

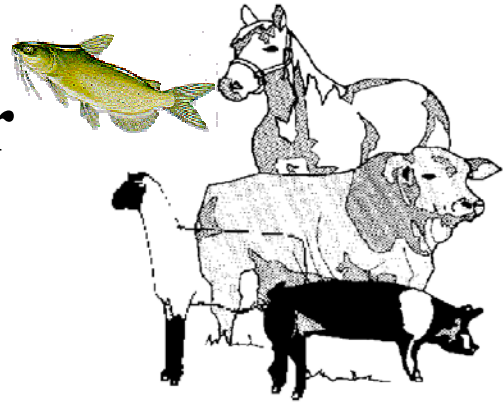
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Animal and Dairy Science Department  
Rhodes Center for Animal and Dairy Science

# Livestock Newsletter

January/February 2003

<http://www.ces.uga.edu/Agriculture/asdsvm/beef-home.html>



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Robert L. Stewart  
Extension Coordinator  
Animal and Dairy Science Department

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# LIVESTOCK NEWSLETTER

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January-February 2003

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## Timing of Gain and Heifer Development

Johnny Rossi  
Extension Animal Scientist

Heifers need to conceive early in the breeding season and calve at 2 years old to maximize lifetime production and efficiency. The management of the heifer from weaning to breeding has a big impact on lifetime productivity. To achieve high reproductive rates, heifers should weigh 65% of their mature weight at the start of the breeding season. Current research has found that as long as heifers reach the 65% target weight before breeding, timing of the gain does not matter.

Factors affecting age of puberty include age, weight, and breed. Weight is the one factor that can be influenced in a short period of time. Only 50% of heifers will be cycling if they weigh 55% of their mature weight compared with 90% of heifers cycling when weighing 65% of their mature weight. Clearly, nutrition from weaning to breeding plays a huge role in the future productivity of the heifer. Heifers should easily reach their target weight of 65% if fed properly.

Heifers generally need to gain 1.25 to 1.5 lb per day from weaning to breeding. Heifers can easily gain at these rates, and there is no excuse for a heifer that fails to get pregnant because of insufficient weight. Little research has been done to look at the importance of timing of the weight gain. If heifers are growing more slowly than you expected and must gain rapidly to reach the 65% level before breeding, lost weight gain can be made up. As long as heifers reach the targeted body weight before breeding, the timing of weight gain does not matter. Heifers are expensive to raise, therefore, it is very costly to keep a heifer that does not breed because of insufficient weight gain.

Kansas State researchers fed heifers to gain 0.55 lb/day until the last two months before breeding, and then fed heifers to gain 2.5 lb/day for the last 60 days before breeding. Another group of heifers were fed to gain 1.31 lb/d for the entire development period. Both groups of heifers were equal in reproductive performance. However, heifers fed to gain 2.5 lb/d the last 60 days were actually more efficient and consumed 12% less feed than the heifers fed to gain at a constant rate. These heifers had a compensatory gain response, which is a period of very efficient growth that occurs after an animal has been restricted in growth. Taking advantage of compensatory gain decreased feed costs by 8% in their trial.

A similar trial was conducted by Oklahoma State researchers. Heifers were fed to gain either 1.33 lb/d throughout the development period or were fed to gain 0.6 lbs per day for four months and then fed to gain 1.92 lbs per day for the last two months before breeding. Researchers observed similar reproductive performance between the two groups and reduced feed costs for the group that was fed to gain at different rates. In addition, age at puberty was reduced by 20 days for the group fed to gain at different rates.

Most heifers are bred in the December through April time period. In most situations, heifers will need to be fed some type of harvested feeds for a good portion of the period between weaning and breeding. Most hay will not provide enough energy for heifers to gain at optimal rates. Thus it is recommended to supplement with grain at about 1 lb of body weight with high quality hay.

Summer pastures are often low in quality at the end of the grazing season, and heifer weight gain can be severely limited during this time. There is a short time between the end of the grazing season and the beginning of the breeding season for heifers bred to calve in the fall. It is critical to evaluate heifer performance at the end of the grazing season, and allow at least 60 days before breeding to correct poor daily gains that occurred over the summer.

Heifers bred to calve in the spring may need to be fed harvested feed from weaning until breeding. If heifers are fed low quality hay during this time, it is unlikely they will reach target weight. If heifers have been fed poor quality hay this winter and no supplement, evaluate their growth now, there is still plenty of time to correct problems before the breeding season begins.

The biggest advantage of changing growth rates during the development period, is that it gives you the ability to utilize low quality pasture or feeds for a portion of the development period. Heifers can be fed a higher energy diet and gain weight rapidly just prior to the beginning of the breeding season. Weigh heifers at least 60 days prior to breeding, most deficiencies can be made up in this time period. Always keep in mind that hay alone is unlikely to provide sufficient weight gains for heifers to reach the target weight of 65% of mature weight at breeding. If your heifers are behind and need to gain rapidly (ex: 2 lb per day), you will need to feed a high grain diet. Contact your local county extension agent for help when formulating these rations.

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## Dates to Remember

February 11-12, 2003	Stallion Management & Reproduction Short Course, Athens
February 12, 2003	UGA Bull Sale, Athens
February 13-14, 2003	Mare Care & Reproduction Short Course, Athens
February 14-15, 2003	GCA Convention, Athens
February 19-23, 2003	GA Jr. National, Perry
March 4, 2003	Beef Cattle Short Course, Tifton
March 5, 2003	Tifton Bull Sale, Tifton
April 16	Mountain Beef Shortcourse, Blairsville
April 22	HERD Sale, Irwinville

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## Shortening Your Calving Season

Timothy W. Wilson  
Extension Animal Scientist – Beef Cattle

There are many management practices that can be implemented to improve profits. Shortening your calving season may be one of the most cost effective decisions you can make. A recent survey performed by University of Georgia scientist, Drs. Johnny Rossi, Mel Pence and Curt Lacy (2001) reports that 65% of producers surveyed utilize a controlled breeding season and that 36% of these producers are on a 60 – 90 day breeding season. These figures seem positive compared to past surveys but ultimately with 35% of producers on a year-round breeding season and 64% breeding longer than 90 days, improved profits can be easily obtained by simply controlling the breeding season in a defined 90-day window.

Calves born in a defined time frame will have increased weaning weight averages compared to calves that are born in an expanded or year-round breeding season. For example, if all calves are weaned on a specific date, it is easy to see that calves born in the beginning of the breeding season will weigh more than calves born later in the breeding season. By defining the breeding season so as to allow for optimum time for the calves to grow, the weaning weight average will improve for the entire herd.

Producers who are not utilizing a defined breeding season often raise the question "How do I achieve this goal?" Obviously if you are on a year-round breeding season you do not want to exclude quality females that have been consistently fertile throughout their lifetimes. Determining the time of year you want to calf will ultimately determine which females will need to be adjusted. Splitting the herd into two calving seasons may be an option for some producers. This will allow for most females to fall into one of the two breeding seasons, and for the producer to take advantage of the market at different times in the year. Considerations must be made for the amount of time, labor and facilities necessary to maintain both herds appropriately.

Shortening the breeding season into a 90-day window can be achieved by utilizing defined guidelines associated with when to put a bull into and out of a herd. Table 1 demonstrates how a herd can be adjusted to achieve a 90-day breeding season. The first step is deciding when the last calf of the breeding season should be born and determining when the last day a bull is to remain in the herd. The example in Table 1 explains how to develop a spring calving season.

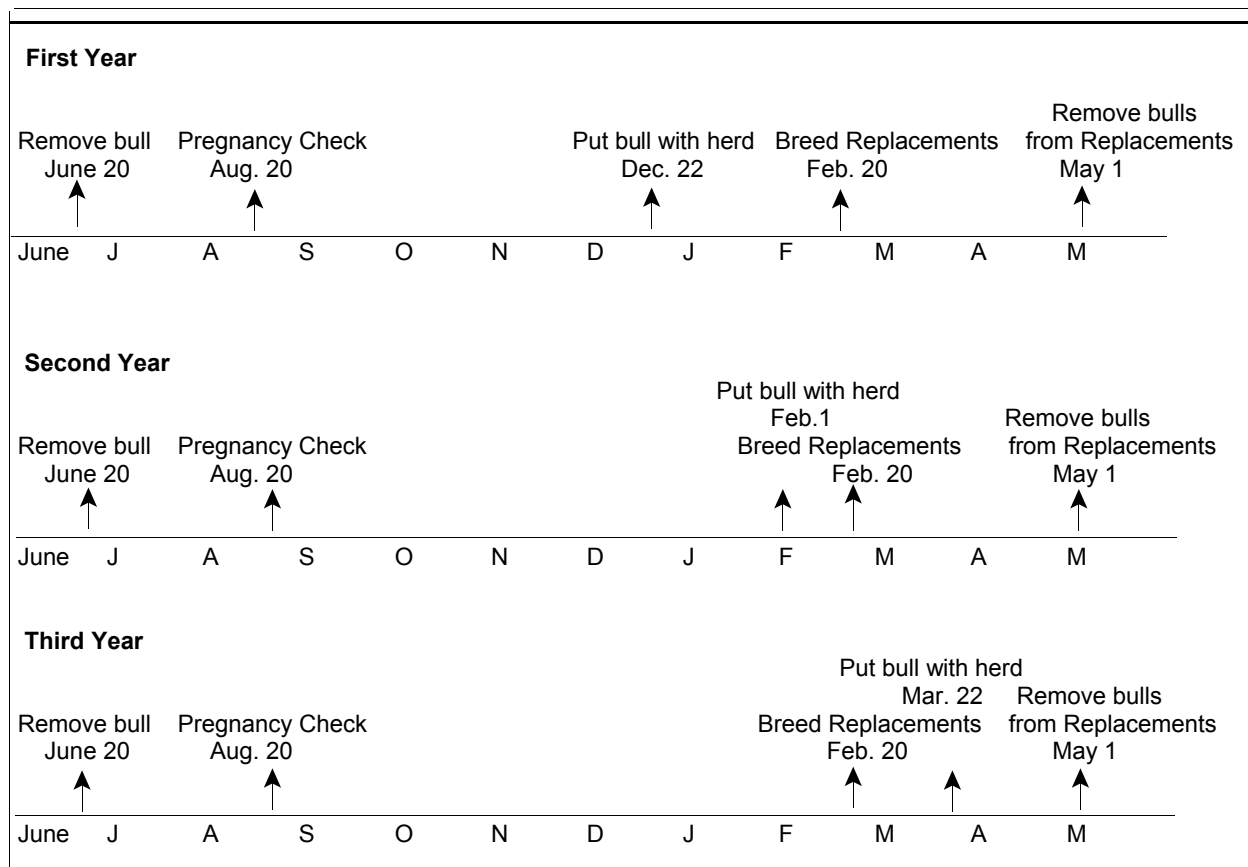
In the first year of changes, bulls are removed from the herd on June 20th and all females are pregnancy checked on August 20th. Bulls are then placed back with the herd on December 22nd for a six-month period; this is the only variable that will change throughout the three years. Replacement heifers should be exposed to the bulls beginning on February 20th to align these females with their intended breeding dates as matured cows. Bulls should be removed from the replacement females on May 1st.

In the second year, the beginning breeding date changes from December 20th to February 1st. This change tightens the breeding season from 6 months to approximately 5 months.

The third year finalizes the intended breeding season as bulls are exposed to the mature cowherd on March 22nd. This change will tighten the breeding season to approximately 3 months or 90 days.

Utilizing this example can be useful to many producers on a year-round calving season. It will eliminate cattle that fail to conceive early in the breeding season but will result in overall increased reproductive efficiency. If you have any questions regarding this topic, please feel free to contact your local County Agent, Veterinarian or contact me at (912) 681-5639.

**Table 1.** Three-Year Plan for Converting from Year-Round to 90-Day Calving Season of January, February and March



Source: C.M. Triplett, Southern Regional Beef Cow-Calf handbook. SR1005

## Performance Basics: Weaning Weights

Ronnie Silcox  
Extension Animal Scientist

Weaning weights are an important tool used to compare differences in growth potential and milking ability of beef cattle. Since all calves are not born on the same day, ages at weaning are different. To fairly compare weaning weights of calves in the same group, weights must be adjusted for age. The standard age for adjustment is 205 days. Following is the formula used to adjust for age of calf:

$$\text{Adj. 205-Day Weight} = \frac{\text{Actual weaning weight} - \text{Birth weight}}{\text{Age in days at Weaning}} \times 205 + \text{Birth Weight}$$

Example: A bull calf is born on January 1, 2002 and weaned on August 18, 2002. The calf is 230 days old at weaning. The calf weighs 530 pounds at weaning. The birth weight is 80 pounds.

$$\text{Adj. 205-Day Weight} = \frac{530 - 80}{230} \times 205 + 80$$

$$\text{Adj. 205- Day Weight} = 481 \text{ pounds}$$

Since this calf was weighed at 230 days of age he would naturally be expected to be heavier than one weighed at 205 days. The adjusted weight tells us that had we weighed this calf at 205 days (25 days earlier than we actually weighted him) he would have probably weighed about 481 pounds.

Often producers do not know the birth weight of calves. If the birth weight is not known, a standard weight of 75 pounds for males or 70 pounds for females is used.

The formula above only adjusts for age of calf. To make fair comparisons the age of the cow should also be considered. Cows have lighter calves when they are young and have their heaviest calves at 5-10 years of age. To fairly compare a heifer's calf to a mature cow's calf the weaning weight of the calf must be adjusted for age of dam. Adjustment factors for age of dam are in the accompanying table and the complete formula is:

$$\text{Adj. 205-Day Weight} = \frac{\text{Actual weaning weight} - \text{Birth weight}}{\text{Age in days at Weaning}} \times 205 + \text{Birth weight} + \text{Age of Dam Adjustment}$$

Example: A bull calf is born on January 1, 2002 and weaned on August 18, 2002. The calf is 230 days old at weaning. The calf weighs 530 pounds at weaning. The birth weight is 80 pounds. The cow is 4 years old.

$$\text{Adj. 205-Day Weight} = \frac{530 - 80}{230} \times 205 + 80 + 20$$

$$\text{Adj. 205- Day Weight} = 501 \text{ pounds}$$

## Beef Improvement Federation Standard Adjustment Factors for Weaning Weights

Age of Dam at Birth of Calf	Pounds added to weight Male	Pounds added to Weight Female
2	+60	+54
3	+40	+36
4	+20	+18
5-10	0	0
11 and over	+20	+18

Adjusted weaning weights should only be calculated for animals in the range of 160 to 250 days of age.

Heifer calves are usually lighter than bull or steer calves. Feed conditions vary from year to year and pasture to pasture. For these reasons it is not fair to directly compare weaning weights of calves from different contemporary groups. A contemporary group is a group of calves of the same sex that have been raised under the same management conditions. To compare commercial calves from different contemporary groups or to compare cows of different ages who have produced bull and heifer calves the adjusted weaning weight ratio is used. The adjusted weaning weight ratio is:

$$\text{Adj. Weaning Weight Ratio} = \frac{\text{Individual Adjusted Weaning Weight}}{\text{Contemporary Group Average}} \times 100$$

Example: The bull above had an adjusted 205 day weight of 501 pounds. The average bull in his contemporary group had an adjusted 205 day weight of 550 pounds.

$$\text{Adj. Weaning Weight Ratio} = \frac{501}{550} \times 100$$

$$\text{Adj. Weaning Weight Ratio} = 91$$

The bull in the example above had an adjusted weaning weight ratio of 91. This bull's weaning weight was 91% as high as the contemporary group average or another way to look at it is that this bull was 9% below average.

The procedures used above are standard for use in commercial herds. For purebred cattle weaning weights are adjusted in a similar fashion, however each breed association has its own specific procedures. Most associations have developed specific age of dam adjustments from breed association data. Some of these age of dam adjustments are very complex. The formula used above will probably give a different answer from that reported by an association. Purebred breeders need to contact the breed associations for current methods.

Additional information on beef performance standards can be found in *Guidelines for Uniform Beef Improvement Programs* available on the Beef Improvement Federation web page ([www.beefimprovement.org](http://www.beefimprovement.org)).

## Why Do We Adjust Weights to 205 Days?

Ronnie Silcox  
Extension Animal Scientist

Did you ever wonder why we adjust weaning weights to 205 days? We adjust weights, of course, to make fair comparisons between animals of different ages. But, why use 205 days as the standard age? Seven months (30 weeks) is 210 days. Using 200 days would make the math easier and, in fact, they do adjust weaning weights to 200 days in other countries. So, what's the logic of adjusting weights to 205 days?

We need to go back about 60 years to start this story. In 1944 Marvin Kroger and J. H. Knox published a paper in the *Journal of Animal Science* (Volume 4, Page 285) titled, "A Method for Estimating Weaning Weights of Range Calves at a Constant Age." They had taken the weaning weights of calves at the New Mexico Experiment Station from 1936 to 1943 and used them to develop a the formula for adjusting weaning weights to a constant age. The average weaning age of calves at the New Mexico Experiment from 1936 to 1943 was, you guessed it, 205 days.

In the days before computers and pocket calculators, Kroger and Knox included a chart for adjusting weights in their paper. It was easier to use the chart than adjust each weight with a pencil, so few people bothered to recalculate the formula for different average weights.

In the 1950's and early 1960's when state BCIA programs and breed association performance programs were getting started, adjustments from 200 to 250 days were used in various places. In the late 1960's when the Beef Improvement Federation was formed to standardize procedures, age for adjusting weaning weights was a controversial issue. The standard of 205 was adopted. One logic of the time was that you wean at 205, have a 20 day post weaning warm up period and have a 140 day post-weaning gain test to finish at a year of age ( $205 + 20 + 140 = 365$ ). Some of the people who supported the 205 standard, supported it because it fit well with the old 140 day bull test. Today most bull tests are 112 days long and there is no logic for 205 days other than it is the way we have always done it. You need to have some standard and 205 is as good as any.





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# Market News

## GEORGIA LIVESTOCK



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 Atlanta, Georgia 30334

**WEEK ENDING:** The Cooperative Extension Service would like to thank Terry Harris for submitting this information.

GEORGIA CATTLE: RECEIPTS: 12,800  
 LAST WK 14,700 YEAR AGO 12,100

<u>FEEDERS</u>	<u>STEERS</u>	<u>MED &amp; LARGE 1</u>	<u>HEIFERS</u>
	103.00-113.00	300/350 LBS	85.00-95.00
	95.00-105.00	350/400	80.00-90.00
	90.00-100.00	400/450	77.00-87.00
	84.00-94.00	450/500	75.00-84.00
	77.00-87.00	500/550	70.00-78.00
	74.00-84.00	550/600	69.00-77.00
	70.00-80.00	600/650	67.00-74.00
	70.00-77.00	650/700	66.00-77.00
<u>SLAUGHTER COWS</u> % LEAN	75-80% 850-1200 LBS		34.00-38.00
	80-85% 850-1200 LBS		35.00-45.00
	80-86% OVER 1200 LBS		35.00-45.00
	85-90% 800-1200 LBS		34.00-42.00

5 Area Daily Wtd Average - Texas/Oklahoma; Kansas; Nebraska; Colorado; and Iowa/So Minnesota Feedlots:

Steers...Select/Choice 65-80% Weighted Average Price Range 77.00-79.00  
 Heifers...Select/Choice 65-80% Weighted Average Price Range 77.00-79.50

By-Product Drop Value (Steer)...Hide and Offal Value 7.86 /cwt.

Box Beef Cut-Out Value Choice 1-3 550/750 LBS. 133.54  
 Select 1-3 550/700 LBS. 127.68

Georgia Hogs: GA-FL-AL Direct Area Receipts 4700 Trends 1.50 higher

US 1-2 220/260 LBS. 33.00-35.00 Sows 300/500 LBS. 13.00-17.00 500-UP 22.00-22.25

FEEDER PIGS	GEORGIA	TENNESSEE		GEORGIA	TENNESSEE
US 1-2 35/40 LBS.			55-60		
40/45			60/65		
45/50			65/70		
50/55			70/80		

IOWA-SOUTHERN MINNESOTA DIRECT HOGS: RECEIPTS TRENDS 1.25 to 1.50 higher  
 BARROWS & GILTS 49-51% LEAN 185 LB CARCASSES RANGE 42.25-50.00 WTD AVG. 48.35

