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Selection of Calving Season:
Matching Forages, Pastures, and Stocking Strategies

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Much of the following discussion of calving season was taken from Rouquette et al., 2020. "Time of calving is a management decision. Certainly, given no boundaries for selection and management of warm-season perennial grass pastures with overseeded cool-season annual forages and/or hay and supplement, calving seasons will move toward the time for optimum forage availability and nutritive value. The selection of a calving season or seasons offers the challenges of matching forage production and nutritive value of pasture systems with rebreeding the cow herd. Opportunities for management also include a desired level of weaning percent, weaning weight, and percent rebreeding. Regardless of the calving season(s) selected by management, one of the most important considerations for calving and rebreeding for a consistent 12-month calving system is that of body condition score (BCS) of the cow at time of calving. Although there may be some "it depends" scenarios, cows should have a BCS of about 5 or greater at time of calving (Herd and Sprott, 1986). A body condition of 5, along with appropriate dry matter and forage nutritive value, will allow management strategies for use of stockpiled forage and/or energy-protein supplementation.

The most appropriate management strategies to attain BCS and reliable 12-month calving intervals are uniquely related to the forage-pasture conditions during the dry cow period from time of weaning to the next calving event. Too often, dry cows are pastured on reduced levels of forage mass and nutritive value that do not allow for increased body weight or condition. Thus, the success of a 12-month calving system is largely due to management strategies for cows and pastures during the approximate 3-month period when the cows are dry (approximately 90-days pre-calving).
In order to answer the question, "When is the best season of the year for calving on my property?" some of the following objectives and decisions should be explored by management:

- A warm-season perennial grass pasture that provides the most productive and reliable forage production, and which offers opportunities for hay and/or stockpiled forage for wintering.

- A warm-season perennial grass pasture that allows for overseeding with cool-season annual forages such as small grain, ryegrass, and/or clover.

- The calving season that offers the best opportunity to wean heavy weight calves.

- The calving season that offers forages/pastures that meet nutritional requirements for dry cow weight gain and with reduced costs for hay, supplementation, and labor.

- The calving season that offers the best timing or seasonal opportunities for merchandizing/selling calves and cull cows.

- Forage and pasture availability for potential retained ownership from time of weaning for an additional 100 to 200 days grazing. Retained ownership post-weaning could fit any calving season; however, fall-born calves would graze during the summer months, whereas winter- or spring-born calves would graze during the winter-spring period.

Fall-Calving Cows

Forage and pasture options for fall-calving animal activities are shown in Table 1. Fall-calving cows wean calves in June or early July depending upon management choice and climatic impact on bermudagrass or bahiagrass growing conditions. Two of the positive factors for fall-calving along the I-20 Corridor include the potential for heavy weight calves at weaning, and having dry cows during the hot, summer months. During the summer, the nutritive value of any moderately-managed warm season perennial grass meets or exceeds the nutritive requirements of a dry, pregnant, mature cow to maintain a BCS of $\geq$ 5 without the need for protein-energy supplementation. The initiation of breeding on 1 December will result in early September calves. With a suggested 75-day breeding season (1 December to 15 February), calving will be completed on actively growing bermudagrass by mid-November. Forage, hay, supplementation, and other pasture options for fall calvers are shown in Table 1. With advanced planning and preparation, small grain with or without annual ryegrass can be available for grazing by late November on prepared seedbed or mid- to late December if sod-seeded (Rouquette, 2020). Small grain plus ryegrass pasture costs may range from $150 to $250/ac depending upon the magnitude and extent of fertilization required. With average climatic conditions and forage growth during December - January along the I-20 Corridor, about 2 to 4 acres may be required for full-time stocking of one 1200-lb cow and 200-lb calf during the winter. One stocking strategy that may be used to reduce costs per cow is that of limit grazing (Altom, 1978). Limit grazing is a method of stocking 2 to 4 cows and calves per acre on small grain plus ryegrass and allowing active grazing for only 2 to 3 hours per day. During the first 2 to 3 hours on small grain plus ryegrass pastures, cows will fill and reduce or terminate active grazing. At this time, cows and calves are removed from these pastures and returned to an adjacent pasture with free choice, unrestricted access to hay or stockpiled forage. A limit grazing system can be used on a daily or every-other-day basis to match defoliation and regrowth of small grain pastures. This stocking strategy also provides a method to prevent overstocking of winter annual grasses. A creep-gate scenario will allow calves to graze winter pasture more often than the limited time that cows have access to small grain-ryegrass.

Table 1. Forage and pasture options for fall-calving cows

MONTH	ANIMAL ACTIVITY	FORAGES AND PASTURES
AUG	Dry Cow	Warm season perennial grass (WSPG) pasture[1]
SEP	Calve	WSPG pasture
OCT	Calve; Suckling Calf	WSPG pasture
NOV	Calve; Suckling Calf	Stockpiled forage; WSPG pasture; Hay and/or supplement
DEC	Cow-calf; Suckling Calf **Dec 1**: Initiate Breeding	Stockpiled forage; Hay and/or supplement; Limit-graze small grain[2] + annual ryegrass (option)
JAN	Cow-calf; Suckling Calf; Breeding Continues	Limit-graze small grain + annual ryegrass (option); Hay and/or supplement
FEB	Cow-calf; Suckling Calf **Feb 15**: Terminate Breeding	Full-time graze small grain + annual ryegrass (option); Ryegrass and/or clover
MAR	Cow-calf; Suckling Calf	Full-time graze small grain + annual ryegrass (option); Ryegrass and/or clover
APR	Cow-calf; Suckling Calf	Ryegrass and/or clover; WSPG
MAY	Cow-calf; Suckling Calf	Ryegrass and/or clover; WSPG
JUN	**Jun 15**: Initiate Weaning Cow-calf; Dry Cow	WSPG
JUL	**Jul 15**: Finalize Weaning Dry Cow	WSPG

[1]Bermudagrass, Bahiagrass; native grasses

[2]Rye, oats, wheat

By about mid-February, annual ryegrass should be available for full-time grazing, and this additional pasture area will also allow for full-time grazing on small grain plus ryegrass pastures. The initiation of stocking cool-season annual forages overseeded on bermudagrass is dependent upon planting conditions, date of planting, fertilization timings, climatic conditions, and whether stocking is to be limited or full-time. Establishment strategies and management for small grain plus ryegrass pastures and annual ryegrass or clover pastures provide a calendar of expected events and dates of implementation for pastures. It is important to remember that not all stocking activities occur on all the pastures at the same time. Therefore, multiple pastures are needed in the overall system of stockpiling forage, establishing cool-season annual forages, and supplying hay and supplementation. In addition, methods of flexible grazing are needed to incorporate graze:rest periods (deferment) for best management of utilization and sustainability of forage with desired animal performance. These strategies allow for stocking rates that provide for risk aversion during unfavorable climatic conditions of drought and/or cold temperatures.

Fall-calving cows and calves can be stocked at levels that match forage production in spring and early summer. Depending on stand of cool-season annual forages and fertilization regimens, stocking rates can vary from 2 to 3 acres per cow-calf to 1 acre per cow-calf. The abundance of spring-summer forage growth for small grain and ryegrass and for bermudagrass allow for flexible stocking and increased stocking rates for 30 to 60 days. This increase in stocking rate/grazing pressure on part of the property enhances forage accumulation and hay or baleage production from other pastures. Weaning weight expectations for fall-born calves weaned in early to late June may range from 650 lb to more than 900 lb. These weights are dependent upon stocking rate and stocking period on cool-season annual forages from February to mid-May, productive bermudagrass in spring and summer, breedtype of cow and lactation potential, and breed of sire with growth attributes. Often, a sire may be a different breed than the cows and/or a Continental breed, wherein all offspring are sold and not retained for replacements (terminal sire).

Winter-Calving Cows

Forages and pasture options for winter-calving cow activities are shown in Table 2. Winter-calving cows, if bull-exposed from 15 April to 1 July (75 days), will start calving in early January. From the time of weaning in mid- to late October, cows can have access to stockpiled bermudagrass until mid- to late December. In general, stockpiled bermudagrass has an optimum time for grazing and utilization in the fall until the onset of winter and accompanying cold, wet weather. Thus, an appropriate stocking strategy is to make near-complete utilization of stockpiled bermudagrass before Christmas. After that time, climatic conditions or grazing frequency causes the bermudagrass to lose its upright growth stature and become prostrate, which creates problems with grazing-intake. During the dry cow period before calving, a protein-energy supplement may be necessary to achieve the desired BCS of ≥ 5 at calving.

After calving in January to March, annual ryegrass and/or clovers provide an excellent, high quality forage for grazing. Annual ryegrass and clover produce their maximum DM from March to mid-May. These cool-season annual forages with or without hay can provide adequate nutrition to meet the nutritive requirements of winter calvers during the first half of the breeding season. Thereafter, fertilized bermudagrass or bahiagrass pastures can satisfy nutritive requirements for the lactating cow during the breeding season. A 75-day or shorter breeding season has been long-

suggested as a management strategy to increase overall reproduction efficiency of the cow herd. A cow that requires more than 100 days to rebreed may be a result of previous stocking rates that reduced BCS to levels which prevented onset of estrus; or perhaps the cow is not an efficient reproductive animal for the herd or the economy of operation. Calves that are born within an approximate 75-day period provide for reduced labor inputs for castration and vaccinations, etc., and they can all be weaned on the same day. Weaning all calves at the same time enhances marketing-merchandizing of calves; improves efficiency of pasturing dry cows to meet nutritional requirements; and decreases labor and costs of "working cattle" to accomplish the weaning event. During the last 30 to 45 days of the breeding season, and throughout the lactation period for winter calvers, the primary forage will be warm-season perennial grass pastures. During the summer, there may be opportunities to incorporate summer annual grasses in certain soil types and climatic conditions. White clover may offer some restricted stocking. If a stand of white clover is available, but the acreage is too small for full-time grazing, an excellent opportunity is created for calves to creep graze white clover. In most areas in the I-20 Corridor, summer often includes periods of reduced rainfall events. Thus, to improve efficient forage utilization without engaging in stocking rates that would be detrimental to sustainability of pasture and/or animal performance, multiple pastures allow for grazing-haying options for the overall system. Once the breeding season has been completed, stocking rates could be increased for short periods of time (30 to 45 days), which could reduce cow BCS. This reduction in BCS of the pregnant, lactating cow can be reclaimed post-weaning for the dry cow, if necessary. Flexible stocking methods that include several (4 to 8 or more) pastures can provide for cattle residence and deferment (movement) without a strict rotational stocking scheme. However, there are numerous stocking methods that can achieve individual management objectives such that pasture sustainability and cow reproductive performance are not compromised.

Table 2. Forage and pasture options for winter-calving cows

MONTH	ANIMAL ACTIVITY	FORAGES AND PASTURES
DEC	Dry cow	Warm season perennial grass (WSPG)[1]; Stockpiled forage; Hay and/or supplement;
JAN	Calve	Hay and/or supplement
FEB	Calve; Suckling Calf	Ryegrass and/or clover
MAR	Calve; Suckling Calf	Ryegrass and/or clover
APR	Cow-calf; Suckling Calf **Apr 15**: Initiate Breeding	Ryegrass and/or clover
MAY	Cow-calf; Suckling Calf; Breeding Continues	Ryegrass and/or clover; WSPG
JUN	Cow-calf; Suckling Calf; Breeding Continues	WSPG
JUL	Cow-calf; Suckling Calf **Jul 1**: Terminate Breeding	WSPG
AUG	Cow-calf; Suckling Calf	WSPG
SEP	Cow-calf; Suckling Calf **Late Sep**: Initiate Weaning	WSPG
OCT	**Late Oct**: Finalize Weaning Dry Cow	WSPG; Stockpiled forage
NOV	Dry Cow	WSPG; Stockpiled forage; Hay and/or supplement

[1]Bermudagrass, Bahiagrass; native grasses

Spring-Calving Cows

Forages and pastures of spring-calving cow activities are summarized in Table 3. Spring calving has traditionally been defined as calves born from March through May. As a consequence of the warm-season perennial grass base for pastures and the occurrence of the first killing frost in the I-20 Corridor, calves are usually weaned from mid-October to mid-November at 5 to 8 months of age.

The highest nutritive value pastures for these cows and calves occurs from March to May with overseeded annual ryegrass and/or clovers. From June until time of weaning, bermudagrass or bahiagrass pastures, which have lower nutritive value, are available for grazing. These lower nutritive value pastures and decreased time spent as a suckling calf (age) on these pastures result in reduced weaning weights of spring-born calves, generally ranging from 400 to 650 pounds. This season of calving also mandates a breeding season from 1 June to mid-August for a 75-day period. Since forage nutritive value is at the lowest during this breeding season, cow body condition score must be watched closely for a successful rate of rebreeding. Cows that have BCS < 5 and/or with first calf will likely require energy-protein supplementation during breeding.
With spring-calving, cows are dry from late fall until late winter. Therefore, small grain pastures are usually not a part of the spring-calving pasture system due to status of the dry, pregnant cow. Since spring-calving cows may be dry for 6 months of the year, nutritive requirements for maintenance and/or gain may be met with stockpiled warm-season perennial grasses and/or hay with or without supplementation. Although pasture input costs may be lower compared to fall calvers, calf weaning weights are also significantly lower. Spring calving allows management to retain ownership of lightweight, fall-weaned calves as stockers on small grain plus ryegrass pastures."

Table 3. Forage and pasture options for spring-calving cows

MONTH	ANIMAL ACTIVITY	FORAGES AND PASTURES
FEB	Dry Cow	Hay and/or supplement
MAR	Calve; Suckling Calf	Ryegrass and/or clover
APR	Calve; Suckling Calf	Ryegrass and/or clover
MAY	Calve; Cow-calf; Suckling Calf	Ryegrass and/or clover; Warm season perennial grass (WSPG)[1]
JUN	**Jun 1**: Initiate breeding Cow-calf; Suckling Calf	WSPG
JUL	Cow-calf; Suckling Calf; Breeding Continues	WSPG
AUG	**Aug 15**: Terminate breeding Cow-calf; Suckling Calf	WSPG
SEP	Cow-calf; Suckling Calf	WSPG
OCT	**Oct 15**: Initiate weaning	WSPG
NOV	**Nov 15**: Finalize weaning Dry Cow	WSPG; Stockpiled forage; Hay and/or supplement
DEC	Dry Cow	WSPG; Stockpiled forage; Hay and/or supplement
JAN	Dry Cow	Hay and/or supplement

[1]Bermudagrass, Bahiagrass; native grasses

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