

Weaning Weights from Fall and Winter Calving Seasons: Influence of Stocking Rates on Pasture

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Forage and pasture research has been a major emphasis at the Texas A&M AgriLife Research and Extension Center at Overton since 1968. During this time, various warm-season perennial grasses have been evaluated for seasonal and total dry matter production and nutritive value. Numerous forages and pasture systems have been grazed with cow-calf and stocker cattle from 1969 to date. During this time, F-1 Hereford x Brahman (HXB) or Angus x Brahman (AXB) cows and their calves have been used in stocking rate and stocking method studies. Stocking rates were used to create different levels of forage mass. Forage allowance calculations have been made for each pasture using the relationship of forage dry matter to animal body weight. Using the comparison of forage allowance to cow and calf ADG, the relationship of stocking rate on animal performance can be documented for use in stocking strategies and management of pastures (Rouquette, 2017). For the past several years at Overton, bermudagrass pastures overseeded with annual ryegrass and/or clover, such as crimson or arrowleaf, have been evaluated using cows and calves (Rouquette et al., 2018). Thus, with overseeded pastures, active grazing is available from about mid-February to early October. In order to evaluate the forage x animal relationships for this entire active forage growing period, bred cows and calves from fall and winter calving seasons were used and stocked at three rates. Additional details on forage x animal performance have been summarized in several publications (Rouquette 2017; Rouquette et al 2018; Rouquette et al 2020).

A major outcome of this grazing research has been the archival of pasture x animal performance data from time of birth to harvest via BeefSys (Rouquette et al 2003). Weaning data on the fall-born (Sept – Nov) and winter-born (Jan – Mar) calves from this research, including weight, age, and weight per day of age are shown in Tables 1, 2, and 3. During this 44 year period, there were 5114 weaned calves used to summarize the effect of stocking rates (low, medium, and high) on weaning weight x birth month. These calves were from HXB or AXB cows with sires that included Angus, Hereford, and Simmental.

Table 1 shows the overall average weaning weights for steers and heifers grouped by birth month. The heaviest weaning weights were for fall-born calves born in September followed by October-born and November-born at 703, 657, and 619 lb, respectively. For winter calves, January-born had the heaviest weaning weight of 625 lb followed by February-born at 600 lb and March-born at 529 lb. Weaning weights were similar for calves born in November or January.

Table 2 shows weaning weights x birth month according to the assigned stocking rate for cows and calves. As expected, steers and heifers on low stocked pastures weaned at heavier weights than calves on high stocked pastures. Considering all 6 birth months and all stocking rates, weaning weights ranged from 755 lb for September-born and low stocking rates to 479 lb for March-born and high stocking rates. Table 3 shows a closer examination of birth month and calf performance at weaning. These data show the weight per day of age, or approximate ADG, and age of calves by birth month and stocking rate. The highest weight per day of age from these 5114 calves ranged from about 2.77 to 2.92 lb/da and occurred at low stocking rates for calves born in February, March, September, October, and November, and at medium stocking rates for calves born in November.

To set priorities for matching forages with calving season, or to match calving season with forages, management strategies must consider the 365-day pasture-animal costs and the calf weight at the time of sale. Fall-born calves (Sept - Nov) are normally weaned in mid- to late June due to the increasing forage dry matter and acceptable nutritive value from bermudagrass. Thus, fall-born calves are usually older and heavier at weaning than winter- or spring-born calves because of forage and pasture conditions for stocking rate. Winter-born and spring-born calves must be weaned in the fall before pasture conditions mandate the use of hay and supplement to over-winter dry, pregnant cows.

Both the fall-born and winter-born calves in these Tables had access to some limited and/or full-time grazing on winter annual forages. Thus, the summary weights are indicative of the inclusion of these high nutritive value forages. Important considerations for calving season and age at weaning are related to matching the genotype x environment for cattle and for forages. Pasture management strategies of calving season and stocking rate can be designed for sustainable forages and optimum animal performance and economic rewards.

Table 1. Average weaning weights for fall and winter born steer and heifer calves.

Birth Month	Weaning Weight¹
Winter	(lb)
January	625 c ²
February	598 d
March	526 e
Fall	
September	703 a
October	656 b
November	618 c

¹ 5114 calves during 44 years.

² Weaning weights followed by a different letter differ at P < .05.

Table 2. Weaning weights for fall and winter born calves from three stocking rates during lactation.

Birth Month	Weaning Weight¹		
	Stocking Rate		
	Low	Medium	High
Winter	----- (lb) -----		
January	666 c ²	635 d	573 f
February	656 c	599 e	537 h
March	564 fg	535 h	479 i
Fall			
September	755 a	698 b	655 c
October	714 b	660 c	594 e
November	691 bc	621 d	543 gh

¹ 5114 calves during 44 years

² Weaning weights followed by a different letter differ at P < .05

Table 3. Weight per day of age (DOA) and age at weaning for fall and winter born calves from three stocking rates during lactation

Birth Month	Stocking Rate¹					
	Low		Medium		High	
	Age	Wt/DOA	Age	Wt/DOA	Age	Wt/DOA
	(d)	(lb/d)	(d)	(lb/d)	(d)	(lb/d)
Winter						
January	251 d ²	2.68 cd ³	249 d	2.57 e	250 d	2.30 g
February	234 e	2.82 a	230 e	2.63 d	233 e	2.32 g
March	195 h	2.91 a	201 g	2.72 bc	200 gh	2.40 f
Fall						
September	273 a	2.77 ab	270 b	2.59 e	271 ab	2.42 f
October	258 c	2.78 ab	250 d	2.65 d	255 c	2.34 fg
November	236 e	2.92 a	221 f	2.82 a	234 f	2.44 f

¹ 5114 calves during 44 years

² Weaning ages followed by a different letter differ at P < .05.

³ Weights per day of age followed by a different letter differ at P < .05.

Literature Cited

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