Older Cows – Do They Make More Milk, More Money, More Profit?

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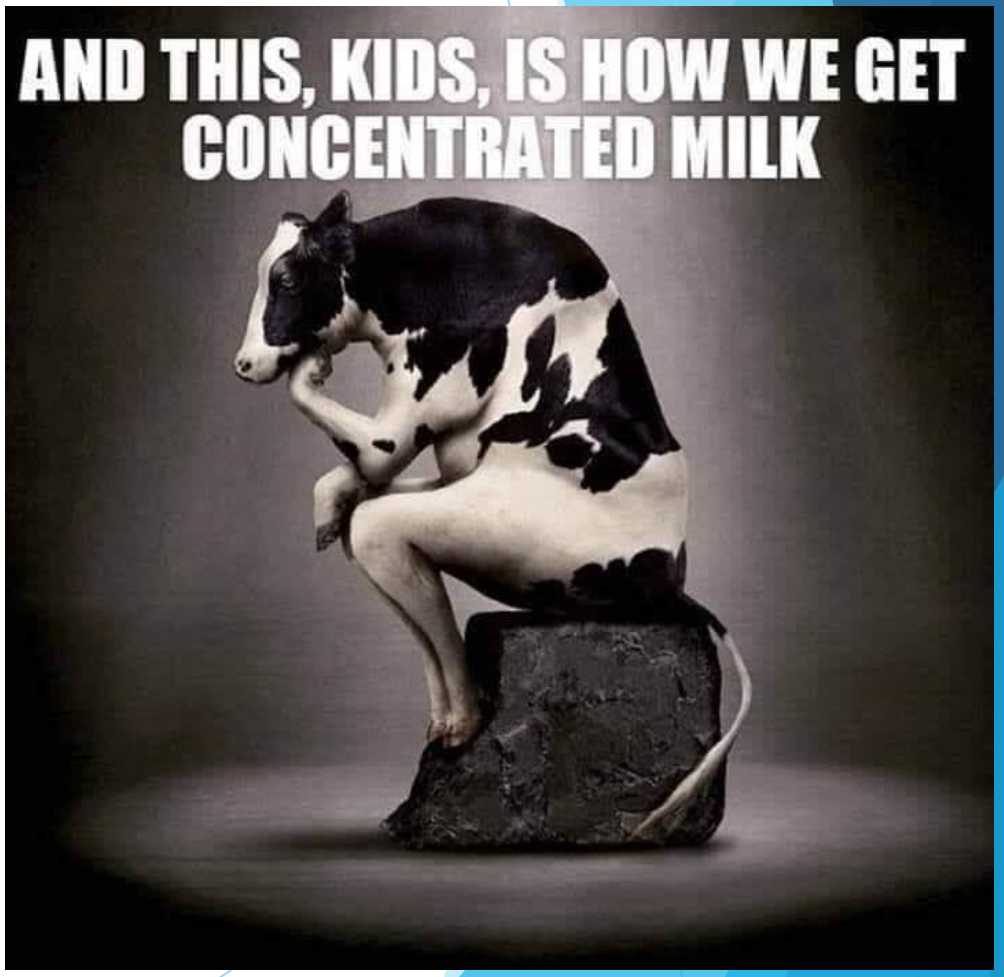
Today's Goal

Make you think about

- Are you you actively managing
  - The age of your herd
  - By looking hard at:
    - Your cull rate
    - Your heifer herd size
    - Milking your most profitable cows



Factors Influencing Age of a Herd

- Cull Rate of Milking Herd
  - Voluntary vs Involuntary Culling
  - Death Rate
- Heifer Inventory
- Static or Growing Herd Size

Cull Rates & Why

- 2018 USDA/NAHMS – Northeast U.S.
  - Cull rate – 31.4%
  - Death rate – 6.2%
  - Total "Cull Rate" – **37.6%**
- DRMS – 2,570 PA herds – **37.2%** total cull rate (sold + died)
- DRMS (2013) DeLaval Cow Longevity Conference 12,309 herds
  - % of herds Avg cull rate %
    - 17.7 21
    - 71.3 37.8
    - 11 55

Weighted Avg **36.7%**

- **Northeast Herds 2018 & 19 Age of herd <41 mo Avg = 38 mo >44 mo Avg = 47 mo**
- **Cull Rate for each age group @ 37-42% for young herds, <32% for older herds**

Cull Rates & Why

- **NAHMS data breakdown**
  - **Voluntary Culling**
    - Poor Production 18.3% +/- 2.2%
    - Dairy Sales 4.6% +/- 1.3%
    - “Mean” .7% +/- 0.2%
    - Other 3.2% +/- .8%
  - **Involuntary Culling – 73,2% of total culls**
    - Repro 23.3% +/- 1.8
    - Mastitis 18.6% +/- 1.3
    - Lameness 9.1% +/- .7
    - Injuries 3.5% +/- .3
    - Metritis 2.2% +/- .7
    - DA 2.0% +/- .2
    - Other 12.1%
    - Died 6.2% (54.5% died <50 DIM)

My Keys to Minimizing Culls

- **Cow Comfort**
  - Overcrowding factors
  - Useable stalls
  - Time away from pen – beds & feed
  - Square footage/cow – injury mitigation
- **Transition Cow program**
  - Nutrition
  - Cow Comfort/Overcrowding – Prefresh & Fresh
  - 60d culls <5%
- **Milk quality**
  - SCC <150,000, Daily clinical cases <1.5%
- **Reproduction program**
  - Preg Rate >25%
  - DIM 150 – 170 – minimize % of low production/late lactation cows, heavy cows at calving
- **Foot Health program** – routine/proper trimming, foot bath protocols, travel surfaces

Does Heifer Inventory Influence Culling & Herd Age?

- Dairy Industry Mentality for Generations has been to "RAISE EVERY HEIFER"!
  - Is this really the PROFITABLE thing to do for a static herd?
  - If a barn can only handle so many cows then older cows are the first to go and/or overcrowding becomes even more challenging for a herd
  - YES – in theory and practice younger cows should be genetically superior to older cows BUT DOES THE HERD NEED EVERY LAST HEIFER?
  - For many Northeast producers, the past year has brought about "base production" programs – thus we should be milking the highest producing, most profitable cows we can have in a herd
    - THESE ARE THE OLDER COW POPULATION!

2019 Cost of Heifer Studies
<average heifer raising cost>

Variable Costs	$1990
Fixed Costs	$ 319
Total Cost	$2309
Range	$2067 - $2602

Source: Pro-Dairy CALS, Summer 2019

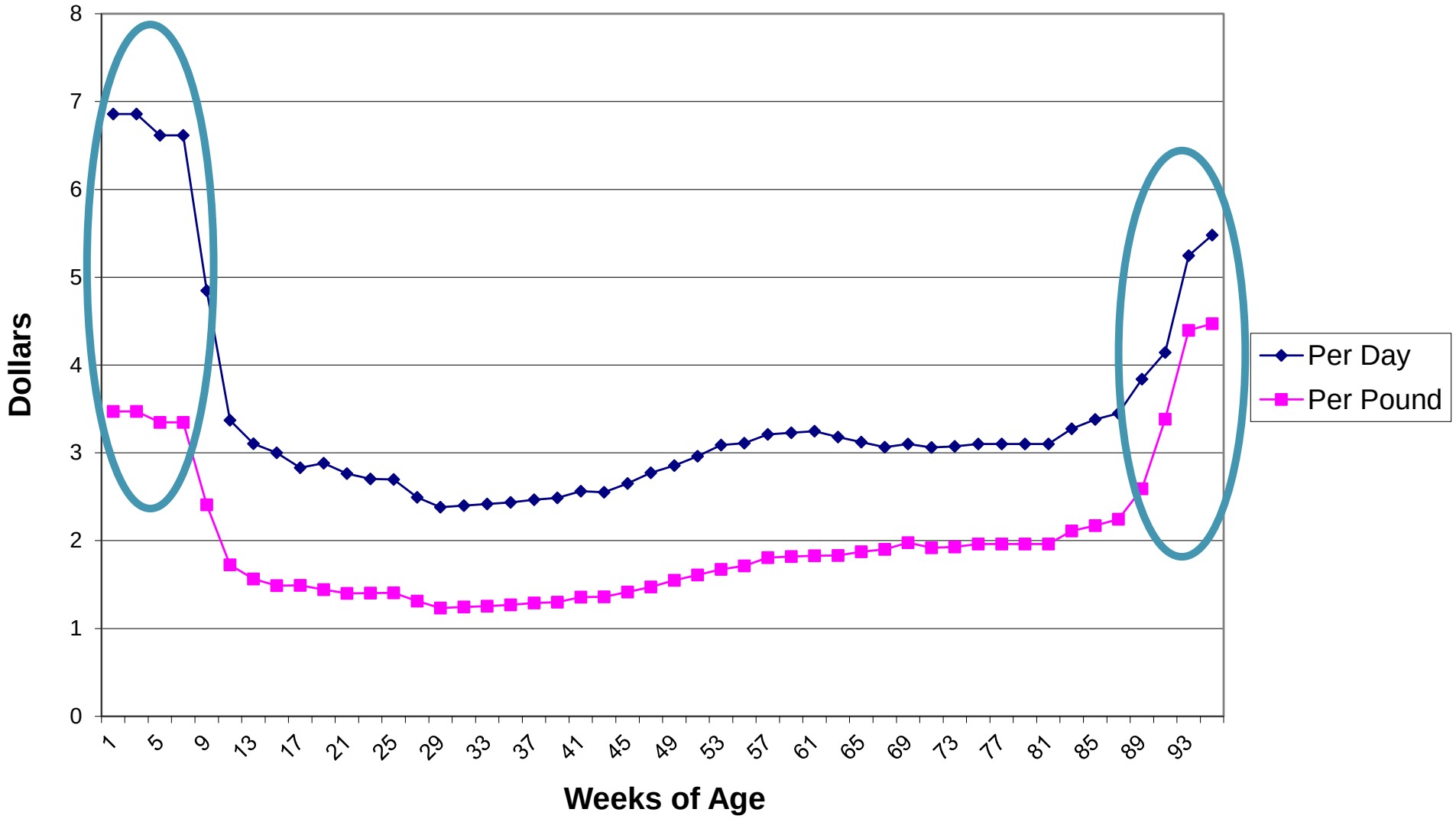
Univ of WI 2019 Data - $2,241 @ 24 mo. AFC

2019 Cost of Heifer Study

Variable Costs	$1990
Fixed Costs	$0
Total Cost	$1990

Source: Pro-Dairy, Dept AnSci, CALS, CU, Summer 2019

Average Heifer Total Costs
26 Northeast Dairy Farms, Summer 2019

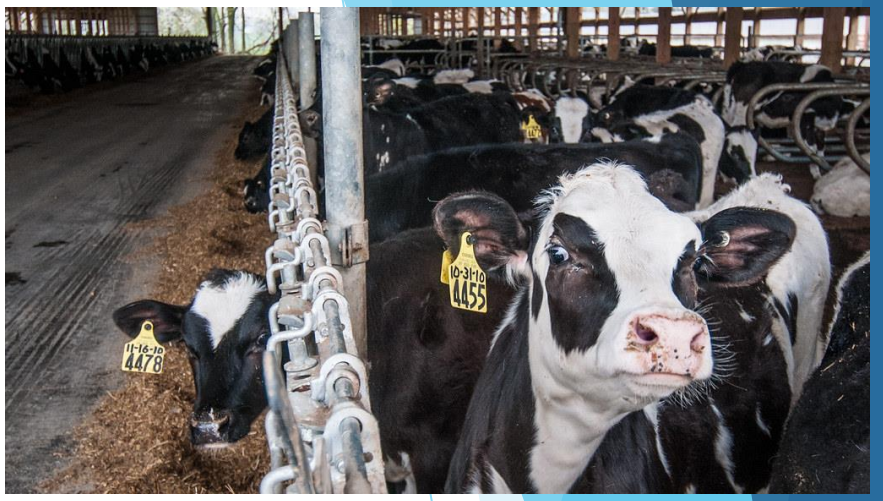


Dairy Replacement Program: Cost & Analysis Summer 2019, Karszes, J, and Hill, L, E.B, 2020-08, Cornell University

Managing the Heifer Herd Numbers

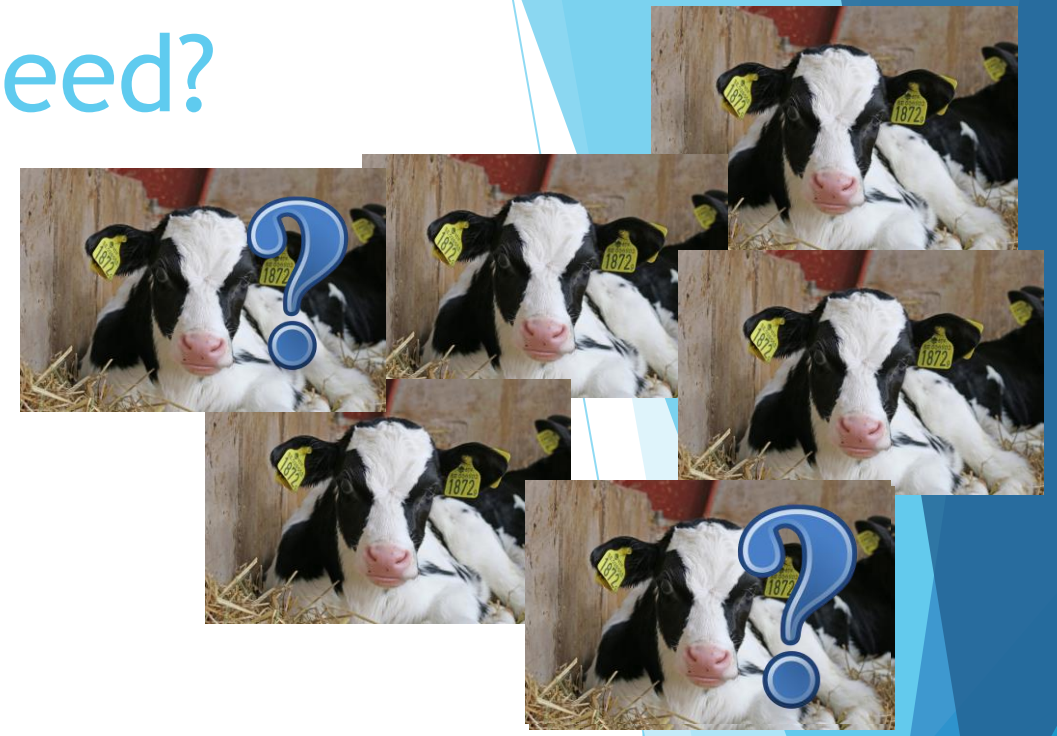
- No one way to do it but a variety of approaches these days
- Sell calves at birth that you don't have a need for (monthly calf inventory management) – the younger the better, most costly period is the milk fed stage of life (feed & labor)
- Strategic use of sexed semen and beef semen
- Don't raise heifers – find a strategic partner to purchase springers and/or fresh 1st and 2nd lactation cows from
- Do you genomic test or not? – How quickly can you get results? Do you make culling decisions ASAP once the data is back? Can you use other genetic information to make a quicker decision?

Raising More Heifers Than Needed – What are the consequences?



- COST
- Are heifer facilities overcrowded and thus compromising health, growth and performance of total heifer herd?
  - No Pneu cases 1-6 mo. of age 1.53x more likely to survive to 24 mo. (PA State, 2017)
- Health compromised calves/heifers that are raised are at higher risk of being culled during first lactation, lower milk?
- Cow barn is full – have to “PUSH OUT” older, more productive mature cows

How Many Heifers Do You Need?



- Function of:
  - Herd Size (static or growing)
  - Age at first calving
  - Lactating herd cull rate
  - Heifer herd non-completion rate (deaths + culls)

  - **herd size × (age @ 1st calving ÷ 24) × cull rate × (1 + heifer non-completion %) x 2**

How Many Heifer Do You Need?

- **herd size × (age @ 1st calving ÷ 24) × cull rate × (1 + heifer non-completion %) x 2**

- **300 cow herd @ 24 mo AFC, 40% cull rate, 10% NCR = 300 x 1 x .40 x 1.1 x 2 = 264 heifers (88% of cow herd size)**

- **300 cow herd @ 23 mo AFC, 35% cull rate, 10% NCR = 300 x 23/24 x .32 x 2 = 221 heifers (73.6% of cow herd size)**

- **$1900 x 43 less heifers = $81,700/2 = $40,850/year**

SO – Do mature cows really make more milk and are they more profitable?

SUM PEAKM BY LCTGP

By LCTGP	Pct	Count	AvPEAKM
1	37	81	101
2	27	60	118
3	36	79	126
Total	100	220	115

Weighted average of Lact 2 & 3+ = 122.5 lbs

1st lact @ 82.4% of "Mature Cows"

Herd avg age = 46 mo. Avg Lact = 2.4

What does Peak Milk Mean to Lactation Yield?

- Literature – old and recent shows 1 lb peak = **200** – 250 lbs increased lactation yield
- Previous slide example – mature cows 21 lbs of peak higher x 200 lbs/lb peak = 4,200 lbs additional lactation yield for the mature cows
- 220 cow herd @ **35% 1st vs 40%** 1st = 11 more mtr cows @ 4,200 lbs/cow = 46,200 lbs additional milk/yr
  - 462 cwt @ $17/cwt = $7,854/yr additional gross revenue
- 220 cow herd @ **30% 1st vs 40%** 1st = 22 more mtr cows @ 4,200 lbs/cow= 92,400 lbs additional milk/yr
  - 924 cwt @ $17/cwt = $15,708/yr additional gross revenue
- **Feed Efficiency** – Mature cows are going to be more efficient/lb of DM intake as 1st and 2nd lactation cows are putting part of nutrient intake towards growth versus just milk in mature cows

Herd Productivity combined w replacement costs, M. Lormore, et al. - Zoetis

1000 cows	$15.50 cwt						
	29% 1st lact		45% 1st lact		Diff		% Diff
Milk/cow	82.7		79.4		3.3		96
$/day Herd Revenue	12822		12309		-513		96
Replacement $/day	1691		2624		933		155
Income after feed, dry cows replacements	4859		3564		-1295		73.3

For every 1% increase in 1st lactation % = 1 day decrease in average age of the herd. For every 4d decrease a corresponding decrease in milk across all cows of 1 lb

A 45% 1st lact herd versus a 29% 1st lact herd = ~ 4 lbs less milk/cow across all cows!

Take Homes

- At what rate are cows leaving your herd and why?
- Can facilities and/or management changes decrease your culls and the profile of and why what cows are culled?
- How many heifers do you really need to raise?
- Are you compromising your heifers by having them overcrowded because you are raising every last one?
- What is the difference in peaks, daily milk and thus total milk sold between your 1st lactation cows and mature cows?
- **How can these differences in cull rate, needed/raised heifers and increased herd milk impact farm profitability?**

Thank you! Questions?

My sincere thanks to my Holtz Nelson colleagues, my clients and others who continually challenge me and thus contributed greatly to this presentation.

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