
CONVERTING TO A CONTROLLED BREEDING SEASON

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Introduction

Beef producers are always searching for ways to increase profits. This can be achieved by decreasing costs, increasing prices or increasing production while keeping all other factors the same. One practice that can do all of these is controlled breeding.

Controlled breeding is defined as developing specific predetermined strategies on when to begin and end a breeding season. The length of a controlled breeding season can vary depending on factors such as the marketing objective, size of the operation and, in many cases, personal preference. Some controlled breeding seasons are as short as a few weeks while others last several months. Although controlled breeding seasons have been suggested for a long time, approximately 70 percent of cow-calf operators in the Southeast continue to breed using a year-round breeding season (Triplett, SR1005).

Year-Round Breeding

The inability or unwillingness of some beef producers to separate bulls from their cow herd is often the cause of many year-round breeding seasons. When bulls are removed from a cow herd, they may be eager to return; therefore, a strong, secure bull pen must be available. Producers may lack these facilities and/or the acreage to successfully maintain the bull away from the cow herd.

Often, producers who use year-round breeding state that, without year-round breeding, they would be unable to breed all of their cattle. By using the

year-round breeding season, producers claim they give their cattle a chance to conceive and produce a calf. This may seem logical, since some cattle will need more than one service to conceive. But since the goal of most beef operations is to have one calf per female every year, beef producers should consider controlled breeding management practices.

Since the gestation length in cattle is approximately 283 days, that leaves only 82 days in the calendar year for recuperation and breeding. Research has demonstrated that by 60 days after calving, approximately 90 percent of cattle should exhibit signs of estrus (heat). Cattle that initiate estrus 60 days after calving will have their next cycle about 21 days later, on or about day 81. Cattle that do not conceive during this period of time have increased production costs and reduced subsequent revenue.

Reproductive problems are difficult to identify when using a year-round breeding season. Non-pregnant (open) females that stay in the herd result in additional costs. Yearly costs associated with maintaining cattle can be as high as \$350 to \$450 per year, and the sale of a calf each year offsets that cost and can provide profits. An unidentified non-pregnant female in a herd will take at least 2 years before she will return any revenue to the operation.

Another reason often cited for year-round calving is that herd bull cost can be reduced by using the bull throughout the year to breed more cattle. In reality, the true cost of keeping a bull is often lower than many people think, and the additional pounds gained from a shortened breeding season will usually offset the additional bull costs.

If bull power is a concern, or space is limited, producers may consider artificial insemination. A successful artificial insemination program can result in 50 percent or more of the breeding females conceiving, leaving only 50 percent for the bull to breed. Not only does this method of breeding reduce bull power necessary for breeding, it also allows enhanced genetic improvements that might not be available otherwise. Artificial insemination is an innovative practice you might also consider when the cow to bull ratio is too high. If the ratio of bulls to cows is 1:30, and a producer has 35 to 40 head of cows, artificial insemination can be used to eliminate the need for the second herd sire.

Because cattle prices fluctuate throughout the year, some producers think that by using year-round breeding they enhance their marketing options because they have calves ready to sell throughout the year. Calves marketed year-round do take advantage of market increases; however, they will also experience market declines. The reality is that calves born during a year-round calving season vary tremendously in age and weight. When these differences are added to the amount of increased labor necessary to work calves year-round, it is obvious that – because of this management deficiency – production costs increase while profits decrease.

An increasing number of producers who have a controlled breeding season are marketing uniform (similar in age, breed type and weight) calf crops in truck-load lots through the use of internet, video and tele-auction sales. Marketing calves in uniform lots results in higher prices compared with cattle sold individually in a local market. Interested readers should refer to Georgia Cooperative Extension Bulletin B-1078 (*Profitable Cattle Marketing for the Cow-Calf Producer*) for additional information regarding marketing strategies.

Controlled Breeding

Many benefits can be obtained from controlled breeding (Table 1). Producers who are serious about maximizing profits should consider these management practices.

Nutrition

Nutritional requirements can vary within a cow herd. Brood cows that are nursing calves will have different nutritional needs than dry cows or growing heifers. In order to adequately supply the proper

Table 1. Reasons for Using Controlled Breeding

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1. Nutrition can be adjusted according to physiological status.
 2. Cattle can be closely observed for calving difficulty.
 3. Calf crop will be uniform in weight and age for marketing purposes.
 4. Facilitation of management.
 5. Identification of reproductively unsound cattle.
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(Source: Triplett, SR 1005)

amount of nutrition to each physiologically different group, they should be fed separately.

Heifers are typically fed to reach 55 to 65 percent of their mature weight at breeding, and when they calf for the first time, they should weigh approximately 85 percent of their mature weight. Heifers must be managed separately to maximize feed efficiency and reduce the cost of gain. Dominant mature cattle can prevent heifers from consuming feed, causing delayed weight gains and subsequent estrous cycle activity.

Evaluate non-pregnant (open) cattle for reproductive problems, their genetic potential for the herd and their marketing possibilities. An open female will consume feed and hay continuously but not return any revenue for 2 or more years. Costs associated with feeding a cow for 1 year have been estimated at approximately \$1.00/day or more per head, and up to 50 percent of that cost can be attributed to winter feeding. Feeding cattle according to their nutritional needs can reduce costs associated with wasted feed and delayed puberty. A considerable difference in required percent TDN exists between cows after weaning and pregnant replacement heifers (Figure 1, page 3). To find additional information regarding the nutritional needs of beef cattle at different stages of production, please refer to the Georgia Cooperative Extension Bulletin 833, *Beef Herd Management in Georgia*.

Calving

Failure to identify cattle with dystocia (calving difficulty) can cause the loss of the calf and, in some cases, even the cow or heifer. By using a controlled breeding season, producers can intensify their observations at calving to identify and assist cattle with calving difficulty. This is especially beneficial with

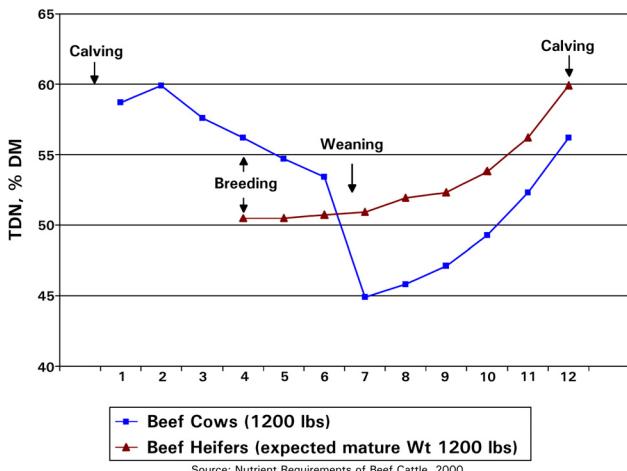


Figure 1. Total Digestible Nutrient (TDN) requirements of beef cows and pregnant replacement heifers throughout pregnancy.

first-calf heifers. Unlike controlled breeding, year-round breeding requires additional efforts and time to identify these cattle. Controlled breeding results in controlled calving and, once the calving season ends, allows producers to focus on other issues associated with beef cattle management.

Uniformity

Controlled breeding is the first step in producing uniform calves. Without a controlled breeding season producing a uniform calf crop is nearly impossible. By utilizing a 90-day controlled breeding season producers can be more assured that their calf crop will be similar in age resulting in less weight variability. Without a controlled breeding, calves will vary in age, weight, and likely management.

Facilitation of Management

Effectively managing time and tasks can increase profits. Producers who have aligned their breeding season to predetermined dates can better manage their time by planning and preparing for the calving season and the subsequent herd health management that follows. These calves can be easily castrated, dehorned, dewormed, vaccinated and weaned at the same time. Producers who prefer to calve year-round must process cattle year-round. Processing calves year-round will result in increased time and labor and ultimately to increased production costs. Often when year-round calving occurs, calves can be missed and not worked the same as others. This could result in missed vaccinations, growth implants, dewormers or

castration. It usually also results in lower prices due to variability in the calf crop or discounts caused by missing some of the management practices listed above. Simply put, controlled calving leads to improved time management and increased profits.

Records

Records play a vital role when executing management decisions. Records can be used to track a variety of data on calves, dams and sires. Controlled breeding can make record-keeping easier and less time consuming. Once the calving season is over, the calving records can be stored and retrieved when needed. Year-round calving requires that records be updated often since calves are born throughout the year.

Replacement Heifer Development

Replacement heifer development can be achieved successfully using a controlled breeding season. Interested readers should refer to Georgia Cooperative Extension Bulletin 883 (*Beef Herd Management in Georgia*) for additional information regarding replacement heifer development.

Careful consideration regarding replacement heifer management may affect the long-term profitability of a herd. The nutritional and physiological differences that heifers undergo suggest that beginning their breeding season earlier than mature cows may be beneficial. Due to the stress involved with delivering a calf, uterine involution, lactating for the first time and continuing to mature, first-calf heifers typically take longer to come into heat after calving. Allowing additional time to begin cycling after calving may help to align heifers with the mature cow herd's defined breeding season. Bulls can be placed with replacement heifers 3 to 4 weeks prior to the beginning of the controlled breeding season to increase the number of heifers that subsequently remain in the herd.

Replacement heifer management may seem difficult, since many of the cows in the herd will not have calves that will be ready for breeding during the determined breeding season. Purchasing replacement heifers that fit the breeding season may be an option to consider until the mature cow breeding season is complete. Controlled breeding is designed to consolidate breeding into a defined time-frame. If replacement heifers do not enter the herd and conceive during the desired breeding season, they may be culled soon afterwards.

How to Convert to a Controlled Breeding Season

Producers who use year-round breeding and would like to convert to a controlled breeding season can do so using a 3- to 4-year program, depending on production goals. Producers with records are encouraged to evaluate the dates they wish to breed and determine an approximate number of cattle they may need to cull prior to using these suggestions. If a large number of cattle are to be culled, producers may need to reevaluate target dates. If these dates are desired, producers may consider split calving seasons.

Using a split calving seasons involves dividing one herd into two. This results in two breeding seasons and two calving seasons, and reduces the number of bulls needed during breeding since the cow herd is split into two groups. This method of controlled breeding requires additional pastures, management and time to successfully incorporate. Producers who are limited in these areas should consider an alternative approach.

A simple to follow time-line as described by C. M. Triplett in Table 2 can be used to convert from a year-round breeding program using a 3- to 4-year approach. Using this method of conversion, cattle are gradually culled over multiple years, thereby reducing the number culled in a single year.

Using the suggestions from Table 2, a time-line has been developed as an example (Figure 2, page 5). The example in Figure 2 offers suggested dates that could be used to convert from a year-round to a controlled breeding season over a 3-year period. Data contained in Figure 2 can be found on-line at

<http://www.ces.uga.edu/Agriculture/agecon/cmpdec.htm> and used as a tool when converting to a controlled breeding season. If internet access is not available, check with your county Cooperative Extension agent for access and assistance. Dates associated with this program can be customized according to producer preference.

To successfully complete the transition from year-round breeding to controlled breeding, a strong bull pen must be constructed to hold bulls when they are not actively breeding cattle. Failure to complete this structure may result in bulls escaping and reentering the cow herd. Producers who do not prefer to build additional pens or who have limited acreage have other options to separate bulls from the herd. These alternatives include maintaining bulls at a remote pasture or leasing pasture space specifically for bulls.

Table 2. Suggested Steps for Converting to a Controlled Breeding Season.

First Year

- 1: Build a good, strong bull pen.
- 2: Remove bull from herd.
- 3: Pregnancy check all cows.

Cull:

- a: All open breeding-age females
 - b: All open cows with calves 5 months of age or older
- 4: Place bull with cows for 6 months.
- 5: Breed Replacement heifers 3 to 4 weeks ahead of the final long-range planned breeding.

Second Year

1. Follow all previous steps except leave bull with cows for 4½ months.

Third Year

- 1: Follow all previous steps except leave bull with cows for 80 to 90 days.

Cull:

- a: All open cows regardless of age of their calves.
- 2: The breeding season may be reduced even further in following years.

(Source: Triplett. SR1005)

Producers must determine a time-line of events that begins with their intended market-end-point, or date of sale. Knowing where calves will be sold is useful in determining **what** management practices should be performed and **when** they should be completed. Factors such as forage availability, temperature, market trends and labor are just a few of the considerations to consider when determining the market-end-point.

Identifying a market-end point is the first step in determining when calves should be weaned. The example in Figure 2 uses a 205-day weaning date. Therefore, in this example, weaning occurs 205 days from the last day of the calving season. Gestation length may vary slightly by breed and is often cited as 283 or 285 days; for this program 283 is used.

Replacement heifers are always managed to begin and end calving on the same dates each year. The cost of developing a replacement heifer can be expensive and these cattle must have every opportunity to breed, calve and rebreed with the mature cow herd.

“UGA 90-Day Calving Season Calculator”

Version 2.0

Cow Herd *PLUS* Replacement Heifers

Date you want to wean Calves (mm/dd/yy)
Today's date (mm/dd/yy)

7/1/06
10/1/2005

Culling practices outlined in the User’s Guide must be followed in order to make this transition.

Replacement heifer breeding must be done in a separate pasture from the cow herd.

BREEDING

Start

Date to take bull out 1st time 2/28/06
Date to pregnancy check 1st time 4/29/06

1st Year

Start breeding 9/1/06
Date to put bulls with replacement heifers 11/9/06
Date to pull from replacement heifers 12/24/06
Take bull out of cow herd 2/28/07
Pregnancy check 4/29/07

2nd Year

Start breeding 10/16/07
Date to put bulls with replacement heifers 11/9/07
Date to pull from replacement heifers 12/24/07
Take bull out of cow herd 2/28/08
Pregnancy check 4/28/08

3rd Year

Start breeding 11/29/08
Date to put bulls with replacement heifers 11/8/08
Date to pull from replacement heifers 12/23/08
Take bull out of cow herd 2/27/09
Pregnancy check 4/28/09

CALVING

Start

Year-round calving, dates variable

1st Year

180-day calving season begins 6/11/07
180-day calving season ends 12/8/07
Replacement heifers begin calving 8/19/07
Replacement heifers end calving 10/3/07

2nd Year

135-day calving season begins 7/25/08
135-day calving season ends 12/7/08
Replacement heifers begin calving 8/18/08
Replacement heifers end calving 10/2/08

3rd Year

90-day calving season begins 9/8/09
90-day calving season ends 12/7/09
Replacement heifers begin calving 8/18/09
Replacement heifers end calving 10/2/09

Disclaimer: The UGA 90-day Calving Season Calculator was designed using the information from *A Controlled, Seasonal Cattle Breeding Program* by Clyde M. Triplett. Information contained within this spreadsheet should be used along with existing proven management practices. All dates determined by this program are intended to be used as suggestions. Users must determine if these dates can be incorporated with current beef cattle management procedures effectively and feasibly.

(UGA Calving Calculator source: <http://www.ces.uga.edu/Agriculture/agecon/cmpdec.htm>)

Figure 2. Possible dates to convert to a 90-day breeding season.

First Year

To begin converting from a year-round breeding season to a defined, controlled breeding season, take bulls out of the herd and isolate them for 6 months. This date is the last day of the breeding season. Bulls will be removed every year on this same day. Sixty days after the end of the breeding season, all cattle should be evaluated for pregnancy. Open females that do not have a calf or have a calf that is 5 months old or older should be culled from the breeding herd and marketed accordingly (Triplett, SR1005).

After a 6-month isolation period, bulls reenter the herd and are allowed to breed for 6 months. At the completion of this breeding season, cattle should be evaluated for pregnancy and culled as described above.

Second Year

Bulls are isolated from the herd for 7½ months and then are reintroduced to the herd and allowed to breed for 4½ months. Cull all cattle determined open during the pregnancy evaluation.

Third Year

After the completion of the 4½-month breeding season, bulls will remain isolated for 9 months. This will begin the 90-day breeding season and complete the goal of a controlled breeding season. After the breeding season is completed, cull all open cattle. Breeding should begin and end each year with these same breeding dates adjusted for leap years.

Summary

Controlled breeding offers cow-calf producers many benefits related to management and profits. Facilitating herd health activities, culling reproductively unsound cattle and marketing a uniformed calf crop, **all** impact production revenue positively. If you have questions related to controlled breeding or how to successfully complete this process, contact your county extension agent, state beef cooperative extension specialist or large animal veterinarian.

Literature Cited

Triplett C. M. A Controlled, Seasonal Cattle Breeding Program. *Southern Regional Beef Cow-Calf Handbook*. SR1005.



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J. Scott Angle, Dean and Director