



What's special about feeding Jersey heifers?

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Down Home Heifer Solutions



Down Home Heifer Solutions

- Established in 2016 – focus on dairy calf and heifer consulting US and globally.
- Retired from Virginia Tech Dairy Science Dept. after career of 35+ years in Teaching, Research and Extension.
- Down Home Nutrition - ~ 10 dairies ~ 15 years consulting
- Down Home Jerseys – Raised elite pedigreed Jersey heifers -

What's special about feeding Jersey heifers?

- What do we know is different in feeding Jerseys compared to other breeds?
- What do we know that isn't different?
- What do we know that needs more research?

Begin with basic scientific principles – applies to all breeds!

Heifers and calves have nutrient requirements for maintenance and growth.

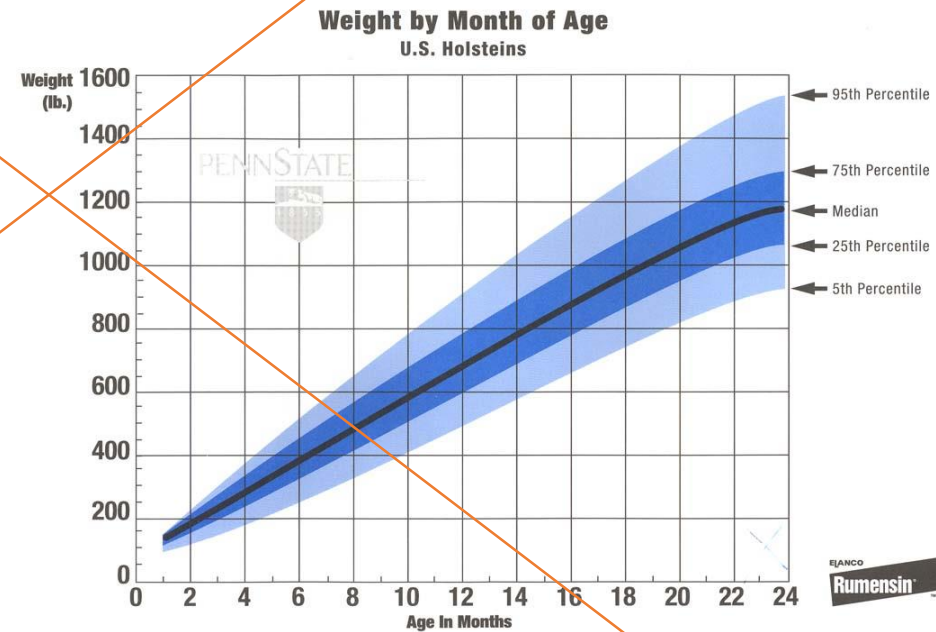
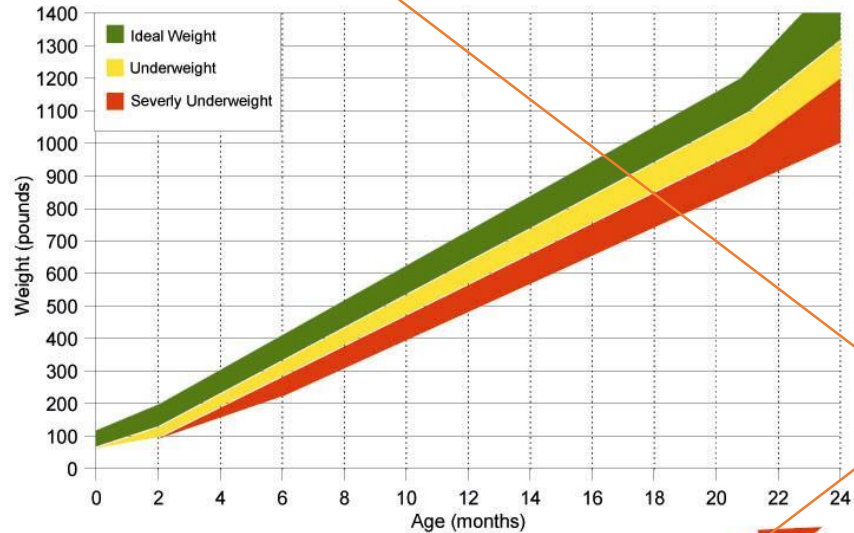
(Requirements for repro are relatively minor for heifers!)

Historical preconceived ideas about Jersey calves and heifers!

- Jersey calves and heifers are smaller; therefore, they need to eat less!
- If we feed them too much, they will get diarrhea as calves.
- In mixed breed herds, house Holsteins and Jerseys of similar body size together.

Growth charts – benchmarking for progress?

Holstein Heifer Weight Chart



Why? They are for Holsteins!

Not a lot of research conducted on Jersey calves and heifers! Mostly on calves.

Virginia Tech research – (Bascom et al)

- Maintenance requirement of Jersey calves is higher / unit of body weight.
- They lose body heat more quickly due to greater body surface area!
- It's why Jersey milk has more protein and fat!
- Research led to development of Cow's Match – Jersey Blend.

Texas Tech Research

- Nutrient digestibility and N retention of Jersey calves fed:
 - .9 lb. of solids/day of 20:20 milk replacer
 - or
 - 1.3 lb. of solids/day of 28:20 milk replacer
- No difference in diarrhea
- Same energy efficiency
- More milk = more gain and more N retention!

Focus for today from weaning to calving

A science based approach

- NRC = National Research Council
 - Establishes nutrient requirements for dairy cattle
 - Last edition – 2001, New edition in 2018 or 2019.
 - Establish growth and maintenance requirements with feeding trials
 - Weigh nutrients consumed, nutrients excreted
 - Measure body composition of growth – protein, fat and ash.
 - Not much on dairy so we use some beef data.
 - New NRC will have some dairy data!

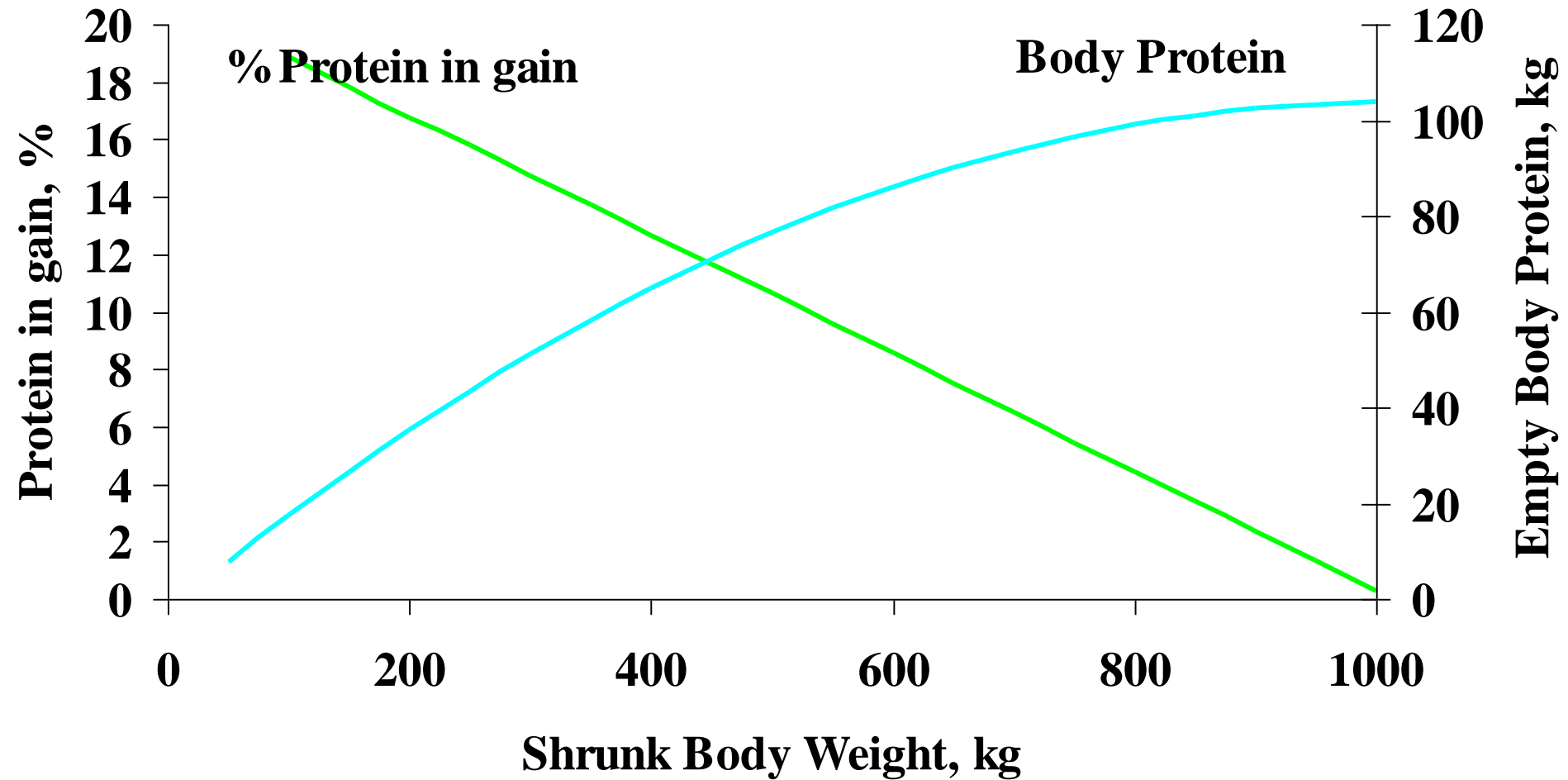
Targeted Growth System used by NRC

- Calculate **nutrient requirements** based at various body weights based upon:
 - Weight of mature cattle – breed, genetics for stature.....
 - Current age and body weight of animal
 - Target post calving body weight at first calving
 - Predicted chemical composition of weight gain.
 - What nutrients are required at that age to reach growth goals at 1st calving, 2nd calving????

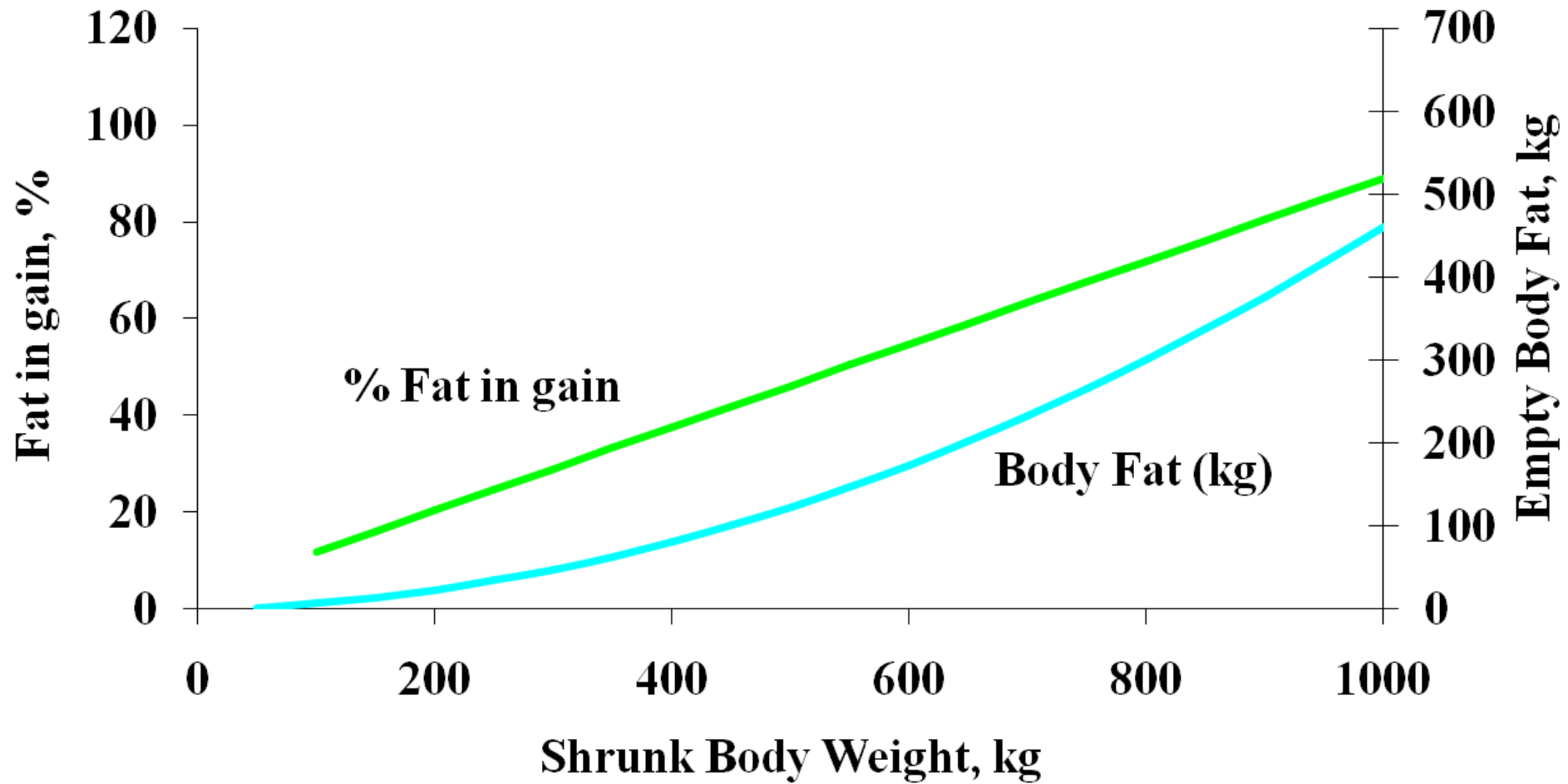
Key message

- All mammals
 - As they mature they accumulate protein and fat.
 - % protein in gain (lean tissue) decreases with age.
 - % fat in gain increases with age.

Protein Composition from Birth to Maturity



Fat Composition from Birth to Maturity



Key components of system.

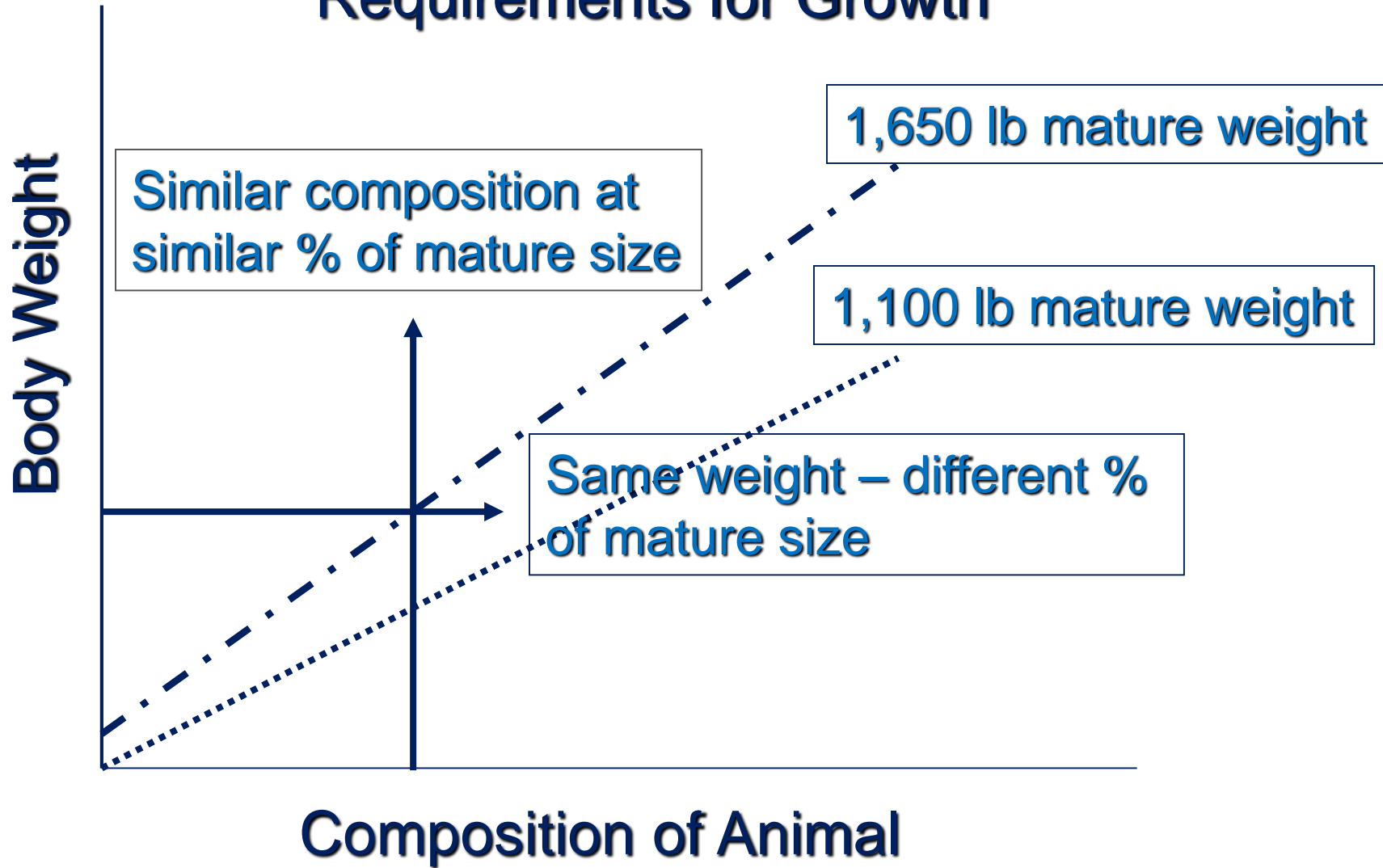
- Heifers should achieve target % of mature body weight at milestones in life:
 - Puberty - 45%
 - Breeding weight at 3rd estrus – 55%
 - Calving at desired age (~22 months) – 85% (post calving weight)

We can scale the nutrient requirements for the breed, genetics within breed and the desired calving age!

Key message for Jerseys!

- Composition of gain (lean vs. fat) will differ at same body weight for heifers of larger mature size (Holsteins) than those of smaller mature size (Jerseys!)
- Jerseys mature at earlier age and lower mature size.
- Jerseys will fatten more if fed and housed with Holsteins at same body weight!

Effect of Mature Body Weight on Nutrient Requirements for Growth



Mixed breed herds??????

What about height?

- Potential height determined by genetics!
- Meet nutrient requirements to enable them to reach genetic potential for height!
- I can make a heifer with genes for tall stature short by not feeding enough protein.
- I cannot make a heifer tall that has genes for short stature by feeding more protein.
- Overfeeding protein is expensive, nutritionally expensive and bad for the environment.

Implementing targeted growth

- What are your genetics for mature size?
 - Jersey sires for stature?
 - Mixed breed herd?
 - Crossbreeds?
- Establish goals for growth based upon mature size!
 - Double birth weight by 56 days – 1.1 lb. of gain. Some herds triple birth weight???
 - Tailor your goals to the genetic potential for growth!

Target weights and required gains for Jersey calves and heifers with expected mature weight of 1000 lb.

Milestone	Growth Target	Start Weight	Required Gain/day
Birth		60	
56 days	Double birth weight	120	1.1
Puberty	45% of mature weight	450	1.2
First Breeding	55% of mature weight	550	1.2
After first calving	85% of mature weight	850	1.2

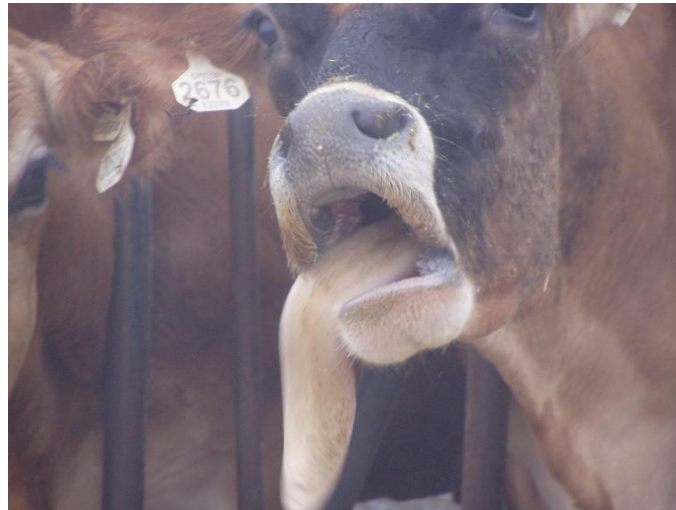
Implementing targeted growth

- In mixed breed or cross breeds moving towards all Jersey genetics!
- More challenging.
- Grouping
 - By breed?
 - Scaling by reproductive management
 - Jerseys breeding would be 2 – 4 months ahead of larger breed.
 - House younger smaller Jerseys with larger, older “Holsteins”.

Implementing successful management of Jersey heifers.

- Applies to all breeds
- Challenging areas for heifer management
 - Weaned calves – diet and social transition – one at a time!!
 - Diet – calf starter / some forage
 - Group feeding
 - Group feeding systems for preweaned calves!!!
 - Don't try to economize by shifting to “cheaper” feeds too quickly.

- Provide plenty of bunk space.
- Limit feed heifers???? Challenging if bunk space is limited. Encourage the Jersey tongue rolling.



Implementing successful management of Jersey heifers

- Monitor body condition and adjust diets based upon body condition!
- Routinely weigh heifers when handled – , moving to new group, vaccination, breeding, calving and calculate daily gains.
- Compare to standards.
- Develop means to monitor heifer growth and health that are practical and labor efficient.

Calf Barn Mortality

T1034	PCT	Count	Total	95% CI
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Jul17	3	9	321	1- 5
Aug17	3	10	344	2- 5
Sep17	2	5	265	1- 4
Oct17	2	7	285	1- 5
Nov17	2	6	248	1- 5
Dec17	1	3	428	0- 2
Jan18	2	11	578	1- 3
Feb18	4	19	481	3- 6
Mar18	2	12	525	1- 4
Apr18	3	13	430	2- 5
May18	4	20	520	3- 6
Jun18	1	8	608	1- 3
Jul18	0	0	174	-
=====	===	=====	=====	=====
Total	2	123	5207	2- 3

Calf Barn Wean Weights

By WEADA	Pct	Count	AvBRTHW	AvWEAWT	AvAGEW2	AvWEANS	AvAFBAR
14/ 5/18	5	46	38.3	88.0	68	212	2.0
21/ 5/18	5	53	42.2	103.0	83	201	2.0
23/ 5/18	5	50	38.2	98.0	74	220	1.0
28/ 5/18	5	50	39.3	97.0	75	211	2.0
30/ 5/18	5	51	37.8	100.0	75	226	1.0
4/ 6/18	10	98	40.8	103.6	75	218	1.5
6/ 6/18	5	51	40.4	104.0	73	224	1.0
11/ 6/18	5	48	38.9	98.0	75	215	2.0
13/ 6/18	5	46	41.0	96.0	74	202	2.0
14/ 6/18	5	48	40.9	97.0	73	208	1.0
18/ 6/18	5	48	40.2	92.0	73	201	2.0
19/ 6/18	5	50	40.5	96.5	77	207	1.0
20/ 6/18	5	51	39.7	95.0	67	215	1.0
25/ 6/18	5	51	39.7	92.0	68	207	2.0
26/ 6/18	5	51	39.8	93.0	66	213	1.0
2/ 7/18	10	98	39.7	87.4	67	200	2.0
4/ 7/18	10	100	39.8	86.5	61	206	1.0
Total	100	990	39.9	95.3	71	210	1.5

- Train employees on differences in handling Jersey heifers – Stockmanship



Summary

- What do we know that is different with Jerseys?
 - They mature sooner than Holsteins.
 - They should be fed and bred to calve at an earlier age than Holsteins! Capture this genetic advantage!
 - Mixed breed herds
 - Group by breed or house Jerseys with older, larger Holsteins to reach breeding age – weight at desired age.

What's not different?

- Calves and heifers have nutrient requirements for growth and maintenance which govern how they should be fed.

What requires additional research?

- Need better estimates of nutrient requirements for maintenance and growth!
 - Slaughter studies to measure true growth and not just “fill”.
 - What is impact of environment – temperature, humidity, activity on maintenance requirements? Cold weather Hot weather!!!!
- What is most “economical” age and body weight of first calving for Jerseys?

THANK YOU!

