

# LOW COST COW/CALF PRODUCTION SCHOOL

**December 1996**

## Redundant?

Last month we talked about the pitfalls of pouring the feed to the heifer calf to assure early age of puberty. Remember, fat cells were formed in the udder at the expense of secretory (milk producing) cells. It's a bad practice. Around Christmas time last year, we wrote about feeding the heifer calf to a higher BCS for the same reason. It didn't help. Puberty was a function of lean body mass, not fat. Photoperiod at the time of the heifer's birth was not considered in either of these studies. Now here we go again with yet another study. This time it is more like starvation city.

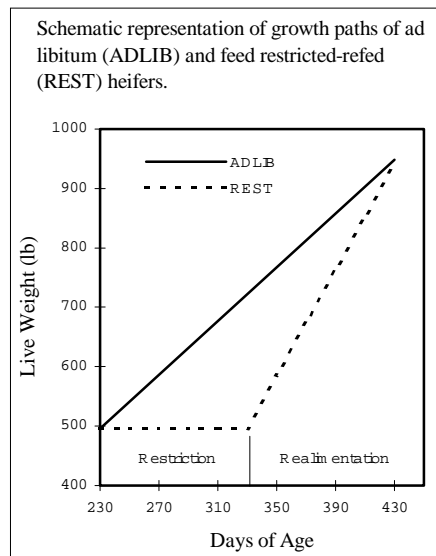
A popular question is - What do I do with the calves? That is, if you change your calving season to late spring/early summer your calves will be much lighter come the forage dormant season than you are accustomed. For most, the calves usually were gone by this time. The answer is to rough them through the tough time (*winter for most*), graze them on the good stuff next year and sell them as long yearlings. This reply prompts questions about expenses, compensatory growth, animal health, etc. Most succinctly, the question is - What is the difference in performance of calves that gain continuously vs. those that experience interrupted gain?

## Anorexic Heifers

A study addressing this matter was conducted at Edmonton, AB (53° 19')<sup>1</sup>. Weaned heifers weighing 500 lb and 230 days of age were allotted to two treatment groups of six head each. Both groups were fed a diet containing 0.81 Mcal of NEm. One group, however, was limited to 5.7 Mcal of NEm (REST) while the second group was allowed feed ad libitum (ADLIB) and consumed an average of 10.3 Mcal daily. This went on for 95 days and was termed the **restriction period**. Then, following a few days for the restricted group to adjust, both groups were allowed all the feed they wanted for the next 100 days. This was called the **reali-**

## mentation period.

During the 95-day restriction period, the REST group gained 15 lb while the ADLIB group gained 181 lb. When both groups had free access to feed, the REST heifers gained 386 lb and the ADLIBs 251 lb. The following graph depicts the daily gain for both the 95-day restriction and the 100-day realimentation periods.



It is obvious that the REST heifers caught up during the 100 days of unrestricted feed intake. *And how much feed energy did it take?* The table at the top of the next column shows the efficiency of energy utilization by the two sets of heifers. The bottom line tells it all. The REST heifers were considerably more efficient in utilizing energy.

## Injurious To One's Health

This was a very thorough study. The investigators followed trends in blood levels of growth-related hormones and metabolic indicators. Growth hormone was highest in the REST cattle during feed restriction and remained higher for about 30 days into the all-you-can-eat period. This would contribute to compensatory growth. Insulin levels were lower in the starved group but kicked in at a much higher level 30 days into the realimentation period. Fatty acids in the blood indicated that the REST heifers mobilized body fat for energy. Thus, tissue protein was spared. High blood levels of urea and histidine are indicative of protein being used for energy. The levels of these metabolites were actu-

Performance of ad libitum (ADLIB) and feed restricted-refed (REST) heifers.

Measurement	Age d	ADLIB	REST
<b>Initial</b> 230			
BW lb		492	511
<b>Restriction</b> 325			
BW lb		672	527
Gain lb		181	15
NEm cons.		981	541
<b>Realimentation</b> 425			
BW lb		924	913
Gain lb		251	386
NEm cons.		1549	1674
<b>Overall</b> 425			
Total gain lb		432	401
NEm cons.		2530	2215
NEm conv.		5.86	5.52

ally lower for the REST heifers during feed restriction.

Every indication is that heifer calves experiencing interrupted gain will turn out to be good cows. When this report is considered with the previous two, you might consider allowing nature to take its course when it comes to the heifer calf.

*Have A Very Prosperous  
New Year!!*

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<sup>1</sup> Yambayamba, E.S.K., M.A. Price and G.R. Foxcroft. 1996. Hormonal status, metabolic changes and resting metabolic rate in beef heifers undergoing compensatory growth. J. Anim. Sci. 74:57.