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# Long Calving Seasons: Problems and Solutions

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## Introduction

In a USDA, APHIS and Veterinary Services survey, 54.5 percent of the beef cattle producers did not have a set calving season. With the profitability of a cow-calf operation getting more and more difficult to obtain, reducing the breeding and calving season can be the first step toward improved production efficiency. There are a number of reasons for maintaining a short breeding season.

With today's cattle industry demanding uniform calves, marketing may be the most important reason to reduce the calving season. Labor and time are very important and expensive commodities for a cow-calf producer. A controlled calving season concentrates time and labor for calving, reduces expenses and increases efficiency. The herd health and management of the cow herd is better facilitated with a shortened calving season. Cow nutritional management can be improved when all cows are in the same stage of production. Culling and selection of replacement heifers based on records can be better accomplished. Weaning weights will improve along with reproductive performance of the herd if cows failing to breed during the calving season are marketed.

One of the major excuses given for failing to maintain a short calving season is removing bulls and keeping them separate. This can be a problem for small operations. However, with high tensile electric fence, bull lots can be constructed economically and double as weaning lots when preparing calves for the market. If a bull cannot be removed until weaning, pregnancy checking and culling late breeding cows is a method of shortening the calving season. Producers fear that they miss calves if they go on a controlled breeding season. Some even feel they can breed more cows to a bull on a year-round program.

High production cost is a primary factor in eroding the beef producer's profit. A shortened calving season can reduce production cost while improving cattle performance.

## 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, younger 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. 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 less than 90 days because the average age at weaning increases.

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

| Calf Age at Weaning (days) | Weaning Weight (lb) |
|---|---|
| 80-99 | 303 |
| 100-119 | 304 |
| 120-139 | 301 |
| 140-159 | 377 |
| 160-179** | 401 |
| 180-199 | 441 |
| 200-219 | 472 |
| 220-239 | 473 |
| 240-259*** | 503 |
| 260-279 | 517 |
| 280-299 | 538 |
| > 300 | 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 ensure optimum performance.

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 (ADG). Therefore, to increase weaning weights and total pounds of beef weaned, producers should consider shortening calving season by shortening breeding seasons. They also should manage the herd so that all cows calve early in the calving period.

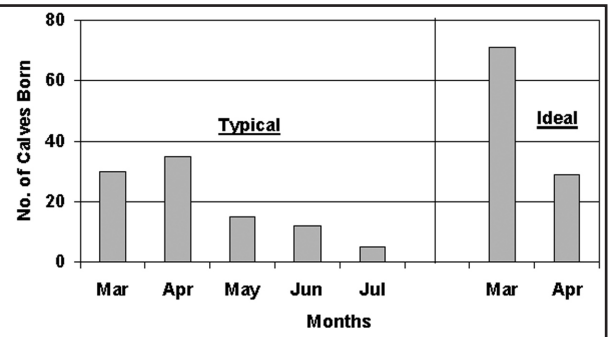
**Table 2. Effect of time of birth on weaning weight and ADG in relation to the start of calving.***

| Time of Birth by 20-Day Intervals | Weaning Weight (lb) | ADG (lb) |
|---|---|---|
| First 20 days | 443 | 1.76 |
| Second 20 days | 432 | 1.75 |
| Third 20 days | 416 | 1.78 |
| Fourth 20 days | 409 | 1.77 |
| Fifth 20 days | 405 | 1.67 |
| Sixth 20 days | 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 1. Data in Figure 1 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 (6,240 ÷ 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.

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 $72 more




| | Mar | Apr | May | Jun | Jul | Mar | Apr |
|---|---|---|---|---|---|---|---|
| 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 1. Typical and ideal calving seasons with their effects on total and average pounds of calves weaned in a 100-cow herd.**

**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 X | 100 | X | Calf Price/Cwt | = | Dollar Return | Return Per Calf |
|---|---|---|---|---|---|---|---|---|
| Calving over a short period | 95 | X | 410/100 | X | $180/cwt | = | $70,110.00 | $738.00 |
| Calving over a moderate period | 95 | X | 390/100 | X | $180/cwt | = | $66,690.00 | $702.00 |
| Calving over a long period | 95 | X | 370/100 | X | $180/cwt | = | $63,270.00 | $666.00 |

per calf weaned for short compared to long calving periods and $36 more per calf in short compared to moderate calving periods.

## 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 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 the 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 a short calving season does not penalize fertile, productive cows. As the data in Table 4 indicate, cows that are given adequate rest after calving and that have cycled before the start of the breeding season will conceive early in the breeding period.

**Table 4. Distribution of pregnancies by periods in a 75-day breeding season.***

| | Breed Type | | | | |
|---|---|---|---|---|---|
| Days | Angus | Brahman | Brangus | Brahman X Angus | All Breeds★ |
| | – Percentage 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 4 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 5 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 5. The effect of time of conception on the pregnancy rate in the subsequent year.***

| Time of Conception | Young Cows★ | Mature Cows★★ | All Cows |
|---|---|---|---|
| | – Percentage 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

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

For 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. 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 year-long 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 producers initially reduce the spring calving group by 20 to 30 percent of the total herd. 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 nonpregnant 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 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 mortality 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 ultimate 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 undesirable or impossible, reducing the calving period requires more planning and careful follow-through. Although good nutrition and close attention to feeding regimes 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 two months. Thus, in most herds the usual replacement rate ranges from 20 to 40 percent.

## Results from the ABIP Breeding and Calving Season Special Project

The objective of the Arkansas Beef Improvement Program (ABIP) was to demonstrate cost-effective beef cattle and forage management practices. One of the special ABIP projects was reducing the breeding and calving season. The purpose of the project was to document the beef cattle management changes necessary and the impact of those changes when changing from a yearlong calving program to a 90-day calving season. Listed below is the summary of actual Arkansas cow-calf information where calving seasons were reduced.

### Farm Summary 1

In the first year of the project, the calving season was 10 months long. The producer's goal was to reduce the calving season to January, February and March. This was accomplished where 100 percent of the cows were calving in the desired calving season in four years. Other results are:

- Calving interval decreased from over 400 days to less than 340 days
- Herd size increased by 47 percent due to better utilization of the land resources
- Total pounds of beef sold increased by 11,673 pounds
- Herd break-even decreased by 54 percent
- Cost per cow decreased by 52 percent

### Farm Summary 2

This producer wanted to reduce the calving season from 10 months to 90 days. His goal was to calve 100 percent of the cows from January 1 to March 31. This was accomplished in three years. Other results are:

- Gross income per cow increased 39 percent
- Herd break-even decreased by 46 percent
- With an off-farm job, more flexibility with his time was achieved

### Farm Summary 3

This producer started with a calving season of 170 days and wanted to reduce it to 60 days from February 1 to March 30. This was accomplished in four years. Other results are:

- Cow number increased by 11 percent
- Total pounds of beef sold increased by 10 percent
- Herd break-even decreased by 18 percent

All three of these farms were able to successfully establish a plan to reduce the length of the calving season and improve their cattle operation for future profits.

In summary, the ABIP breeding and calving demonstrations were able to: (1) decrease herd breakeven 30%; (2) decrease production cost per animal unit by 40%; and (3) increase income over production cost per animal unit by 100%.

## Summary

Shortening the calving season is perhaps one of the most important and cost-effective programs that can be implemented by a producer. Cost of the program is minimal, and timely labor usage and increased net production make it a basic endeavor in enhancing overall production efficiency. As an example, a producer 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, 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 6) 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 realistic management solutions require little capital input, result in few economic losses and promise 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<br>Vaccination<br>Pregnancy Testing<br>Parasite Control<br>Weaning | Once or twice yearly | Three to eight times yearly |
| Feeding | Selectively feed before calving and after<br>• decrease in time for return to estrus<br>• increase in conception rate<br>• increase number of early born calves<br>• decrease death loss in calves | Must feed according to average pregnancy status of herd or feed dry cows as if they are lactating (50% to 100% increase) or suffer delayed estrus and conception, late born calves, high calf mortality. Can separate lactating and non-lactating cows, 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 non-lactating cows to conserve cost. |
| Marketing | Gives uniformity to calf crop (near same age)<br>• 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<br>Accurately evaluates calf weights as they reflect milk producing ability and genetic capabilities of cow. | • Cow/Calf<br>No valid means of comparison; weight gain of calf and lactation level of cows varies with season of year. |
| | • Cows<br>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<br>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<br>Can plan comprehensive herd health plan with minimum labor while providing maximum protection.<br>• Calving difficulty<br>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<br>Must work calves on minimum of 30-day intervals if immunization and control is to be effective.<br>• Calving difficulty<br>Frequent checks are difficult 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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