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Texas Agricultural Extension Service
Zerle L. Carpenter, Director
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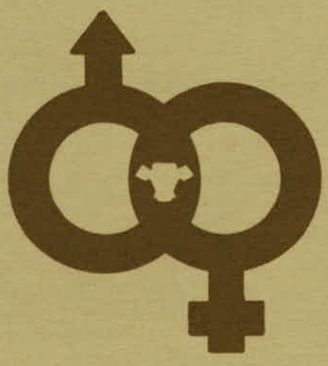
Long Calving Seasons: Problems and Solutions



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Long Calving Seasons: Problems and Solutions

*L. R. Sprott and John R. Beverly**

High production cost is a primary factor in eroding beef production profits. To avoid this continuing problem, producers must become more efficient. One factor which can make a real difference in dollar return is length of the calving season which not only affects pounds of calf weaned but also the reproductive performance of the breeding herd.

Long Calving Seasons Mean Lighter Weaning Weights

Long calving seasons (more than 90 days) result in a wide range in age of calves at weaning time. That age at weaning has a significant effect on weaning weight is well known, but this fact is given little management attention (Table 1). If a single weaning date is used, as in most herds, young calves wean at a lighter weight. Therefore, if the calving season lasts 90 days or less, no calves will be less than 180 days old at weaning (Figure 1). This means that the average weaning weight for the herd with a 90-day calving season will be higher simply because there are no calves less than 180 days of age at weaning time. Average weaning weight increases even more for herds that calve in a period of less than 90 days because the average age at weaning increases.

Table 1. Effect of age of calf on weaning weight*

Calf Age (days)	No. of Calves	Weaning Weight (lb)
80-99	7	303
100-119	21	304
120-139	55	301
140-159	144	377
160-179**	312	401
180-199	525	441
200-219	577	472
220-239	406	473
240-259***	214	503
260-279	63	517
280-299	22	538
> 300	5	578

* From J. A. Minyard and J. C. Dinkel.

** Calves less than 180 days at weaning will have the lightest weaning weights.

*** Calves held beyond this age will compete with their dams for forage and supplement. Adjustments in stocking rate and/or levels of feed may be necessary to insure optimum performance.

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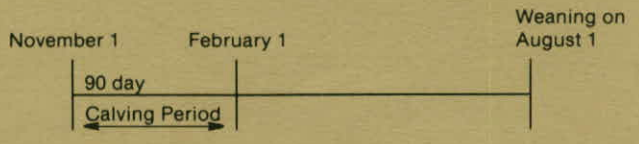
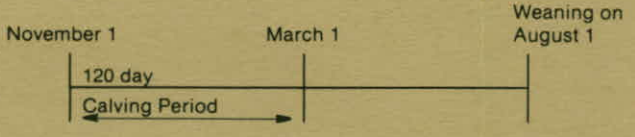


No calves born after February 1; therefore, no calves are less than 180 days of age at weaning time.



Some calves born after February 1; therefore, some calves are less than 180 days of age at weaning time.

Figure 1. Length of calving season and its effect on age at weaning.

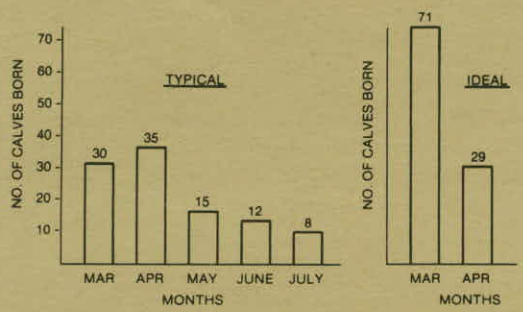
Data in Table 2 show that calves born early in the calving period will be heaviest at weaning and have the highest average daily gain. Therefore, to increase weaning weights and total pounds of beef weaned, producers should consider shortening calving seasons by shortening breeding seasons. They also should manage the herd so that all cows calve early in the calving period.

Table 2. Effect of time of birth in relation to the start of calving on weaning weight and average daily gain (ADG).*

Time of Birth By 20-day Intervals	No. of Calves	Weaning Weight (lb)	ADG (lb)
First 20 days	77	443	1.76
Second 20 days	264	432	1.75
Third 20 days	244	416	1.78
Fourth 20 days	138	409	1.77
Fifth 20 days	65	405	1.67
Sixth 20 days	16	375	1.59

* From J. L. Lesmeister, P. J. Burfening and R. L. Blackwell.

The influence of length of the breeding and calving season is illustrated in Figure 2. Data in Figure 2 assume a birth weight of 80 pounds and an average daily gain of 2 pounds. Since all calves in the "ideal" calving season of 60 days are older, they are, of course, heavier at weaning. In the 100-cow herd situation, this translates into an extra 6,240 pounds of beef weaned or an extra 62 pounds per calf. If the average weaning weight of 480 pounds in the 5-month season is assumed, this equals an extra 13 calves for the shortened breeding period (6240 ÷ 480). Expressed differently, cattle in the shortened breeding period could achieve production equal to the long season with an 11 percent reduction in calf crop.



Age of Calves at Weaning	8	7	6	5	4	8	7
Weight of Calves at Weaning*	560	500	440	380	320	560	500
Total Pounds of Calves Weaned	48,020					54,260	
Average Weaning Weight	480					542	

*Assumes 80 lb. birth weight and 2 lb/day gain

Figure 2. Typical and ideal calving seasons with their effects on total and average pounds of calves weaned in a 100-cow herd.

The economic importance of a shortened breeding season is shown in Table 3 where returns are compared in herds that calve for short (60 days), moderate (90 days) and long (120 days) periods. This example is based on a 100-cow herd and a 95 percent calf crop for all groups. Weaning weights of 450 pounds at 9 months down to 293 pounds at 6 months are used as a basis for pounds of calf weaned. Note that returns decrease as calving periods increase based solely upon the difference in age at which the calves are weaned. In dollars, this means $25 more per calf weaned for short over long calving periods and $13 more per calf in short compared to moderate calving periods.

Length of the Calving Seasons, Reproductive Performance and Returns from Sales

Cows that calve in a short period are obviously bred in a short period. Sixty-day breeding seasons are common in highly productive herds. Generally, it is not feasible to breed for more than 80 days since some cows will then calve after the start of breeding. Studies such as that shown in Table 4 indicate that fewer of the cows calving after the start of breeding show estrus and ultimately conceive. The problem with late calvers is generally not fertility, but simply timing. Cows must have some rest period from calving to rebreeding and late calving cows lack enough time to rebreed before the end of the breeding period. The problem is compounded further if late calving cows are calving as late as May because they probably will not return to estrus until June or July. During the hot summer months, heat stress reduces semen quality in bulls and reduces conception rate. Heat stress also may increase the incidence of early embryo mortality in cows bred during periods of extreme heat, further reducing overall pregnancy rate.

Table 4. Effect of time of calving in relation to the start of breeding on number of cows showing heat and conceiving.*

	Time of Calving	
	Calved Before the Start of Breeding	Calved After the Start of Breeding
No. cows	91	48
Percent in heat by the end of breeding	99	71
Percent pregnant by the end of breeding	88	60

* From L. R. Sprott and J. N. Wiltbank.

Table 3. Comparison of returns in 100-cow herds calving over short (60 day), moderate (90 day) and long (120 day) periods.

	Number of Calves	×	Av. Weaning Wt. 100	×	Calf Price/Cwt	= Dollar Return	Return Per Calf
Calving over a short period	95	×	410/100	×	$63/cwt	= $24,538.50	$258.30
Calving over a moderate period	95	×	390/100	×	$63/cwt	= $23,341.50	$245.70
Calving over a long period	95	×	370/100	×	$63/cwt	= $22,144.50	$233.10

The reduced pregnancy rates and the probable causes resulting from extended breeding seasons are further illustrated in Figure 3. Note that cows calving during the latter half of the calving period have fewer estrous periods and thus less probability of becoming pregnant. Conception rate at second and subsequent estrous periods is approximately 60 percent, but is considerably lower at first estrus. Cows calving during the first 60 days should have experienced their first estrus before the start of the breeding season and will have numerous cycles with higher conception rates. Conversely, late calving cows (last 60 days) will not initiate cyclic activity until after breeding is commenced and will therefore experience fewer cycles and reduced conception rates. As previously discussed, conception may be further reduced in late calvers if cows must conceive during the summer months. All of these factors greatly contribute to the reduced pregnancy rate reported in late calving cows. Since breeding must begin within 80 days after the first calf is born to maintain the calving season, little can be done to increase pregnancy rates in late calvers without extending the subsequent calving period.

Another problem with late calving cows is that returns from their calves are less than returns from early born calves. Such was the case with a group of first-calf heifers in Brazoria County, Texas (Table 5). The calving period was from March through June (120 days), and weaning was in late September. Returns per head from late born males (May to June) were 26 percent less than those from early born males (March to April). Returns per head from late born females were 30 percent less than from early born females. This decrease in returns is a result of the lighter weaning weights for late born males and females. To avoid the loss in returns from late calves, some producers attempt to keep the calves on the cows until they reach an older age and heavier weight. However, this is not a good practice. Continued nursing of the cow late into the season places heavy nursing stress on the cow which reduces her weight gain and prevents her from accumulating fat stores necessary for good reproductive performance during the next year. Research studies indicate that cows need high stores of fat at calving time to rebreed (Table 6). Thus, holding calves over for 30 to 40 days may not be profitable when the return from next year's production is considered.

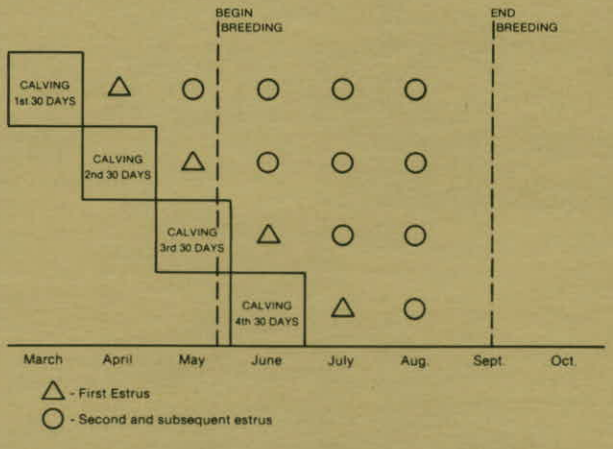


Figure 3. The effect of time of calving on the number of estrous periods cows will likely experience.

Table 5. Returns and weaning weights from early and late born calves in a Brazoria County herd.

	Males		Females	
	Early Born	Late Born	Early Born	Late Born
Weaning wt. (lb)	432	274	418	295
Returns per calf[1]	100%	74%	100%	70%

[1] Uses early born calves in either sex as the base (100%) comparison for gross returns per calf.

Table 6. Effect of fat stores at calving time on subsequent pregnancy rates*

	Level of Fat Stores at Calving Time		
	Low	Moderate	High
No. of cows	25	59	103
Percent pregnant after 40 days of breeding	8	24	51
Percent pregnant by the end of breeding	24	51	73

* From L. R. Sprott, J. N. Wiltbank, N. Parish and D. Williams.

Cost of Feed in Long vs. Short Calving Seasons

Long calving seasons mean longer periods of supplemental feeding. Consider the following example which compares projected feed costs in a fall calving herd, which calves in a 60-day period, contrasted to feed costs in a fall calving herd which calves in a 120-day period.

Herd 1 (60-day calving period)

100 cows	
Start breeding	March 15
End breeding	May 15
Start calving	December 25
End calving	February 24

Herd 2 (120-day calving period)

100 cows	
Start breeding	January 15
End breeding	May 15
Start calving	November 1
End calving	February 24

Table 7. Feed Costs by 11-day Intervals.

Herd 1—100 Cows Calving in 60 Days			Herd 2—100 Cows Calving in 120 Days		
November 1 to November 10			November 1 to November 10		
0 Cows With Calves		100 Cows Not Yet Calved	15 Cows With Calves		85 Cows Not Yet Calved
Hay	0 tons	0 tons	Hay	1.65 tons	0 tons
Milo	0 cwt	0 cwt	Milo	8.25 cwt	0cwt
November 11 to November 21			November 11 to November 21		
0 Cows With Calves		100 Cows Not Yet Calved	30 Cows With Calves		70 Cows Not Yet Calved
Hay	0 tons	0 tons	Hay	3.3 tons	0 tons
Milo	0 cwt	0 cwt	Milo	16.5 cwt	0 cwt
November 22 to December 1			November 22 to December 1		
0 Cows With Calves		100 Cows Not Yet Calved	40 Cows With Calves		60 Cows Not Yet Calved
Hay	0 tons	11 tons	Hay	4.4 tons	6.6 tons
Milo	0 cwt	0 cwt	Milo	22 cwt	0 cwt
December 2 to December 12			December 2 to December 12		
0 Cows With Calves		100 Cows Not Yet Calved	50 Cows With Calves		50 Cows Not Yet Calved
Hay	0 tons	11 tons	Hay	5.5 tons	5.5 tons
Milo	0 cwt	0 cwt	Milo	27.5 cwt	0 cwt
December 13 to December 23			December 13 to December 23		
0 Cows With Calves		100 Cows Not Yet Calved	57 Cows With Calves		43 Cows Not Yet Calved
Hay	0 tons	11 tons	Hay	6.27 tons	4.73 tons
Milo	0 cwt	0 cwt	Milo	31.4 cwt	0 cwt
December 24 to January 3			December 24 to January 3		
30 Cows With Calves		70 Cows Not Yet Calved	65 Cows With Calves		35 Cows Not Yet Calved
Hay	3.3 tons	7.7 tons	Hay	7.15 tons	3.85 tons
Milo	16.5 cwt	0 cwt	Milo	35.75 cwt	0 cwt
January 4 to January 14			January 4 to January 14		
60 Cows With Calves		40 Cows Not Yet Calved	72 Cows With Calves		28 Cows Not Yet Calved
Hay	6.6 tons	4.4 tons	Hay	7.92 tons	3.08 tons
Milo	33 cwt	0 cwt	Milo	39.6 cwt	0 cwt
January 15 to January 25			January 15 to January 25		
75 Cows With Calves		25 Cows Not Yet Calved	80 Cows With Calves		20 Cows Not Yet Calved
Hay	8.35 tons	2.75 tons	Hay	8.8 tons	2.2 tons
Milo	41.25 cwt	0 cwt	Milo	44 cwt	0 cwt
January 26 to February 6			January 15 to February 6		
90 Cows With Calves		10 Cows Not Yet Calved	87 Cows With Calves		13 Cows Not Yet Calved
Hay	9.9 tons	1.1 tons	Hay	9.57 tons	1.43 tons
Milo	49.5 cwt	0 cwt	Milo	47.85 cwt	0 cwt
February 7 to February 17			February 7 to February 17		
95 Cows With Calves		5 Cows Not Yet Calved	95 Cows With Calves		5 Cows Not Yet Calved
Hay	10.45 tons	0.55 tons	Hay	10.45 tons	0.55 tons
Milo	52.25 cwt	0 cwt	Milo	52.25 cwt	0 cwt
February 18 to February 24			February 18 to February 24		
100 Cows WIth Calves		0 Cows Not Yet Calved	100 Cows With Calves		0 Cows Not Yet Calved
Hay	7 tons	0 tons	Hay	7 tons	0 tons
Milo	35 cwt	0 cwt	Milo	35 cwt	0 cwt

Assume that cows with calves are fed separately from cows that have not yet calved. Cows with calves get 20 pounds of hay and 5 pounds of milo per head per day. Cows that have not yet calved get only 20 pounds of hay per head per day. Actual levels of supplemental feed may be different than the levels used here, but individuals can use their own levels in the cost analysis which is broken down by 11-day intervals throughout the calving season (Table 7). The amount of feed needed for the 11-day intervals was calculated by the following formula: number of cows × pounds of milo and/or hay needed × 11 days.

Note from the summary in Table 8 that Herd 2 required 5 tons more hay and 132.6 hundredweight (cwt) more milo. This amounts to an extra $943.11 to feed Herd 2 (5.0 ton × $60/ton + 132.6 cwt × $4.85/cwt). Even assuming that each herd had a 100 percent calf crop, the calves in Herd 2 were born over a longer period and cost the producer nearly $10 more per head. This does not include the extra labor cost of feeding Herd 2 that began calving 2 months earlier than Herd 1.

Table 8. Summary of feed cost in 100-cow herds calving in 60 days versus 120 day period.

	Herd 1 (60 Day)	Herd 2 (120 day)	Difference
Total hay fed (tons)	95.0	100.0	5.0
Total milo fed (cwt)	227.5	360.1	132.6

Strategies for Shortening the Calving Season

Reducing the length of the calving season is one of the most cost effective procedures that large or small ranchers can implement. Reducing the time period over which calves are born facilitates a multitude of prudent management practices while also increasing returns through increased pregnancy rates, heavier weaning weights and total pounds of saleable beef.

The primary objections to moving to a controlled breeding and calving season generally include: (1) limiting exposure of cows to bulls does not give cows an adequate opportunity to conceive, (2) changing from a long breeding season to one of shorter duration is too expensive due to the loss of good cows that are late calvers, and (3) the perceived difficulty or lack of knowledge as to how to initiate a controlled program effectively.

The first objection has little foundation; a management change from a long to short calving season does not penalize fertile, productive cows. As the data in Table 9 indicate, cows that are given adequate rest after calving and that have cycled before the start of breeding season will conceive early in the breeding period.

Table 9. Distribution of pregnancies by periods in a 75 day breeding season*

	Breed Type				
Days	Angus	Brahman	Brangus	Brahman X Angus	All Breeds**
	—Percent Pregnant by Periods—				
1-21	64	38	49	70	55
22-43	28	22	29	18	24
44-65	7	28	18	10	16
66-75	1	12	4	2	5
TOTAL	100	100	100	100	100

*From W. L. Reynolds.

**Average pregnancy rates by periods for the four breeds.

Note from Table 9 that 55 percent of all the herd had conceived by the first 21 days and 79 percent by the end of 43 days. Only 5 percent of the herd conceived during the last 12 days of the breeding season. The low pregnancy rate in cows that calved and cycled before the breeding season began is indicative of problem breeders and cows that probably should be eliminated because of their impaired fertility. Table 10 further substantiates that cows conceiving late in a controlled breeding program tend to be poor performers from one year to the next. Note especially that pregnancy rate was only 45 percent in the group that conceived during the last 12 days of the breeding season. This contrasts with an 86 percent pregnancy rate for those cows conceiving in the first 21 days. Extending the breeding season for slow breeding cows only perpetuates subfertile cattle and complicates management.

Table 10. The effect of time of conception on the pregnancy rate in the subsquent year.*

Time of Conception	Young Cows**	Mature Cows***	All Cows
	—Percent Pregnant by Periods—		
1st 21 days	81	88	86
2nd 21 days	76	87	83
3rd 21 days	44	71	60
Final 12 days	25	64	45

*From W. L. Reynolds, T. M. DeRouen and D. C. Meyerhoeffer.

**3 and 4 year old cows

***5 years and older

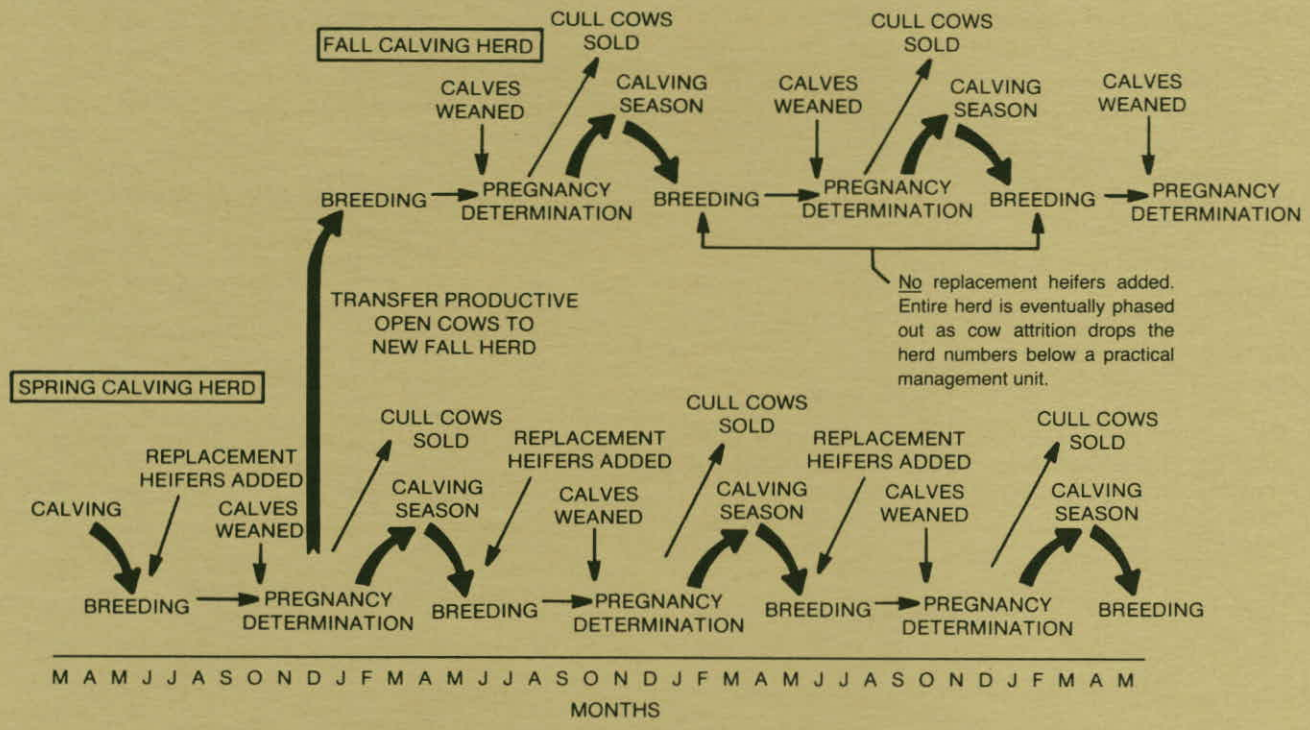


Figure 4. Management plan for splitting calving season into spring and fall calving herds. Plan may be effectively used in herds with calving seasons of 5 months or more.

Management of Herds with Long Calving Seasons (5 months or more)

Moving to a controlled breeding and calving season saves cost. It need not remove quality cows nor is it extremely complicated with good management planning. For ranchers with calving seasons of 5 months or longer, it is generally advisable to split the herd into two groups. This may entail moving some cows from spring to fall calving or fall to spring depending upon the primary calving season desired. Figure 4 illustrates a plan for moving a herd that calves primarily in the spring into a controlled breeding period. In the first year, time of breeding is restricted to the desired length, that is, 60 or 90 days. The initial time restriction is often determined by appraising the percentage of the herd calving in the first 1 to 2 months of the former breeding season. Even in programs where yearlong breeding has been practiced, forage availability in the spring months often concentrates 80 percent of the calving activity into a 3 to 4 month period, usually March, April, May and June. From a practical standpoint, most ranchers initially reduce the spring calving group by 20 to 30 percent of the total herd. In the example in Figure 4, the breeding season is restricted in the spring and all cows are held until calves are weaned and/or the herd is pregnancy tested. At this time inferior cows are culled. The non-pregnant but productive females are shifted to a separate area to become the nucleus of the fall calving herd. The fall calving cows are then exposed in a defined and controlled breeding season during the winter months. If cows shifted into the fall calving herd are nursing heifer calves when the new breeding period is initiated, take precautions to prevent puberal nursing heifers from becoming pregnant. This may require early weaning of some or all heifer calves from cows being shifted into the fall program. At the conclusion of the first fall breeding period, all cows should be pregnancy tested and open females culled.

The plan in Figure 4 basically calls for both herds to be managed identically with one exception. To ultimately eliminate the fall calving herd, no replacement heifers are added to the herd. Heifers of exceptional quality born to fall calving cows may be retained as replacements, but should be held and bred to calve in the spring. Therefore, as a result of cow attrition and the absence of the usual 5 to 15 percent replacement addition, the fall calving herd will progressively decrease in size to the point that it may be eliminated. If a fall calving season is desired, a similar plan is used, but the ulitmate objective will be to maintain a controlled fall calving group while simultaneously eliminating the spring calvers. This normally takes a period of 3 to 5 years depending upon the culling rate and the herd size perceived to be a practical management unit.

Management of Herds with Moderate Calving Seasons (greater than 80 days)

In herds where the calving period is more than 80 days but less than 5 months or in situations where a split calving season is undersirable or impossible, reducing the calving period requires more planning and careful follow-through. Although good nutrition and close attention to feeding regimens and cow condition can shorten the interval from calving to first estrus, cows will breed only slightly earlier. With such management, the breeding date will move back approximately 10 days or less annually. Therefore, reducing the breeding and calving period through improved management alone will give only marginal improvement. Consequently, more specific and direct actions are necessary if the calving period is to be reduced within a reasonable time. This is accomplished normally by a percentage of the late calving cows being replaced by heifers that are to calve in the first 30 to 60 days of the calving period. Exactly what percentage of the herd is replaced is governed by the existing calving distribution or how quickly it is desired to reduce the calving period. As discussed, 80 percent of the cows in most herds are already calving in a 3 to 4 month period with nearly 70 percent occurring during the first 2 months. Thus, in most herds the usual replacement rate ranges from 20 to 40 percent. Figure 5 graphically depicts a system for using an increased number of replacement heifers to reduce the calving season. In this example, a 5-month spring calving period is used and a typical distribution of birth dates is given. From Figure 5, note that 20 cows are culled (20 percent of a 100-cow herd) and 20 early calving heifers are added back to the herd (for clarity and ease of discussion, routine replacement of the herd of 5 to 10 percent is ignored). In this exam-

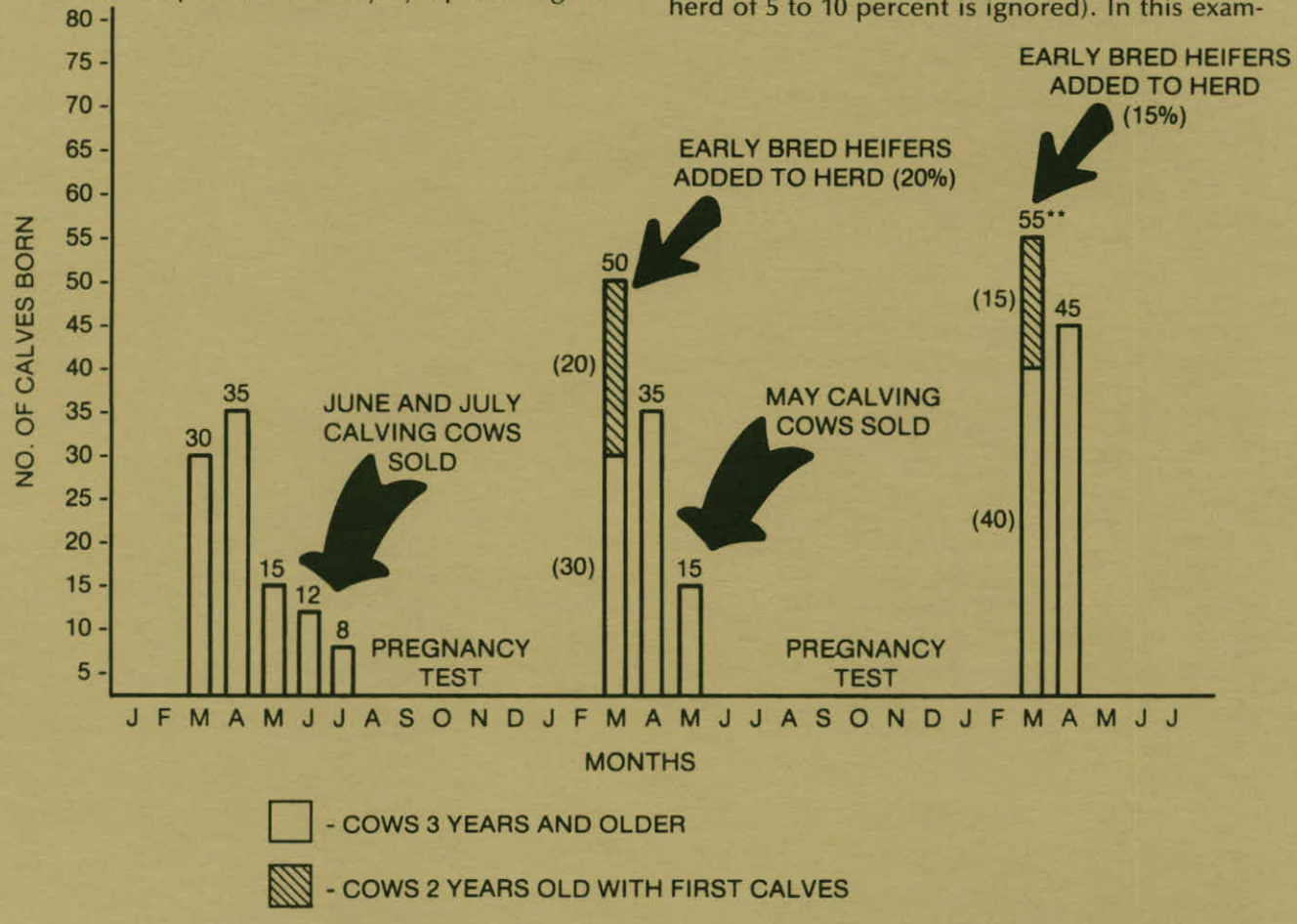


*Figure 5. Management plan used in shortening the calving interval through the use of replacing late calving cows with earlier bred heifers in a 100-cow herd. Normally used in herds that have present calving period of less than 5 months or where split calving is not desirable or possible.**

* *For clarity, the example does not include the normal 5 to 10 percent replacement heifers required to replace cows routinely culled from the herd.*

** *Assumes 10 first-calf heifers moved to second 60 days (35 + 10) and thus number calving in first 30 days is increased by only 5 although 15 replacements were added (50 — 0 — 15).*

ple, the calving period is now reduced from 5 to 3 months. Since calves from the replacement heifers will weigh less at weaning (7 to 10 percent), there is little increase in the total pounds of beef weaned at the end of the first year. However, the pounds of beef weaned will be about equal in the first year since calves from the heifers will be older at weaning and thus heavier than those of the late calving cows that are culled.

In the second year about 15 heifers are again added to the early calving group. Since first calf heifers are slower to return to estrus following calving, it is assumed that ten of the first calf heifers are delayed in breeding and move to the second 30-day calving period. Such may or may not be the case in actual practice since most of the problem can be avoided through careful attention to nutrition and breeding of virgin heifers, such as, breeding virgin heifers to calve 20 to 30 days earlier than the desired calving date of mature cows (see Extension publication B-1213 *Management of Replacement Heifers for a High Reproductive and Calving Rate).* At the end of the second year, total pounds of calves weaned should be increased over beginning levels and will progressively increase as a higher percentage of the herd reaches maturity. Although not illustrated in Figure 5, approximately 50 percent of all calves would be born in the first 30 days at the end of the third year. This percentage can be progressively increased with the close attention to nutrition made possible through a shortened breeding season.

Summary

Shortening the calving season is perhaps one of the most important and cost effective programs that can be implemented by a rancher. Cost of the program is minimal and the timely labor usage and increased net production make it a basic endeavor in enhancing overall production efficiency. As an example, a Waller County rancher shortened the calving season in his herd from 180 to 60 days. This was accomplished in 3 years and increased actual weaning weights from 407 to 509 pounds, a 102-pound-per cow increase.

Although the reasons for shortening the calving season are numerous, the many advantages are perhaps best perceived by comparing a limited breeding and calving season to year-long breeding. The chart (see page 11) shows a wide array of prudent management practices and compares each program approach.

Based on these management considerations, it is apparent that controlled calving seasons form the cornerstone of prudent management practices. Without control of the breeding season, opportunities for increasing production efficiency and thereby reducing the cost per calf weaned are severely limited. Lack of control of the breeding season further impedes an increase in the total pounds of beef that can be weaned from the cow herd if calves are weaned on a given date. Extending the weaning date can increase the average age and thus the weight of calves, but most often jeopardizes the cow's opportunity to gain in weight and condition. Thus, any increase in weight of calves sold is offset by reduced pregnancy rates in the subsequent breeding season. Addressing the problem of long calving seasons and pursuing plausible management solutions requires little capital input, few economic losses and promises reduced labor cost and increased production efficiency.

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Management Practices Compared in Controlled vs. Year-Long Breeding Programs

Basic Management	Controlled Breeding	Year-Long Breeding
Castration Vaccination Pregnancy testing Parasite control Weaning	Once or twice yearly	Three to eight times yearly
Feeding	Selectively feed before calving and after— • decrease in time for return to estrus • increase conception rate • increase number of early born calves • decrease death loss in calves	Must feed according to average pregnancy status of herd or feed dry cows as if they are wets (50 to 100% increase) or suffer delayed estrus and conception, late born calves, high calf mortality. Can separate wets and drys, but should be performed weekly.
Utilization of Forage	Can plan calving and rebreeding during times of peak forage production.	Must buy supplement for cows during low forage availability and must separate them from drys to conserve costs.
Marketing	Gives uniformity to calf crop (near same age) • plan marketing	Cattle must be marketed over selected periods as they achieve minimum age and weight. A single marketing limits weight of late born calves and severely reduces return to dam.
Selection and Culling	• Cow/Calf Accurately evaluates calf weights as they reflect milk producing ability and genetic capabilities of cow.	• Cow/Calf No valid means of comparison; weight gain of calf and lactation levels of cows varies with season of year.
	• Cows From one pregnancy testing can eliminate slow or hard breeding cows and expect progressive increase in reproductive rate of herd. Accurately identify cows calving every 365 days.	• Cows Must use multiple periods of pregnancy testing. Difficult to determine cause for open cows due to extreme variation in environment, i.e., nutrition, parasitism, disease.
Calf Mortality	• Health Program Can plan comprehensive herd health plan with minimum labor while providing maximum protection. • Calving difficulty 75% of calf losses occur at birth—80% due to difficult calving. Checking frequently (3 to 4 times daily) can increase calves saved by 200% with only 50% labor increase.	• Health program Must work calves on minimum of 30-day intervals if immunization and control is to be effective. • Calving difficulty Frequent checks are impossible due to number of months over which cattle must be observed.
Heifer Development	Permits accurate and selective feeding of heifers and reduces age variability among heifers which results in a higher percentage of puberal heifers at the start of breeding.	Difficult to feed and develop due to large variation in age and weight. Must also isolate older nursing heifers due to the possible occurrence of puberty and the resulting pregnancy causing calving problems and/or death of calf and heifer.

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