

Delayed Calving in Wyoming

Gary J. May, Larry W. Van Tassell, Michael A. Smith, and James W. Waggoner

Historically, calving in late winter was adopted to increase revenue by marketing a heavier calf at fall weaning. However, depressed cattle prices and increased costs have diminished the market value of these heavier weight, early born calves and has adversely impacted profitability on many ranches.

Changing calving dates to synchronize nutritional requirements with nutrient availability of grazed forage has been suggested as a way to reduce costs and maintain profitability (Adams et al. 1996, Grafel 1996). Delaying calving season by 30 to 120 days represents a monumental shift in management philosophy that can affect many aspects of the operation. Producers undertaking this shift can face unexpected problems, along with many benefits. The problems and benefits vary depending upon the unique set of resources available on each operation.

Wyoming producers typically calve between late February and mid-April. But, the calving season providing the closest match between animal nutritional requirements and nutrient availability from standing forage would typically start in May or June (Younglove 1998). Harvested forage and purchased supplements are normally required to meet nutritional requirements for cows calving in March or earlier.

As part of a sustainable agriculture project, a group of Wyoming producers who had converted from late winter to spring calving was interviewed and their responses summarized. Several risks and benefits associated with delaying calving season emerged from these interviews. These rancher insights may be beneficial to anyone investigating delayed calving. A brief description of the producers interviewed follows:

Kelley Land and Cattle Company of Wyoming is a cow/calf/yearling operation located near Saratoga, Wyoming. The ranch consists of 50,000 acres and 2,000 mother cows. Calving season was shifted from February/March to May/June starting in 1994.

Deseret Land and Livestock operates a cow/calf/yearling ranch near Woodruff, Utah, 20 miles northwest of Evanston, Wyoming. The land base consists of 220,000 acres and supports 5,150 cows plus yearlings. Calving season was delayed from mid-March to early April in 1988.

The Stafford-Poston Ranch is a cow/calf operation located southeast of Riverton, Wyoming. The ranch consists of 45,000 acres and 600 cows. Starting in 1991, calving season was switched from March to June.

Deseret Ranches of Wyoming is a cow/calf/yearling ranch located between Meteteetse and Cody, Wyoming. The ranch contains 1,400 cows plus yearlings on 66,000 acres. Calving season was switched from March to June starting in 1997.

The Impetus for Late Calving

The most common motivation among the producers interviewed for moving to a later calving season was a closer match between cow nutrient requirements and forage nutrient availability. Kelley Land and Cattle, Deseret Land and Livestock, and Stafford-Poston Ranch cited reduced feed costs as the primary objective for moving to late calving. They recognize that nutritional requirements for later calving cows are lower during the winter months and cows are better able to maintain productivity on low quality standing forage, thereby reducing hay and supplement requirements.

Other reasons exist for moving to late calving. For example, Deseret Ranches of Wyoming shifted calving season from March to June to provide flexibility in land management to improve range resources. March calving limited rangeland management alternatives because only one area was suitable for calving during cold weather. Logistical constraints with March calving required each rangeland pasture to be grazed at the same time of year. This put additional stress on early or late developing forage species depending on timing of utilization. Consequently, range conditions were deteriorat-



Young calves on summer range at the Stafford-Poston Ranch.

ing. Because all locations are suitable for calving in June, late calving provided greater flexibility in land management decisions by allowing Deseret to rotate the time of year each pasture was used, while resting one pasture each year.

The Conversion Process

Converting to late calving may require a reassessment of the grazing program. When calving season was switched at Deseret Land and Livestock, management had to find the most suitable location for calving. They decided on a low elevation area comprised mostly of BLM land. Deseret Land and Livestock was allotted 200 head on 1,611 acres for 45 days beginning in mid-May. Management submitted a proposal to the BLM to allow 3,000 head on this allotment before new growth occurs for three days beginning in early April. Cows would then continue on other checker board and private range pastures for the remainder of the calving season. The Range Conservationist overseeing the BLM allotment was initially surprised at the proposal but eventually agreed. Range conditions on the affected BLM allotment have improved since the change.

Stafford-Poston Ranch confronted several biological and economic issues surrounding the transition to late calving. By 1991, they had developed a sound March calving herd. It was observed that early calving cows were worth more in the market than comparable late calving cows. Rather than delaying breeding by three months and decrease the market value of the breeding stock, the March calving cows were sold in Colorado and late summer calving cow-calf pairs out of California were purchased. This transaction resulted in an average net gain of \$200 to \$300 per cow.

The uncertainty during the first two years after the transition was a concern for the Stafford-Poston Ranch. The switch to a summer calving herd was a decisive transaction and the cost of failure was high if the cows failed to conceive or raise a calf. Most of the cows purchased to replace the March calving herd had calved in August. August was too late for calving in his region, as rebreeding would start in November at a time when adverse conditions were common. Moving calving earlier by two months would be difficult, but it was decided that bulls would be turned in with the cows a few weeks after calving. Ninety percent of the August calving cows conceived within 30 days of calving the first year. After two years, the calving date for the rest of the herd had been successfully moved to June and doubts surrounding the decision to shift calving to early summer had disappeared.

Winter Grazing Systems

A management strategy common to late calving ranchers is requiring cows to survive winters on minimal hay or purchased feed. Under the March calving system, the Stafford-Poston Ranch fed 1,000 to 1,500 pounds of al-

falfa hay per cow over the winter. Under the late calving system, each cow receives only 300 to 400 pounds of alfalfa hay over an average winter period. The goal at Kelley Land and Cattle is for cows to meet protein and energy requirements exclusively from standing crop forage during an average winter.

Credit for success of the late calving program at Stafford-Poston is attributed to high quality winter range. Late calving will not reduce feeding costs unless a sufficient quantity of standing forage is available for winter grazing. They rest approximately 700 acres of Russian wildrye during the growing season for grazing from December through April. Due to its tall nature, winter accessibility of this forage is rarely a factor. The grazing strategy is to quickly rotate the cow-calf pairs through the highly palatable Russian wildrye pasture from December through February to allow the cows to consume the highest quality feed while they are lactating. Cows are returned to these pastures following weaning to clean up the lower quality forage in late February when their nutritional requirements are reduced.

Cow fat reserves also are an important element in the winter feeding program of the late calving operators interviewed. At the Kelly Land and Livestock Company, it is more economical to capitalize on energy stored in fat reserves accumulated during the summer than to feed cows enough nutrients to maintain a constant body condition throughout the winter. Cow body condition is allowed to drop from an average of 5.0 in the fall, to as low as 3.5 while grazing relatively low quality standing



Russian wildrye pastures ready for winter on the Stafford-Poston Ranch.

forage in January and February. Body condition scores increase to 5.0 by calving in May and June as cows graze abundant, high quality, spring and early summer forage.

An economical winter grazing alternative employed at Deseret Land and Livestock is to cut and rake hay into windrows and leave on the meadows for winter grazing. Cutting and raking typically occurs in late August. Portable electric fencing is used during winter to partition the meadows so that three to seven days worth of feed are available to cows to ensure proper utilization of the resource. The primary advantage of grazing windrowed hay is reduced labor and fuel costs as hay is left in the field and grazed rather than baled, stacked, unstacked and fed. Feeding windrowed hay requires one-fifth the labor required to feed baled hay.

There are additional advantages of windrowed hay. Windrows more evenly disperse hay among cows. When baled hay was fed, fatter, more aggressive cows consistently out-competed thinner, less aggressive cows for the highest quality, most palatable hay. In windrows, higher quality hay is more evenly distributed throughout the meadow and less-dominant cows are as likely to get higher-quality hay as dominant cows. Cows grazing windrows maintain a "grazing mentality" and are better adapted to foraging for food after they are turned out onto range in the spring.

There are disadvantages to leaving hay in windrows. Meadows containing windrowed hay cannot be irrigated during the fall. Fall soil moisture has a profound impact on vegetation growth in the following spring. Leaving hay in windrows is not economical on meadows where fall irrigation water is available. It is also difficult to prevent losses to wildlife when hay is left in the meadows. Forage not consumed by wildlife is often scattered, trampled and contaminated with urine and feces.

Another important disadvantage to windrowed hay is that it cannot be stored. The philosophy of Deseret Land and Livestock is to feed hay only if winter grazing resources are depleted or rendered inaccessible, with surpluses held in reserve. Hay left in windrows has to be utilized regardless of the severity of winter.

Breeding Stock Replacement and Herd Development

An essential element in developing a successful late calving program is selecting breeding stock well suited to maintain productivity in the new environment. For example, at Deseret Land and Livestock, employees cannot easily monitor widely dispersed cows calving on open range. It was imperative for them to develop herd genetic characteristics that allow cows a greater likelihood of delivering a live calf without complications. Through their breeding and replacement program, they reduced the calving assistance rate of two-year-old heifers from 45% in 1983, to about 12% by 1997. Replacement heifers are selected on pelvic area measurements. Cow frame size creep is a risk with this type of selection. Currently, average weights of mature cows with a body condition score of five are 1,050 to 1,100 pounds. Replacement bulls are selected from dams who have raised a satisfactory calf for seven consecutive years. They commented, "The only pedigree these bulls have is that their dams are still in a herd with unforgiving management."

Rather than retaining heifers, the Stafford-Poston Ranch purchases replacement females in the cull cow market. While acknowledging a potential for problems, they believe many ranchers using a traditional calving season systematically cull cows that work well under their system. Early calving operators often cull late breeding cows from their herds because they are slow to



Deseret Land and Livestock cows feeding on windrowed hay.

breed back as a result of producing too much milk on inadequate nutrition. The ideal replacement for their system is a three-year-old pregnant cow due to calve in June. They typically purchase four to seven-year-old late-bred cows and prefer smaller cows because nutrient requirements are lower and they are less costly to purchase and maintain.

Deseret Ranches of Wyoming uses an approach similar to Stafford in their replacement philosophy. A sister operation near Ashby, Nebraska agreed to extend breeding from 60 to 90 days. Late bred cows that would have been open and culled under the 60-day breeding period are shipped to Cody. This arrangement allows the Ashby operation to dispose of cull cows at a higher price, while Deseret receives replacements at a cost lower than it would take to develop their own heifers.

A common philosophy among producers interviewed for this study is that breeding stock should be adapted to their environment. Smaller English breeds appear to work well in a low input, late calving system in the Wyoming region. The ideal mature cow size ranges between 1,000 and 1,100 pounds. These cows are better able to accumulate fat reserves in the fall and maintain productivity during the winter on low quality feed.

Weaning and Marketing Implications of Late Calving

Late calving may require an evaluation of existing weaning and marketing strategies because of smaller weaning weights. Changing calving seasons did not significantly alter the marketing strategy for Kelley Land and Cattle as they were already on a retained ownership program. Since calves are retained through the feedlot, finished weight rather than weaning weight has the greatest impact on their net income. Calves born in May and June reach market weight in March and April, the typical seasonal peak in fed cattle prices.

At Deseret Land and Livestock, the decision to maintain yearlings was a byproduct of the calving season switch. Management believed calves weaned 15 to 30 days younger would be 25 to 30 pounds lighter and marketing these smaller calves would not be profitable. The yearling operation created a yearlong marketing window, allowing calves to be sold at prices more favorable than those received when calves were marketed at weaning in the fall. Marketing options open to Deseret Land and Livestock include fall-weaned calves, spring or fall yearlings, and fed cattle. In addition, forage production on the ranch varies sharply from year to year. Maintaining yearlings allows Deseret Land and Livestock to easily adjust stocking rates to properly utilize annual forage growth.

As previously discussed, late calving also reduced the amount of hay required for the breeding herd, thus allowing management to find higher value alternative uses for surplus hay. At the prevailing cattle prices, Deseret Land and Livestock feels that allowing yearling calves to

graze meadows formerly used for hay production is equivalent to selling the forage at \$90 per ton, without a haying cost.

Stafford-Poston Ranch's marketing objective is to market light stockers in late winter when few calves are available and prices are high. Calves are weaned and sold in early February weighing approximately 500 pounds. On several occasions they received \$20 less per head for calves than operators received for spring born calves sold on the same day weighing 150 pounds more. Production of the heavier calves often required an additional ton of hay fed to the dam and 60 to 90 days post weaning in a feedlot for the calves.

At Deseret Ranches of Wyoming, calves suckle through winter until the cow's body condition score declines to about 4.5. They expect to typically wean calves in February or March. The first crop of calves born under the late calving system was weaned in mid-February at an average of 400 pounds. Weaned calves are fed hay and cake until April 1. The target growth rate is 1.25 to 1.50 pounds per day over that period. Calves are then placed on desert pasture until irrigated pasture is ready for grazing in mid-May.

Stafford-Poston Ranch recognizes that keeping the calf on the mother through the winter months runs contrary to conventional wisdom that it is inefficient to put weight on a calf by feeding the cow. They point out, however, that they could feed the cow 12 pounds of alfalfa per day for the cost of placing the calf in a feedlot. Their experience suggests a cow and calf will thrive on good winter range supplemented with considerably less than 12 pounds alfalfa per day. Stafford-Poston's cows have had little trouble maintaining body condition and calves frequently wean themselves by February. In a late calving situation, Deseret Ranches of Wyoming also agree it is cheaper to winter feed calves through a lactating cow than directly feed the calf.

Other Benefits of Late Calving

A reported benefit of late calving is lower veterinary and labor costs because of less health problems in the calves. March born calves at Deseret Land and Livestock were born on a congested feed ground where infections spread easily. Calf growth was impaired and feed costs were high because of cold weather. April calves are born on mature crested wheatgrass or downey brome pastures. Newborn calves are widely dispersed, reducing the risk of scours and mothering problems.

Calving under more favorable weather conditions reduced labor costs considerably on the Stafford-Poston ranch. Warm weather calves seem to have lower birth weights and calving difficulty was virtually eliminated, even among first calf heifers. Since switching to June calving, Stafford-Poston employees have not pulled a calf, while losing only one cow from parturition complications.

Potential Disadvantages and Problems with Late Calving

A problem encountered by Kelley Land and Cattle with May/June calving is conflicting labor demands with irrigating hay meadows. A large amount of labor is used during calving season to identify cow/calf pairs and collect calf birth weights. This information is used to monitor cow productivity under their modified calving regimen. This labor conflict was partially resolved by incorporating irrigation into contract haying agreements. Since 1993, two or three independent hay contractors have provided all labor and machinery used for harvesting. Deseret Ranches and Stafford-Poston avoid this issue by purchasing rather than producing hay.

Providing a dry location for cows to calve has been another problem associated with the transition in calving season at Kelley Land and Cattle. All hay pastures are flood irrigated in May and June. The current pasture/meadow layout has been frustrating to management as they try to avoid missing water turns on the meadow, while conversely, avoid drowning newborn calves. The solution appears to be additional fencing and stock water development on native range away from the irrigated meadows.

May and June calving coincides with movement of cows to mountain forest leases in much of the intermountain west. At Kelley Land and Cattle, cows are calving at the time they were previously placed on the summer mountain range, at distances up to 25 miles from the ranch. Moving the herd at calving can stress the dam and newborn calves. The solution was to split the herd into early and late calvers, one calving one month before, and the other calving after moving to summer range. Early calving cows calve and recover before moving to summer pasture. Kelly Land and Cattle acknowledges a potential for problems introduced by calving on summer range. For example, coyotes, mountain lions, and some bears frequent summer range and present a potential depredation problem for newborn calves. However, antelope, deer and elk are abundant in the area. They believe predators will select newborn wildlife rather than calves. Logistical constraints prevent employees from monitoring the calving process on summer range and provide assistance in the case of calving difficulty. To minimize this problem, only mature cows with at least a three-year history of unassisted births are bred to calve on summer range.

Conclusions

Late calving is part of a low input management philosophy that enables forage to be harvested with livestock rather than machinery, thereby shifting towards more efficient renewable resource consumption. This approach is consistent with the sustainable agriculture philosophy of improving profitability while reducing risk and improving the resources that support the operation.

A management philosophy common to the producers examined in this study is that maximizing profits is more important than maximizing production. Many of these producers maintain that large calves are desirable but are often not worth the cost.

Each producer interviewed was quick to acknowledge that production practices that work well for one operation may not work for another. They suggest it is important for each operation to carefully evaluate their own resources and adopt production practices that fit their particular environment.

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Authors are research associate and professor, Department of Agricultural and Applied Economics; professor and associate professor, Department of Renewable Resources, University of Wyoming, Laramie, Wyo.

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