

# LOW COST COW/CALF PRODUCTION

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## Replacement Heifer

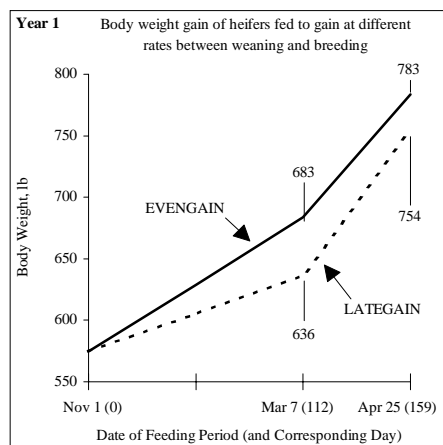
The maximum age at puberty has been discussed in the Bulletin as well as the School. It is desirable for the heifer to calve on her second birthday – 730 days of age. With a 280-day gestation period, she must be bred by 450 days of age. Since she is 20% more fertile during her third estrus than during her pubertal estrus, she must commence cycling by no later than 400 days of age. With the impact of photoperiod (*the heifer born closest to the longest day of the year will commence cycling at a younger age than one born near the shortest day of the year*), age is not a problem - body size maybe. Therefore, it is common for ranchers to spend money for supplemental energy feeding during the tough times – dormant forage season. The goal is to keep the replacement heifer gaining.

## Spendthrifts

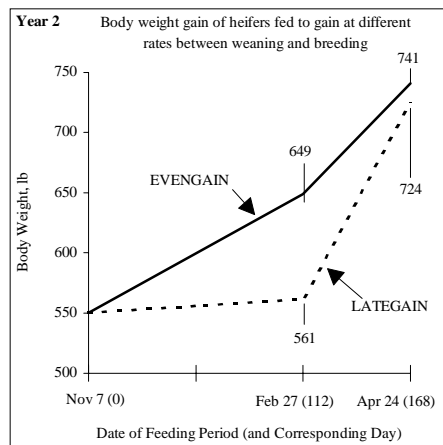
As much as ranchers love to spend those bucks, Kansas State University researchers<sup>1</sup> say it is not necessary when it comes to the replacement heifer. “Spring-born” (Feb 4 to Apr 24) heifers were assigned to two treatments from weaning (Oct) until conception. The study of the growth and development of heifers included 40 heifers each year for two years. Beginning early Nov, one-half of the heifers were fed at or near maintenance for 112 days (L-GAIN). After 112 days, the L-GAIN heifers were fed to gain 2 lb per day for 47 d (yr 1) or 56 d (yr 2). The remaining one-half of the heifers were fed to gain 1 lb/d for the entire 159 d (yr 1) or 168 d (yr 2) (E-GAIN).

## Best laid plans ----

Heifer performance is shown in the following two graphs. In the first year, the L-GAIN heifers performed better than anticipated when limit fed. They gained a little more than ½ lb per day for the first 112 d. At the end of the 112-day period the L-GAIN heifers weighed only 47 lb less than the E-GAIN heifers. Not much of a contrast. In the second year, the L-GAIN heifers were more severely re-



stricted in feed consumption. At the end



of the 112-day period, the L-GAIN heifers weighed 88 lb less than the E-GAIN heifers. At the start of breeding (159 d, yr 1), the L-GAIN heifers weighed 29 lb less than the E-GAIN heifers. By 168 d in the second year, the L-GAIN heifers weighed only 17 lb less than the E-GAIN heifers.

## Other differences?

The table below shows the frame scores (Beef Improvement Federation, 1996), pelvic area and BCS (1 - 9). Differences in these measurements are greater from one year to the next than between E-GAIN and L-GAIN.

## The University “Thang”

It is too bad that these heifers couldn't

Item	Year 1		Year 2	
	L-GAIN	E-GAIN	L-GAIN	E-GAIN
Frame score	4.41	4.53	5.05	4.99
Pelvic area, cm	192.5	195.7	201.8	191.1
BCS	5.60	5.64	5.38	5.40

have been pasture bred so the information could be more applicable to the real world. *But not at a University!* The heifers were synchronized and artificially inseminated for the first 45 d, followed with exposure to a bull for the last 15 d of the 60 d breeding season. The results are shown below. The L-GAIN heifers in year 2 experienced pubertal estrus at 407 d of age, a bit be-

Item	Year 1		Year 2	
	L-GAIN	E-GAIN	L-GAIN	E-GAIN
Age at puberty, d	384.3	387.9	406.9	386.3
Weight at puberty, lb	694.9	728.8	691.1	692.2
First-service conception, %	55.5	55.3	71.1	56.4
Pregnancy rate, %	86.8	87.2	87.5	87.5
Birth wt, lb	76.50	76.30	77.40	79.60

yond the desired 400 d. This same group had the highest first-service conception rate. Pregnancy rate was similar across all treatment and year groups - 87% in 60 d. Not too swift.

## Rumors

*“Conception rates were outstanding - 1<sup>st</sup> calf heifers, 80% in 30 days.” Thank you, Joe Morris, California.*

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<sup>1</sup> Lynch, J.M., G.C. Lamb, B.L. Miller, R.T. Brandt, Jr., R.C. Cochran and J.E. Minton. 1997. Influence of timing of gain on growth and reproductive performance of beef replacement heifers. J. Anim. Sci. 75:1715.