Early Youngstock Rearing Beef vs. Dairy

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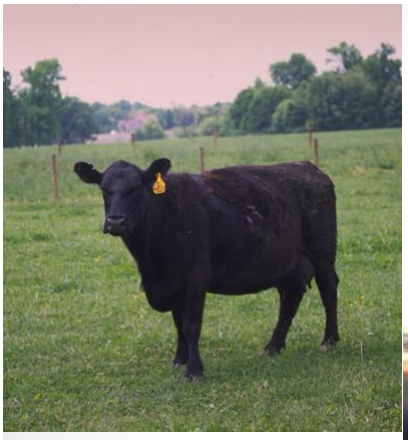
Cow-calf Production

The leader of the program

Stocker or backgrounding phase

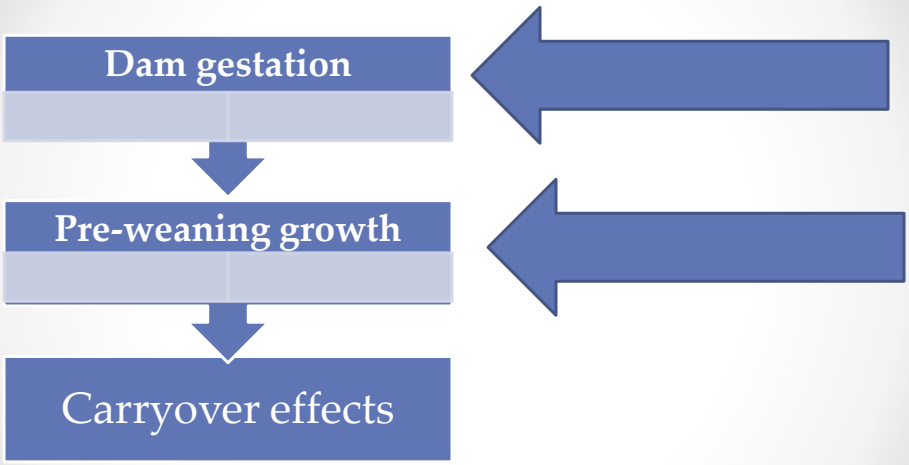
- Forage/by-product based
- Margin- based
- Nutrition generally ranks 3rd behind-
  - Health
  - Marketing



Herd replacements
- % reaching puberty
- % conception
- Productivity
- Longevity

Feedlot Industry
- Growth rate/ efficiency
- Influenced by current events
  - Consumer preferences
  - Grain price
  - Cattle numbers

Traditional Points of Intervention



Impact of gestation nutrition on calf development

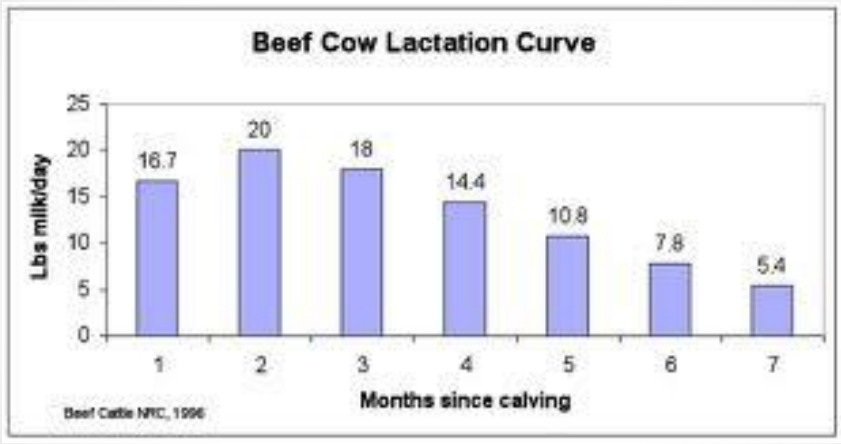
- Traditional focus has been low vs requirements
- Birth weight
- Vigor
- Colostrum quality
- IgG absorption (Hough et al 1990)

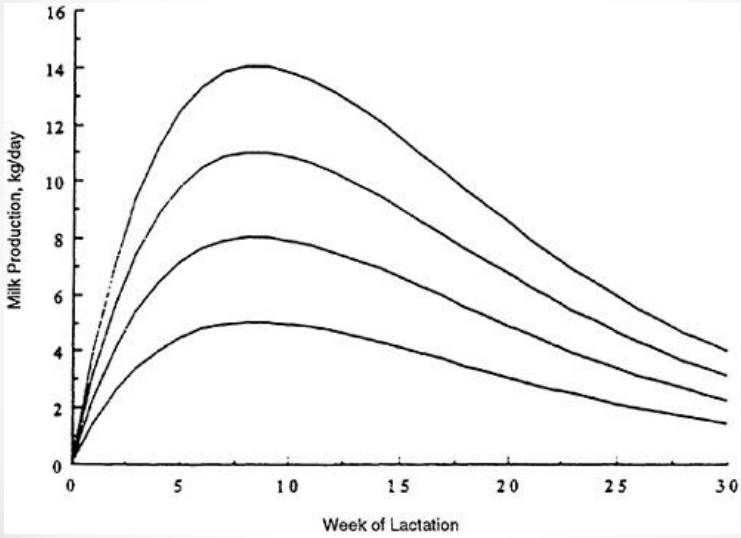
Effect of prepartum energy level on cow and calf performance

	High energy	Low energy	P<.05
100-d wt change, lbs	-21.8	-142.1	*
Birth wt, lbs	75.7	58.7	*
Alive at birth, %	100	90	*
Alive at weaning, %	100	71	*
Calf scour incidence, %	33	52	*
Calf mortality, %	0	19	*
Weaning wt, lbs	320	294	*
Milk prod, lbs/d	12.1	9.0	*

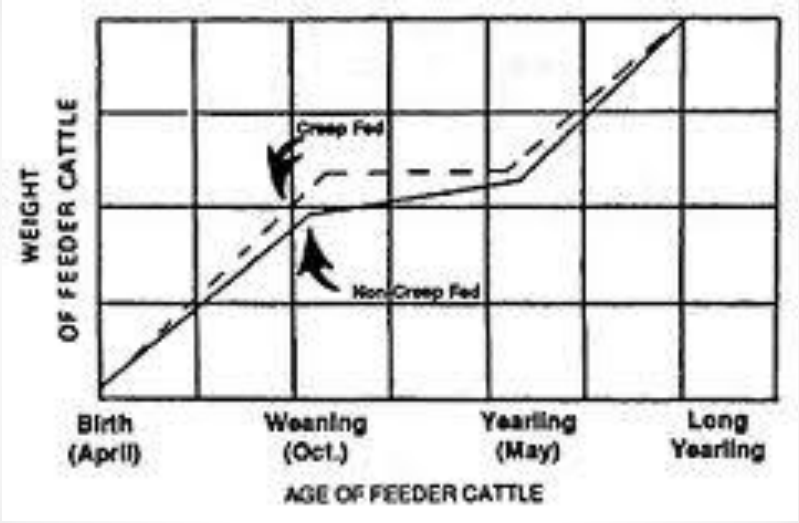
Corah et al., 1975

Nursing calf





Nursing calf intervention



Effect of creep feed on growth and subsequent milk production of beef heifers

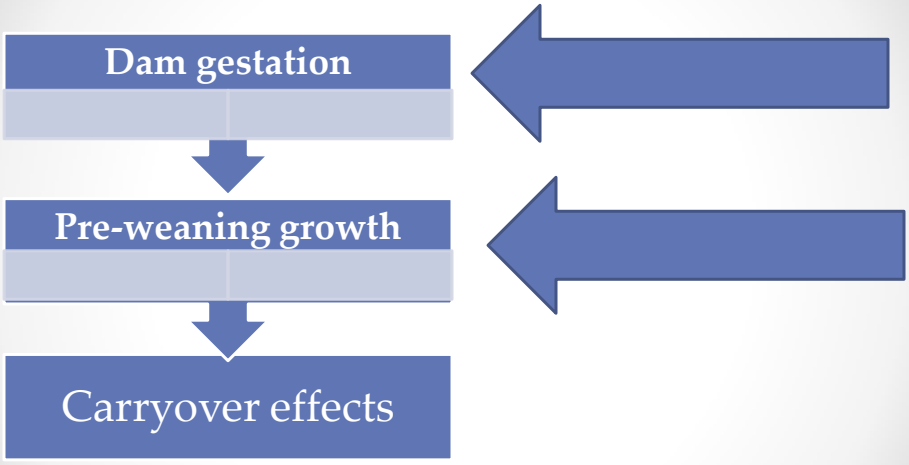
	Control	Creep	P<.05
112-d ADG, lbs/d	2.33	2.95	*
Wean Wt., lbs	575	633	*
Creep intake, lbs/d		5.5	
Total creep intake, lbs F/G		616 10:1	
Calving Wt, lbs	1093	1195	*
Milk prod, lbs/d	17.4	13.9	*
Calf wt @ 161d, lbs	433	398	*

- Buskirk et al., 1996

Growth Implants

- Added wt (30-50lb)
- Not for replacement heifers

New Points of Intervention



Effect of gestation protein supplemention on performance and carcass traits of steer progeny

	High	Low	P<.05
Protein supplement, lbs/d	.66	.22	
Wean Wt., lbs	526	475	*
Final BW, lbs	1360	1258	*
ADG, lb/d	3.85	3.61	*
Hot carcass wt, lbs	1093	1195	*
Adj 12th rib BF	.47	.47	NS
Marbling score	434	412	*

- Summers et al., 2011

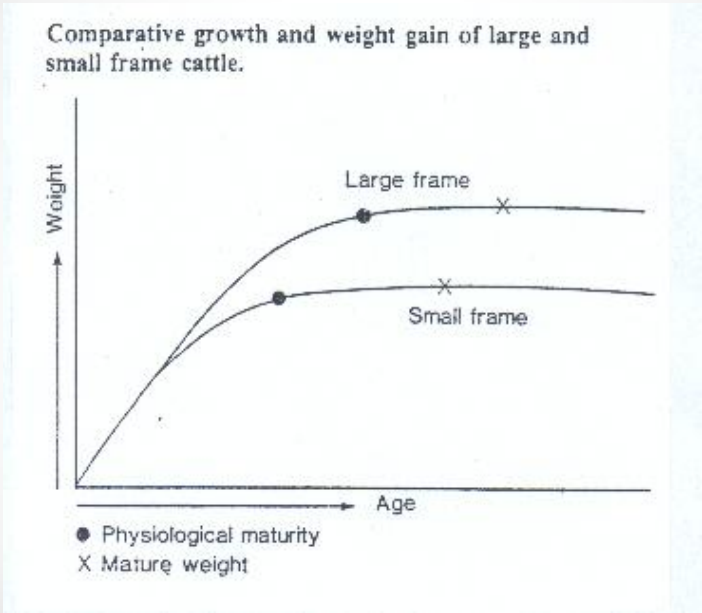
Impact of nutrient restriction in pregnancy

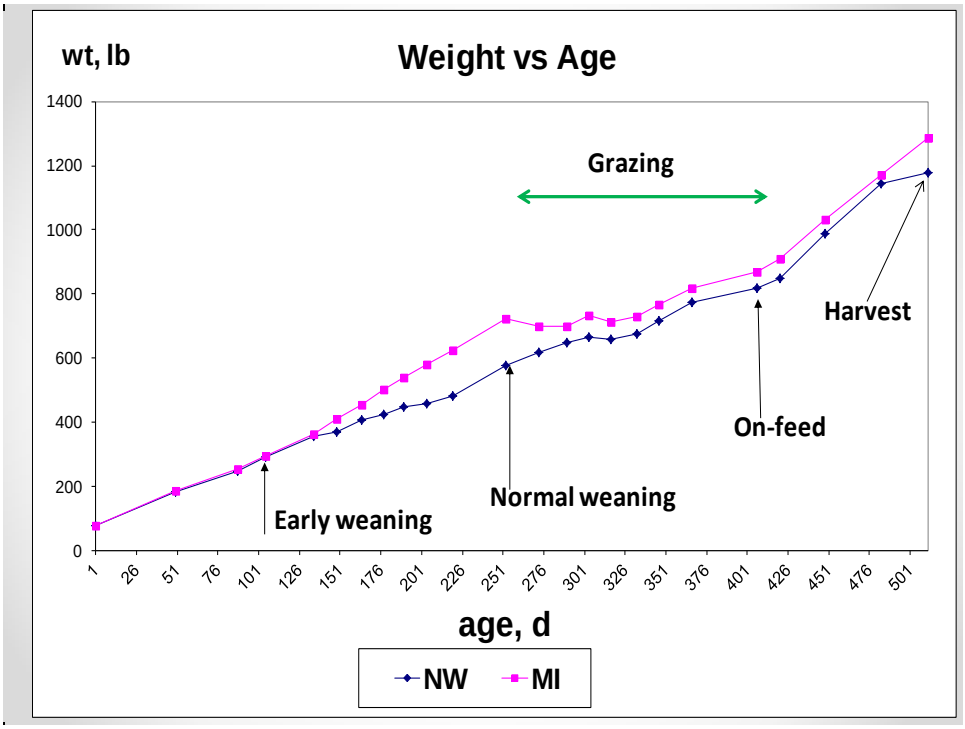
- Early and mid-gestation energy restriction reduces muscle fibers and subsequent muscle mass
- Late gestation restriction reduces muscle fiber diameter (Du et al 2011)
- IM adipogenesis during the fetal stage has a dominant effect on the number of IM adipocytes, the basis for future intramuscular fat deposition and marbling (Du and Zhu, 2009).
- The total number of adipocytes is determined upon reaching adolescence (Spalding et al., 2008).

Early weaning research

- Traditionally, environmental necessity
- Reproductive intervention in 1st calf heifers
- Now as a method to affect carcass quality when fed high energy rations
- Most have accelerated growth and never slowed down-
  - Calves have higher marbling and reach slaughter wt younger and at lighter weights

VT research has slowed calves down during post-weaning





Results

- Improved marbling scores
- Greater efficiency during feedlot phase

Questions