

Long Calving Seasons: Problems and Solutions



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“A cow should have a calf every year.”

That is a very straight forward and simple statement, but cattlemen know it takes effort, planning and management to make this happen.

One way to achieve this goal is to establish well-defined breeding and calving seasons. When the calving season is too long, management is more difficult and many cows will not calve every year. Shorter, controlled calving seasons make the bottom line better because both herd management (expenses) and marketing (income) can be better controlled.

Controlled calving seasons have a number of benefits.

- Improved herd fertility (more calves sold)
- More uniform calf crops (better groups sold or retained)
- Heavier weaning weights (more pounds sold)
- The ability to raise more fertile replacement heifers
- More marketing options for calves (uniformity, age/source verification programs, etc.)
- The ability to target the herd’s nutritional and health needs, which may reduce total feed costs

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Problems with Long Calving Seasons

The main reasons to shorten the calving season are to increase the chances that all cows and heifers will calve each year and to increase the weaning weights of their calves.

Length of Gestation and Post-partum Anestrous

Cows are pregnant for about 285 days of a 365-day period. There is not much time left during a year for physiological processes such as calving, uterine repair (involution), and resumption of estrous cyclicity. If cows are to maintain a 12-month calving interval, the calving season can be no longer than 80 days per year ($365 - 285 = 80$). Thus, a calving season of 80 days would necessarily be followed by a breeding season of 80 days (Fig. 1). This 80-day breeding period is **the** window of opportunity for the whole year. The goal of all herd management during the year is to have cows and heifers that are receptive to breeding during this 80-day period. This is why cows that calve early are the most fertile and profitable individuals in the herd, whereas late calvers are the least fertile and profitable (Table 1).

Because delivering a calf is a physiologically stressful process, cows and heifers do not have estrous cycles for a period of time after



FIGURE 1. Length of the calving and breeding seasons and the effect of the earliness of calving on readiness to re-breed.

TABLE 1. Lifetime return on investment per female as affected by earliness of calving as a 2-year-old.

	Calving in:			
	1st 21 days	2nd 21 days	3rd 21 days	4th 21 days
Herd 1	14.8%	10.4%	4.7%	8.6%
Herd 2	(-3.2%)	(-10.3%)	(-12.4%)	(-11.2%)
Herd 3	9%	(-13%)	(-16%)	(-9%)
Herd 4	18%	9%	3.6%	(-10%)
Herd 5	14.7%	2%	6%	6%

Data taken from five commercial herds made up of approximately 1,500 cows that calved annually throughout their lives.
From L.R. Spratt

calving. This is known as the *post-partum anestrus period*. The internal reproductive organs require an absolute minimum of 35 days to repair themselves so that 1) the uterus is capable of maintaining a new pregnancy and 2) estrous cyclicity will commence. In reality, this post-partum anestrus period is closer to 45 to 50

days for most cows. It is greatly influenced by the pre-partum nutrition and body condition of the dam at the time of calving. The post-partum anestrus period may extend to 3 or 4 months—or more—for cows that calve in extremely poor body condition. Obviously, this would make a 12-month calving interval impossible to achieve.

Cows that calve in good body condition, and do so early in the calving season, have the best chance of resuming estrous cyclicity **before** the breeding season begins (i.e., they are “ready to go” when the bulls are turned in). Even in herds with 80-day calving seasons, late calvers are still at a relative disadvantage. Early calvers have the best chance of re-breeding because 1) they have more time to recover and 2) they have potentially more estrus periods—or opportunities to breed. Figure 2 shows the effect of extending a breeding/calving season beyond 80 days. Note that with the 120-day example shown, cows calving in the fourth 30-day period will not be calved out even after the breeding season has begun.

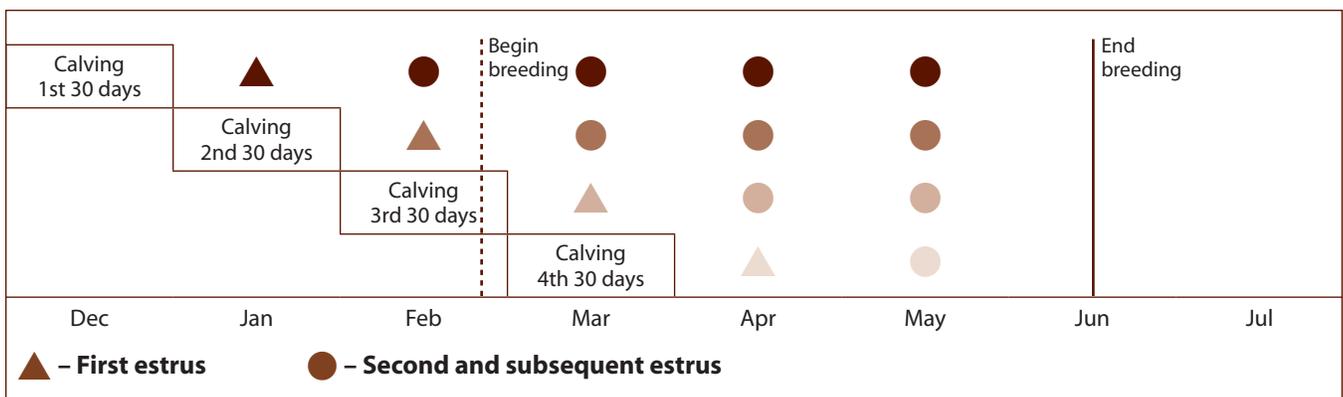


FIGURE 2. The effect of calving time on the number of potential estrous periods and the effect of a 120-day breeding season on late-calving cows.

Light weaning weights

Calves born late in the calving season have lighter weaning weights because they are younger and smaller at weaning. Shortening the calving season greatly reduces age variability and makes calf crops more uniform. This is shown in both Table 2 and Figure 3.

TABLE 2. Effect of time of birth in relation to the start of calving on weaning weight and average daily gain (ADG) in a 120-day calving season.

Time of birth by 20-day intervals	Number of calves	Weaning weight	ADG (lb)
First 20 days	77	443	1.76
Second 20 days	264	432	1.75
Third 20 days	244	432	1.78
Fourth 20 days	138	409	1.77
Fifth 20 days	65	405	1.67
Sixth 20 days	16	375	1.59

J.L. Lesmeister, P.J. Burfening and R.L. Blackwell. 1973. Date of first calving in beef cows and subsequent calf production. *Journal of Animal Science* 33:1-6.

Managing the Calving Season

Pre-partum nutrition

Most cows lose some weight during calving and lactation. In spite of that, those in good body condition (high body condition score, or BCS) can lose some weight and still re-breed, provided the weight loss is not more than ½ pound per day. Animals without adequate fat cover will still provide milk, but they may not re-breed, especially if they are in poor body condition **and** are late calvers as well. Therefore, one of the most critical things a manager can do is to ensure that cows calve in a BCS of at least 5 or 6 and that weight loss after calving is not dramatic. Managers should evaluate cattle for body condition score 2 to 4 months before the calving season begins. Then there will be time to determine the type and quantity of supplemental feed needed and time for the cattle to respond to supplementation with improved body condition.

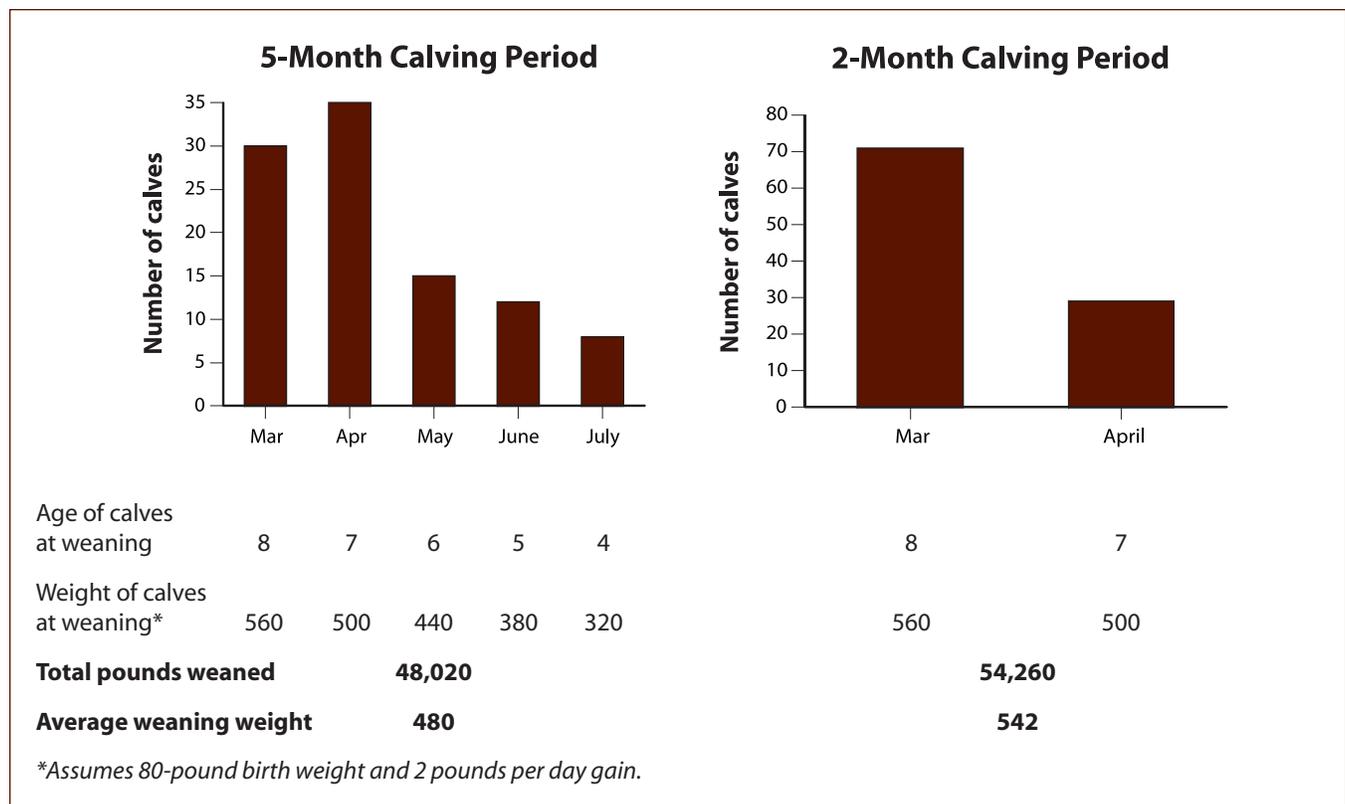


FIGURE 3. Effect of length of calving period on total and average pounds of calves weaned in a 100-cow herd.

Supplementing cows to obtain body condition scores higher than 6 is not usually desirable, either from an economic or physiological standpoint, although if they achieve higher levels of condition from a high-quality forage diet, fertility usually is not reduced.

BCS/calving time	Risk of re-breeding failure
BCS 5-6, early calver.....	low risk
BCS 5-6, late calver.....	low to moderate risk, depending on nutrition level post-partum
BCS 4, early calver.....	moderate risk, depending on nutrition level post-partum
BC 4 or less, late calver.....	high risk
BCS 1, 2, 3.....	high risk

Nutrient management

Nutrient requirements vary widely throughout the year. For example, at lactation, protein requirements are double what they were earlier in the year. The challenge is that nutrients, either from forage or supplement, are delivered to a herd and not to individual animals. In other words, all cows in the pasture get the same opportunity to consume feed and forage and all are fed in the same way. Supplementation is much more effective in herds with managed calving seasons because all animals are at or near a similar stage of production and have very similar nutrient requirements. Thus, supplemental feed can be accurately and effectively delivered. Managed calving seasons make it easier to time the breeding period, when nutrient requirements are greatest, to coincide with the period of best seasonal forage quality. For example, if March, April and May are the months when green, growing forage is most likely to be available, then the breeding season should coincide with those months. That means calving should occur in December, January and February.

Herd health management

Many vaccinations are best administered at specific stages of production so that the maximum immune response can be realized. With controlled breeding seasons, all cows can be worked and vaccinated at the same time and will achieve the desired level of immunity when it is needed. Their calves, which will be of similar ages, also can be worked together and vaccinated in a timely manner.

Fertility management

Non-pregnant (open) and sub-fertile cattle should be identified and culled to improve herd fertility. Failure to do this will eliminate the possibility of having high pregnancy rates, regardless of how long the breeding period may last. When there is a defined bull removal date, pregnancy testing can be done to find and cull cows that fail to get pregnant. But with year-round or extended breeding/calving periods, sub-fertile cattle often go unrecognized. They may have calves, but no one really knows how often. A defined bull removal date (calving season) forces the culling of sub-fertile cows because they will either calve late, or not at all.

Choosing a calving season

It is generally best to breed when forage quality is best. Across most of Texas this usually means spring breeding (with winter or early spring calving). Sometimes winter breeding (with fall calving) is desirable if cool-season forages are available and/or it is cost-effective to market fall-born calves. If calving occurs in the fall without adequate cool-season forage (or high-quality hay), supplemental feed costs will be high. Breeding cows in the summer is not recommended in most regions of Texas because heat stress lowers the fertility of both cows and bulls. Exceptions to this rule may be found in certain areas of Far West Texas or the Panhandle, or for producers whose markets dictate that calves be born at a certain time of year (for example, if they are producing club calves).

Common Questions about Calving Seasons

The answers to these common questions reveal solutions to the problem of long calving seasons.

Where do I put the bulls to control their access to cows?

Even on large ranches this can sometimes be a problem. Bulls inevitably get out when or where they are not wanted. On smaller acreage this can be a more frequent problem because there may be only one or two bulls and they may even have visual contact with cows from their assigned bull pasture. Good fencing in the bull pasture (at least 5 feet high) is the first step. Fencing may even need to be reinforced with an electric fence, offset to the inside. It may help to train bulls to electric fence in a corral before turning them into the pasture. If there is simply no place to put bulls, it is possible to keep bulls with cows year-round and still have a controlled calving season. This is done by using rectal palpation to find open cows and to evaluate the age of the fetuses in pregnant cows. Cows or heifers that are determined to be pregnant but have fetuses younger than a pre-determined age are culled just as if they were open. This approach requires the services of a person who is skilled in rectal palpation. It also requires that the manager have the self-discipline to cull some pregnant cows and heifers.

CAUTION: If bulls are left with the herd year-round, heifer calves that mature at an early age (7 to 9 months) may have untimely conceptions if they are not protected from the bulls. Such heifers could have serious calving problems, or even die.

Can't I just leave the bulls out a little bit longer this year and get a few more cows bred?

Yes, but those late-bred cows will not fit in with the rest of the herd and breeding seasons in subsequent years would have to be extended to

accommodate those individuals (unless they are culled and sold as bred females). If late breeders are allowed back in the main herd, what once may have been an 80- to 90-day calving/breeding season could be extended to 4, 5, 6 months or more. This would mean that many cows would not be calving on a true 12-month interval (see Figure 1) and might be calving at an undesirable time of year.

What can I do to begin a controlled calving season, or shorten the one I have now?

The first step is to determine the best time to calve and what percentage of the herd is calving outside of the desired months. This can be done by recording calving dates for individual cows or by rectal palpation. Most cattle naturally breed at the time of year when nutrition is best, so getting the herd on a controlled schedule is often just a matter of culling a few animals—those calving at the wrong time and those that do not calve consistently. Pregnancy rates will never be high if inconsistent calvers are left in the herd. *The key is to replace culls with heifers or cows that are bred to calve slightly before, or near the start of, the desired calving period.*

If a large percentage of the herd is calving in undesirable months, there may be two options. One option is to slowly tighten the breeding season over a period of 3 to 4 years, replacing culls with heifers or cows bred to calve before or near the start of the desired period. The second option is to split the herd into two herds (typically spring and fall calvers) and add replacement animals to only one herd. Attrition will eventually take care of the herd that is calving at the undesired time.

Can I change a late-calving cow into an early calver?

Not very easily. Late calvers tend to remain that way even with good nutrition, because as Figure 2 shows, after accounting for the length of gestation, there simply isn't enough time to "back them up" in the calving season. However, early calvers will remain early calvers as long

as they are properly managed. But if management falters, even early calvers can cycle late and become late calvers, with little chance of ever returning to their previous schedule. Estrus synchronization can be used to move late calvers to an earlier calving date. However, this should be done only on fertile females that have calved consistently every year. Another option is to use some form of temporary calf removal to stimulate an earlier return to estrus after calving.

Summary

Beef cows and heifers are managed not as individuals, but in herds. So effective herd management (feeding, culling, selection, etc.) depends on having animals that are in similar stages of production. Controlled calving and breeding seasons facilitate good management.

The most productive individuals are those that calve early. This allows re-breeding to occur early, increases the animals' lifetime fertility, and ensures that calves will be older and heavier at weaning.

There are more options for marketing calves when the calf crop is fairly uniform. Many age/source verification markets now require documentation of how calving seasons are managed.

For more information refer to these Texas Cooperative Extension publications, available at <http://tcebookstore.org>:

B-1526, *Body Condition, Nutrition and Reproduction of Beef Cattle*

L-5443, *Calf Removal: A Way to Stimulate Reproduction in Cows*

B-6123, *Synchronizing Estrus*

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Issued in furtherance of Cooperative Extension Work in Agriculture and Home Economics, Acts of Congress of May 8, 1914, as amended, and June 30, 1914, in cooperation with the United States Department of Agriculture. Edward G. Smith, Director, Texas AgriLife Extension Service, The Texas A&M University System.

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