lb		1.35	1.39	1.44	1.35
Total calf value		3456	5082	6336	6912
Salvage value		870	754	638	870
Value		1886	2511	2971	2903

Questions - Comments

John Dhuyvetter

701-857-7682