

MANAGEMENT CYCLES IN BEEF PRODUCTION

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INTRODUCTION

Profitability in the beef cattle industry during the past ten to fifteen years has been achieved primarily through increased efficiency of production. Per capita consumption of all meat has increased while per capita consumption of beef has decreased. Slight increases in the population and exportation have helped maintain total beef demand in recent years. Today, compared to a few years ago, beef producers are supplying about the same amount of beef from approximately twenty per cent fewer cows. The cow-calf producer has played a large role in this improved production efficiency. Improvements in genetics of the cow herd through proper selection of bulls and through crossbreeding have resulted in calves with greater genetic growth potential that wean at heavier weights and reach desirable slaughter grades at heavier weights achieved with a more efficient rate of gain. Reproductive efficiency has also improved as breeding programs have produced cows better adapted to their environment. However, neither increased growth potential nor adaptability can improve weaning weights or weaned calf crop percentage if proper herd health practices and proper nutrition are not provided. And, if these are not provided in a cost effective manner, little or no profit will be realized even if increased production occurs as a result.

Managing for profit requires more than just an understanding of sound selection and breeding practices or sound nutritional programs or proper health practices or proper forage production practices, or sound

marketing strategies, etc. Managing for profit does require knowledge of all of the above, but it also requires a thorough diagnosis of the overall production program of the beef cattle operation so that these production activities can fit together in a coordinated manner that maximizes profit. For example, at last year's beef cattle short course the point was emphasized that cow condition can dramatically affect reproductive efficiency. Yet, how do you manage to maintain good cow condition most economically? Once a thorough diagnosis of the operation has been completed, a plan must be developed that fits all the necessary management activities into the proper time frame for an efficient program.

This year's short course is designed to emphasize two major components of management, forages and herd health. The nutritional backbone of our cow-calf and stocker programs is forage; therefore, good calf producers need to be good forage producers and forage managers. In addition, healthy, thrifty animals are the only animals that will reproduce consistently and perform satisfactorily and it follows that a good cattle producer must have a good herd health program. The key to both good nutritional management and a good herd health program is timing. The greatest supply of nutrients must be provided at the time of greatest nutrient demand. Preventative medicine must be applied prior to the potential problem, not after.

To address these two major topics in this year's short course and to emphasize the importance of timing, a diagram approach will be used to outline the major beef cattle production activities for an entire year. These

diagrams, developed by Dr. Ed Richey, Beef Cattle Extension Veterinarian at the University of Florida, can be diagnostically useful when evaluating all aspects of a beef production program by identifying areas of deficiencies. These diagrams can also serve as an operational calendar for quick reference in making management decisions. The purpose of this paper is to introduce and develop the application of this diagram approach to analysis and decision making in the beef production operation.

ANNUAL BEEF CATTLE PRODUCTION CYCLE

It is obvious that the timing of events in an annual beef cattle production cycle are tied to each other. Once the breeding season is established, the time of calving, weaning, availability of replacement heifers and stockers, next year's breeding season, preventative medicine programs, etc. are pretty well established. Figure 1 presents an overview of the major events in a beef cattle operation. It includes diagrams of annual management cycles for adult cow, calf, replacement heifer and bulls. Although at first glance this figure may look a little complicated, a closer look reveals an outline that allows a systematic inspection of each phase of the operation. The upper circle of the diagram (Figure 2) allows a review of the annual events of the adult cow cycle indicating calving season, breeding season and weaning. This particular figure assumes a 90 day breeding season. Bulls would be turned with the cows near the end of the calving season. Contrast with Figure 3 where a 60 day breeding season is assumed and note that the bulls are placed with the cows about 30 days after the calving season ends or with Figure 4 where 150 day calving season is assumed and note that it is necessary to place the bulls with the cow herd approximately 90 days into the calving season. Figures 2, 3, and 4 are examples of how the adult cow cycle diagram can be

adapted very easily to various management criteria. For the purpose of the rest of this paper diagrams assuming a 90 day breeding season will be used; however, anything discussed can be adapted to diagrams of any other breeding season length as has just been demonstrated. The diagrams can and should be used as a diagnostic tool. Figure 5 is again the adult cow cycle with an indication of the relative nutritional requirements of the cow during the year. As this is only an example, no specific nutrient is identified. During lactation the cow has the greatest requirement supporting both milk production and maintenance of body function. Generally the cow has lower nutritional requirements during the dry period, although this could be altered if she happens to be in very poor body condition. Figure 6 adds the calendar to the diagram. The assumption is made here that the particular operation is in a fall calving program. Notice how the calendar dates are established for everything else, which would include herd health and other related activities. Figure 7 adds a basic perennial forage quality profile to the diagram. Now one can readily see how the cow's requirements match with the backbone of the nutritional resources. In this case, at the time of greatest nutritional needs we have lower quality forage available. Remember, this is an example only; no attempt was made here to profile any particular forage in any particular part of the state. What this approach does is allow the producer to analyze how his or her basic forage program is matching the cow needs and identify those times of deficiency. After identifying when the deficiencies occur, the next step is to decide how best to correct them in the most cost effective manner. Figure 8 uses the same approach with a different calving season. Note how the picture changes relative to nutrition. When the producer establishes this type of diagram calendar, many other activities related to the cow-calf operation can be added to the diagram at the

appropriate date. Examples would be establishing palpation dates, condition scoring dates, vaccination dates, approximate dates of needed supplementation, etc.

Starting at the point of calf weaning, Figure 9 can be used to represent the events in the development of the replacement heifer to calve at two years of age. The calendar has been established to coincide with the fall calving calendar in Figure 7 as the replacement heifers would be coming from the cow herd. The replacement heifer has a high nutritional requirement if she is to reach an appropriate body weight by the breeding season which will be in mid- to late-December. The forage quality would be higher prior to and shortly after weaning and the decrease during the fall and winter months. However, in this program, forage quality would again be high prior to calving. In this particular diagram, the replacement heifer enters the adult cow cycle after calving. Although she is in the same cycle of events, she may very well need to be maintained separately because her nutritional requirements are greater than the mature cow. If she doesn't rebreed the advantages of calving at 2-years of age are lost. The point to be made here is that once a calendar of events is established diagrammatically for the adult cow cycle, the diagrams for the other production activities, in this case the development of the replacement heifer, must fit the same calendar so that proper evaluations can be made and other production activities such as the health program can be added in proper perspective.

Now that time has been devoted to the use of the diagram system for the adult cow and replacement heifer cycles in some detail, a brief look at other diagrams that fit this approach might be helpful. Figure 10 represents the calf part of the cycle. During the time prior to weaning, procedures involving health, castration, implanting, etc., would take place. The calendar can be added to this diagram and it can be used as a reminder for those activities.

After weaning the calves may go any of four ways: (1) directly to market; (2) developed as replacement heifers which has already been discussed; (3) developed as herd bulls; and, (4) moved into a stocker program. Specific nutritional, health and other needs for each of the activities can be addressed by applying the same diagram procedures as before, being sure that the calendars match with the adult cow calendar.

Figure 11 is a reminder that the bull is a very important part of the total production picture. It is important to have the bull in good condition and to be sure he is fertile prior to the breeding season. The dates for appropriate feeding, health care and fertility assessment procedures can be added to the diagram as a reminder that they need to be conducted at the proper time in relation to the breeding season.

SUMMARY

Figure 1 fits all of these production events together, emphasizing the importance of their interrelationship to each other and to a successful beef cattle operation. The complete use of this or a similar diagram system should be used by every producer to first evaluate his or her operation to identify problem areas whether they be nutritional, health, or other and then to develop a calendar of economically justifiable productive practices. This scheme will also aid the producer in periodic reviews of the operation and the assessment of the impact any management changes might have on the operation. If this approach is used with all aspects of the beef operation, then near maximum efficiency should be accomplished.

All managers of cow calf and/or stocker operations are aware that perennial forage can not supply nutrition from grazing for the entire year nor will animals remain disease free without an adequate health program. Other contributions to this short course will address approaches to bridging the nutritional gaps and appropriate herd health procedures that can be

applied in the context of the diagrammatic approach taken in this paper.

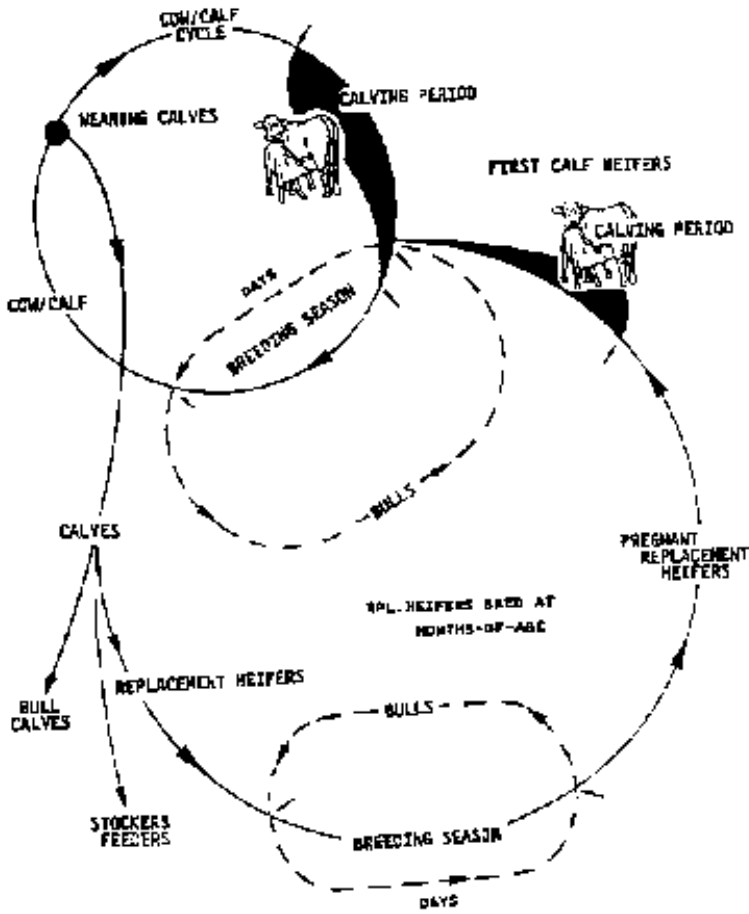


Figure 1. Major Events of a Beef Cattle Operation.

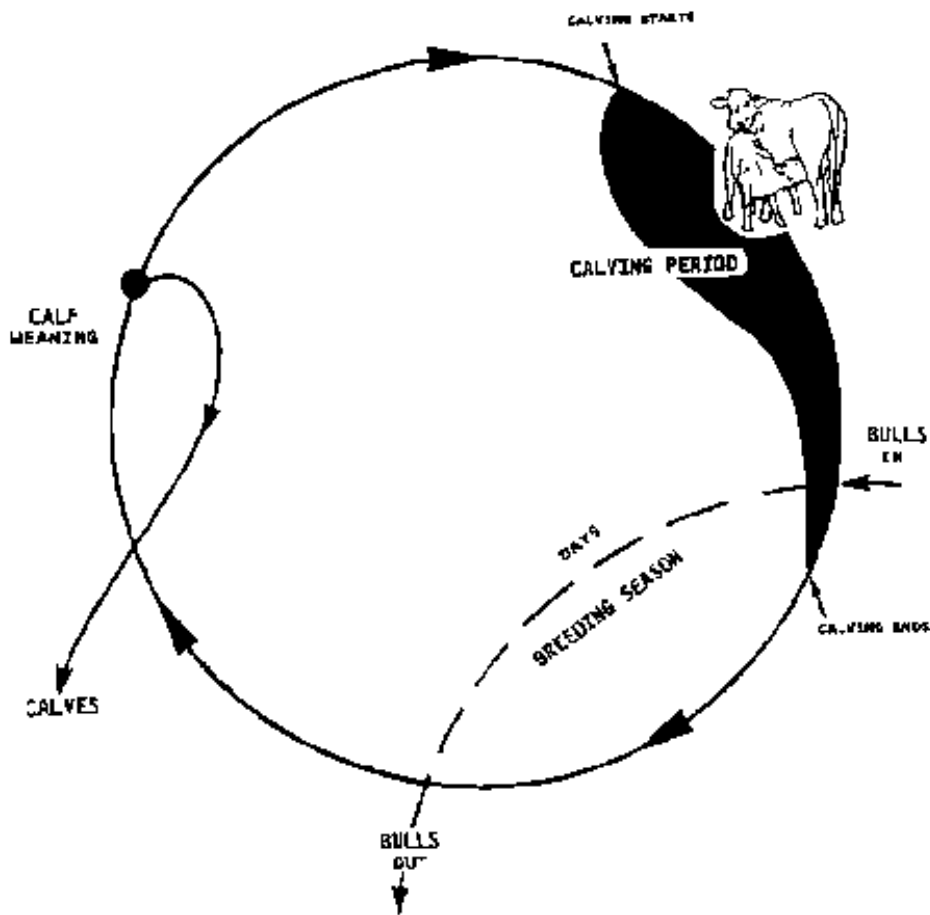


Figure 2. Annual Events of Adult Cow Cycle--90 Day Breeding Season.

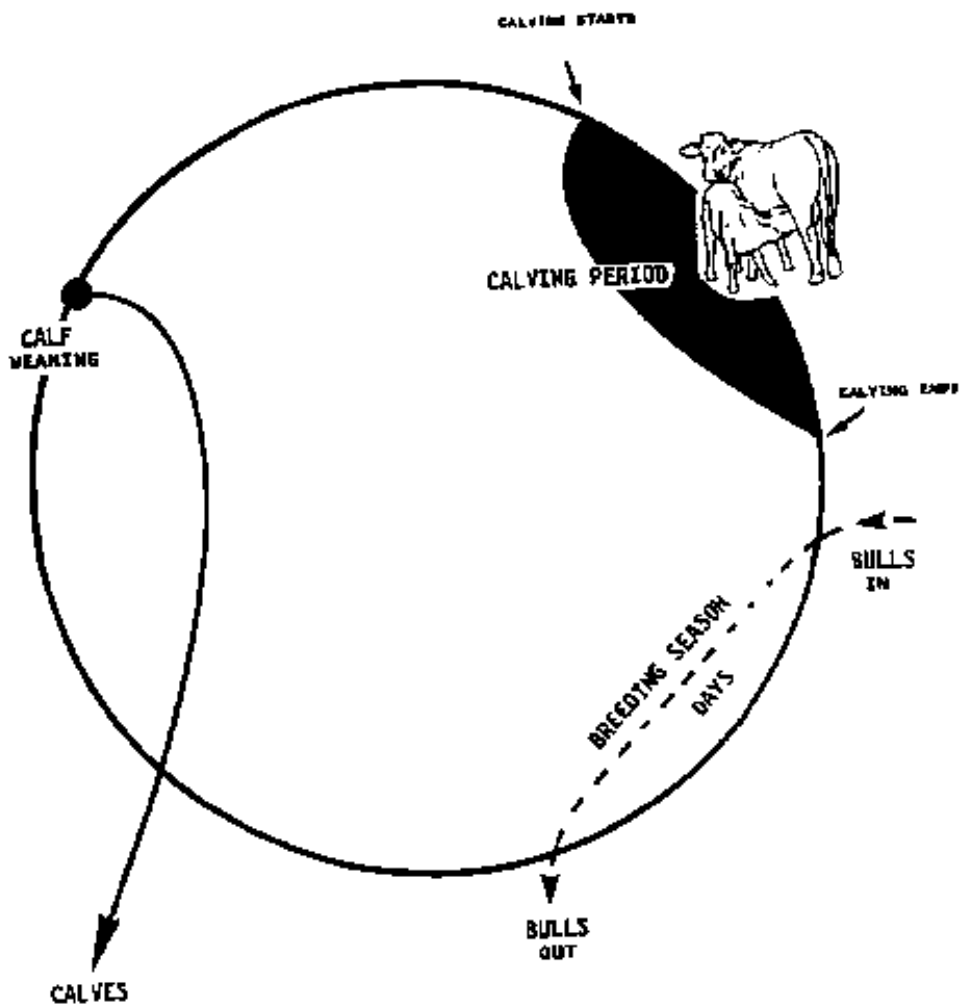


Figure 3. Annual Events of Adult Cow Cycle--60 Day Breeding Season.

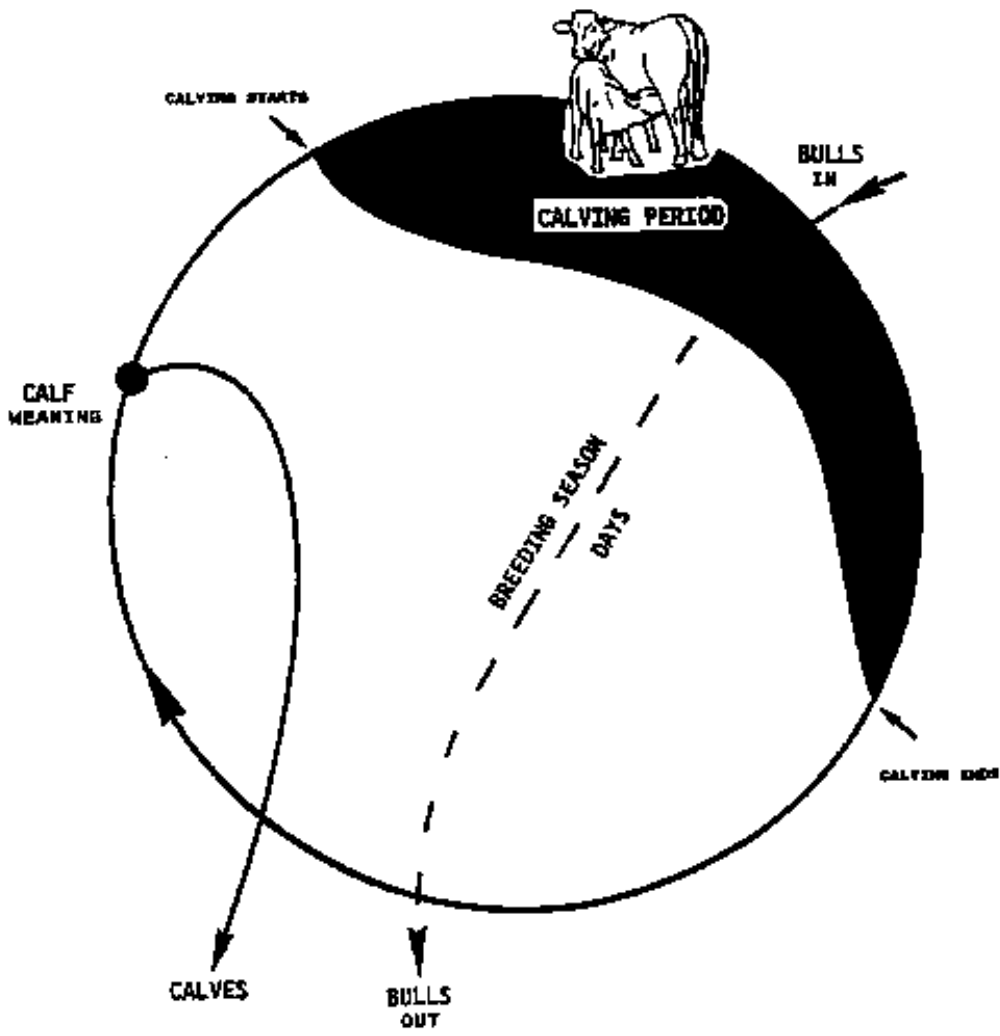


Figure 4. Annual Events of Adult Cow Cycle—150 Day Breeding Season.

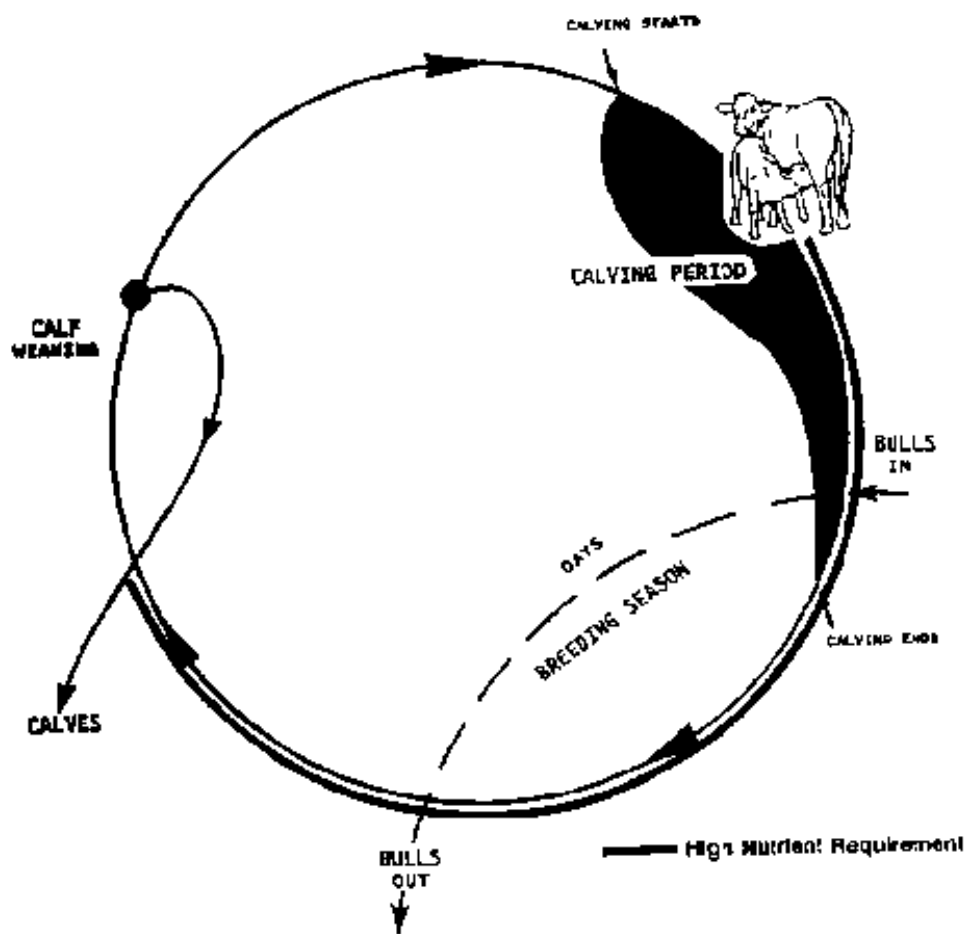


Figure 5. Relative Nutritional Requirements of the Adult Cow During the Annual Cycle.

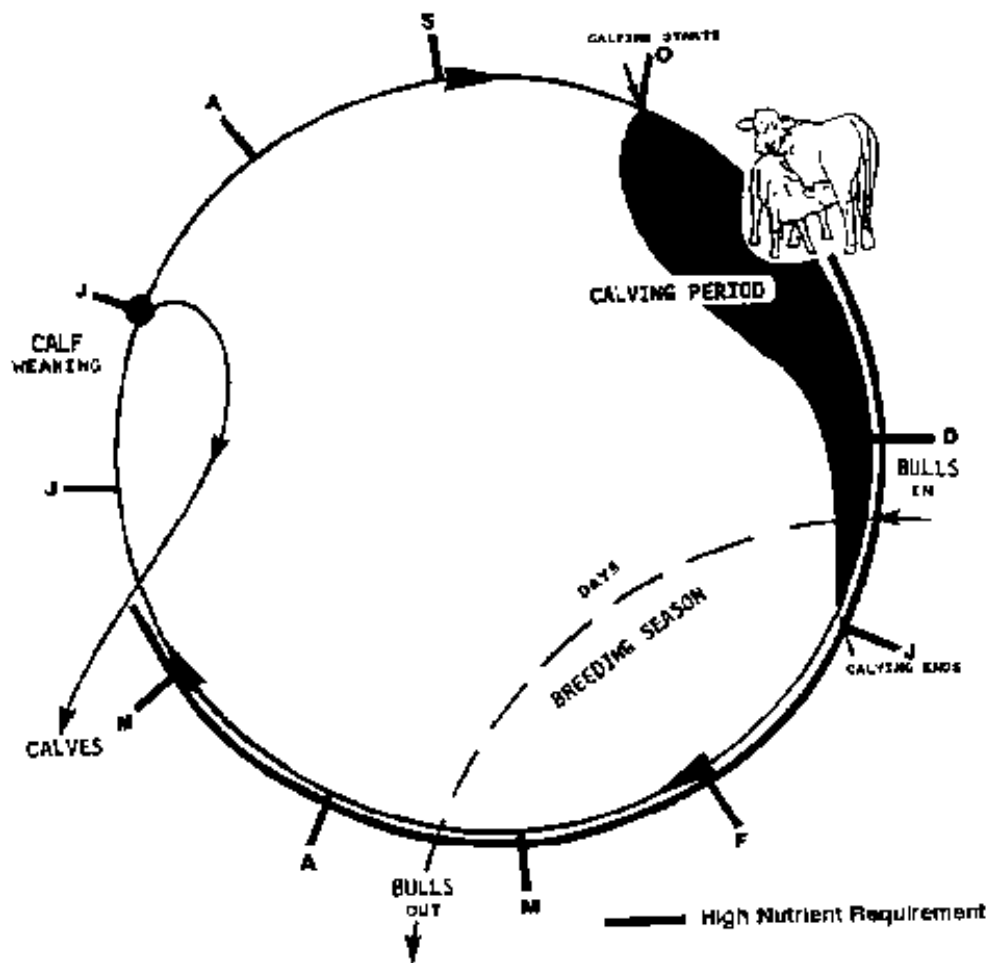


Figure 6. Relative Nutritional Requirements of the Adult Cow with an Established Calendar.

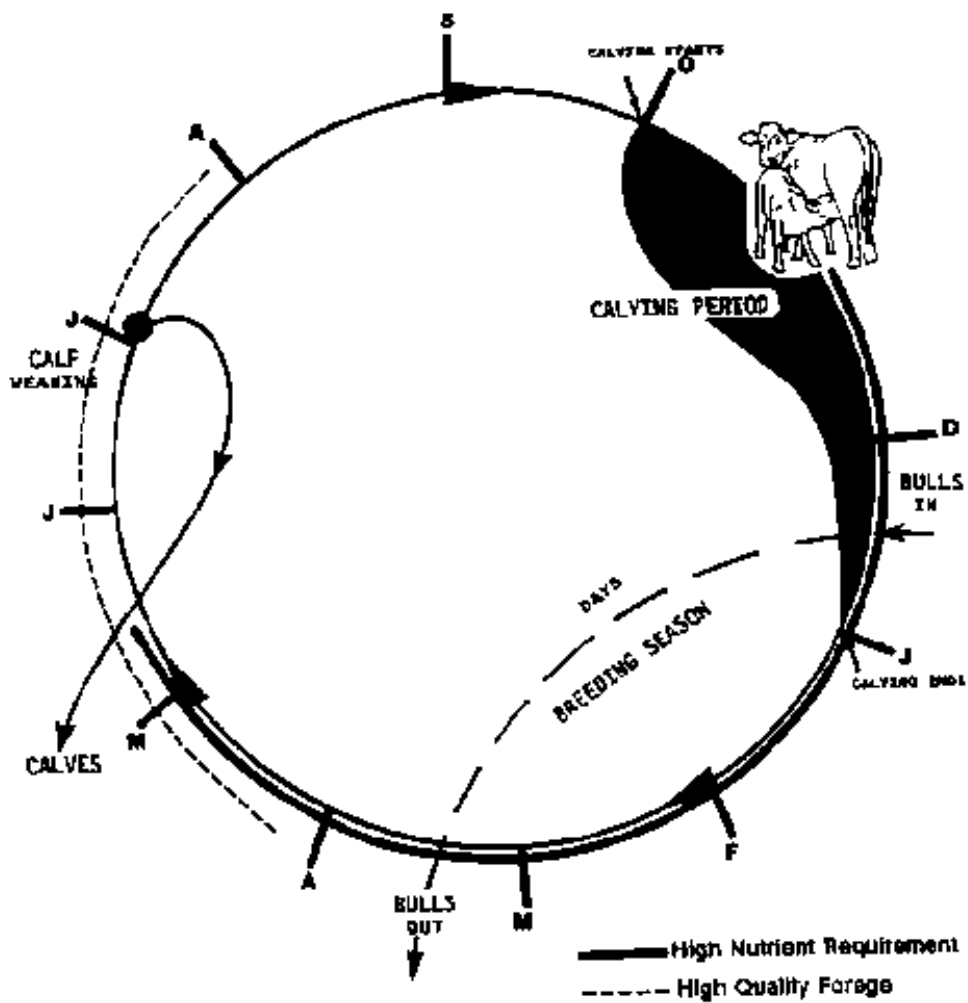


Figure 7. Comparison of Adult Nutritional Requirements to Forage Nutrient Availability--Fall Calving.

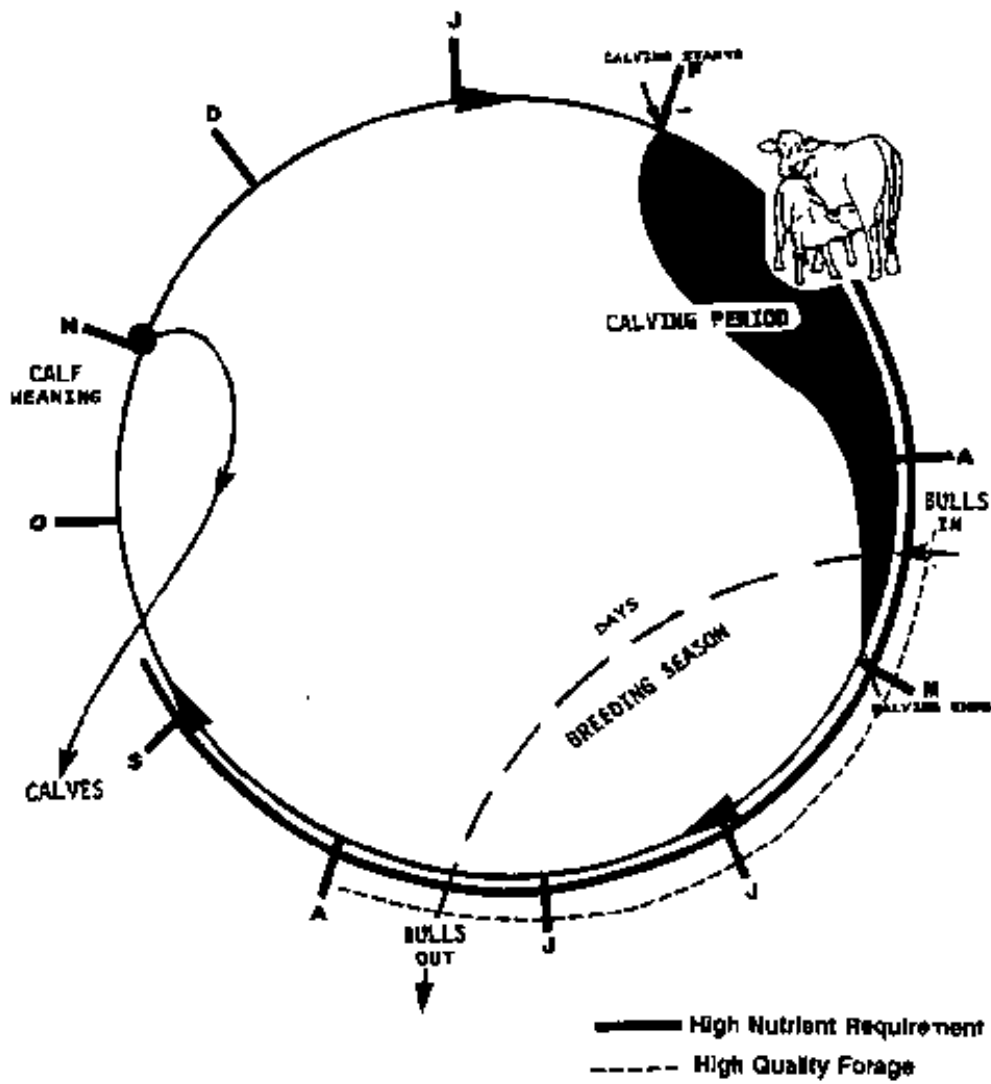


Figure 8. Comparison of Adult Cow Nutritional Requirements to Forage Availability--Spring Calving.

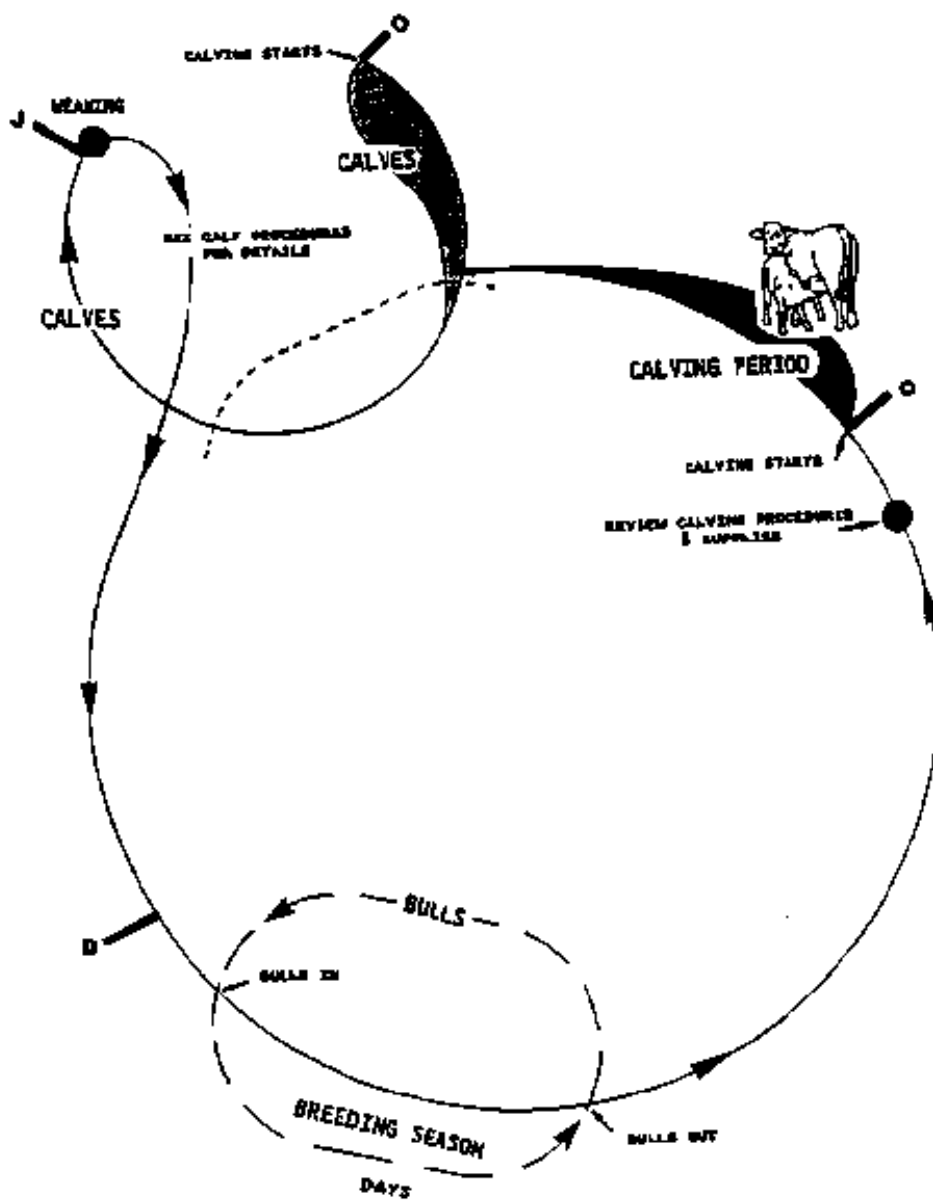


Figure 9. Events in Replacement Heifer Development Cycle.

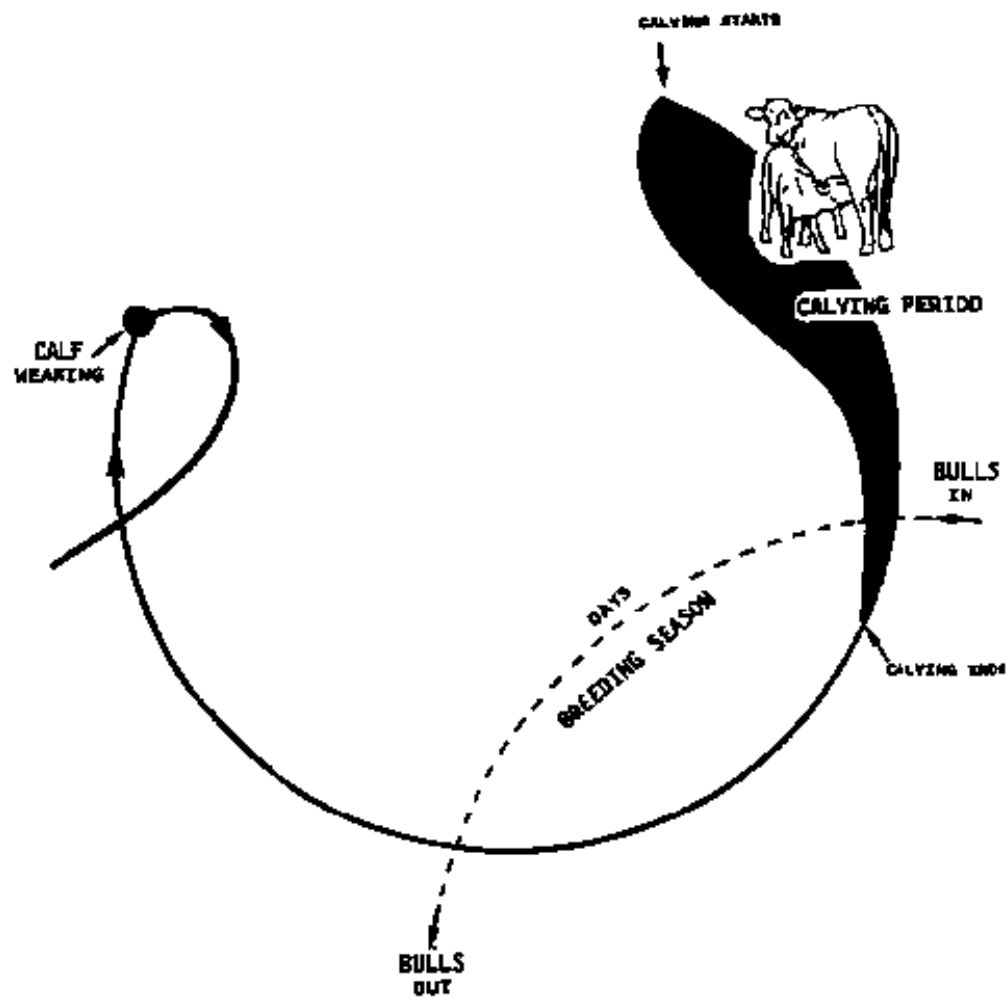


Figure 10. Calf Production Cycle.

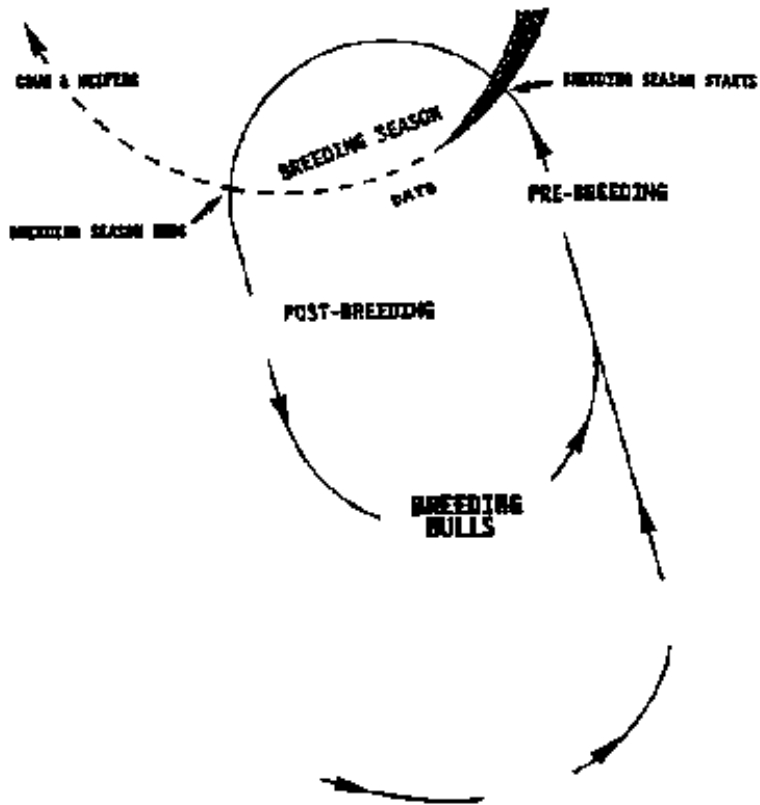


Figure 11. Breeding Bull Cycle.