

Controlling the Calving Season

Les Anderson, Katie VanValin, Darrah Bullock, Jeff Lehmkuhler, and Kevin Laurent, Animal and Food Sciences

In 2017, the National Animal Health Monitoring System (NAHMS), a USDA source for cattle production statistics, reported that less than half of cow-calf herds across the country had a defined calving season. One reason is that most herds surveyed (85%) had fewer than 50 cows and therefore the cattle enterprise was likely not the primary source of income for these producers. Two common arguments against having a controlled breeding and calving season are, “I do not have anywhere to put the bull,” and “I like having a calf ready to sell whenever I need it throughout the year.” Often, leaving the bull in with the cows for the entire year results in calving seasons that look like the one displayed in Figure 1.

If a cow-calf producer wants to profit (or at least breakeven), the main question to consider is which calving protocol (year-round/long vs controlled/short) creates the best opportunity for profit. The decision should be based on the marketing plan for the operation. Cattle producers who market freezer beef likely need a different calving season plan than producers that strictly sell feeder calves. Likewise, seedstock producers and producers who like to show cattle at cattle shows may need to calve their herds at times that best suits their goals. A business term called “product-market-fit” needs to be applied when choosing how to manage calving. What that term means is for a business to be profitable, that business needs to produce a product that fits its intended market. Since most cattle operations in Kentucky sell feeder cattle at the stockyards, the worst possible method of marketing is to sell “singles”. Research from Dr. Kenny Burdine and Dr. Greg Halich (Figure 2) illustrated that selling singles generates the lowest market value in a feeder calf market. Their data indicates that selling 5 “like” calves in a group can add \$11/cwt (\$65 on a 500-pound calf) to their market value. “Like” calves are a group of calves that looks similar meaning they are the same color, similar age, and similar weight. Looking at the example in Figure 1, every calf marketed will be sold as a single so every calf marketed will be at the lowest possible market value. This example is the perfect example of a cattle producer whose business has poor product-market-fit and whose production plan does not match the marketing plan.

How should feeder calf producers plan their calving season to achieve product-market-fit? Research analysis of 394 ranch observations from the Texas, Oklahoma, and New Mexico standardized performance analysis data set provided insight into the age-old argument about “leaving the bull out” or having a defined calving season. Agricultural economists from Texas and Oklahoma found a positive relationship between the number of days of the calving season and the production cost per hundredweight of calf weaned. Also, they reported a negative relationship between the number of days of the calving season and pounds of calf weaned per cow per year. These data suggest that as the calving season gets longer, the pounds of calf weaned gets lighter and the cost of production gets higher.

But what does this mean? For each day the calving season was lengthened, the annual cost of producing a hundred pounds of weaned calf increased by 4.7 cents per day per cow and pounds of calf weaned per cow per year decreased by 0.158 pounds per day.

| 2015 | |
|---------------------------------------|-----------------|
| Total Cows Exposed to the bull | 27 |
| Number of Calves born in: | |
| January | 1 |
| February | |
| March | 1 |
| April | 1 |
| May | 2 |
| June | 2 |
| July | 1 |
| August | 2 |
| September | 6 |
| October | 1 |
| November | 2 |
| December | 2 |
| Date of First Calf | 1/14/15 |
| Date of Last Calf | 12/19/15 |
| Calving Season Length | 339 |
| Total # of Calves Born | 21 |
| # of cows that did not calve | 6 |
| # of Calves that died | 5 |
| Total # of Calves Weaned | 16 |
| Lbs Weaned/Cow Exposed | 315 |

Figure 1. Calving season on a cow-calf operation in Kentucky before entering the UK IRM Farm Program.

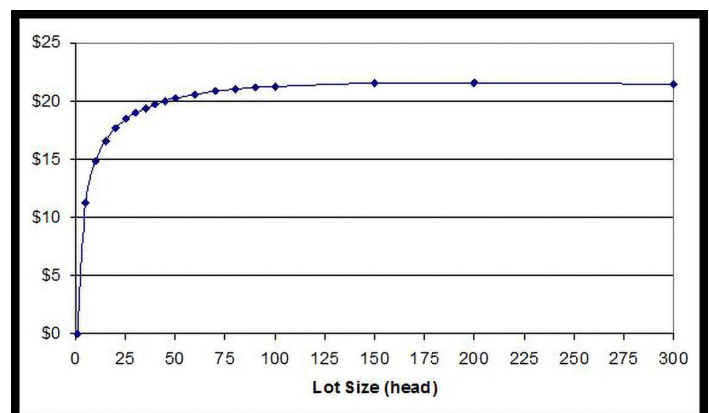


Figure 2. Impact of market group size.
*Each dot represents five calves. Source: Halich and Burdine (2015)

| Production Item | Before... | After.... |
|---|------------------|------------------|
| Length of the calving season | 273 ± 85 d | 85 ± 5 d |
| Percentage of cows that calved when desired | 46 ± 14% | 92 ± 12% |
| Mature cow calving percentage | 89.2 ± 6% | 87.2±10% |
| Herd breakeven (\$/lb) | \$.61 ± .22 | \$.43 ± .25 |
| Specified costs per AU (\$) | \$210 ± 145 | \$126 ± 40 |
| Income over specified cost per AU (\$) | \$95 ± 68 | \$190 ± 134 |

Figure 3. Impact of reducing the calving season.
Source: Troxel et. al. (2004)

The range of breeding seasons in the data set was from extremely short (less than one month) to 365 days or continuous presence of the bull. The trend lines that resulted from the analysis of the data give us an opportunity to evaluate the economic importance of a defined breeding season. The producer that leaves the bull out year-round (365 days) would sell 45.82 fewer pounds of calf per cow per year on average than producers with a 75-day breeding season. That same operation would have \$13.63 greater costs per hundredweight of weaned calf than the ranch that used a 75-day breeding season. Results from this work indicate that a well-defined calving season provides a better opportunity to survive the volatility of cattle prices and input costs and consistently creates more opportunities for profit than a long (year around) calving season.

The University of Arkansas examined the production and financial impact of shortening the calving season on six farms in Arkansas (Figure 3). None of these farms had a controlled calving season before the study and the calving season averaged 273 days. These farms did not pull bulls during the year. Each farm implemented a plan to reduce the calving season to less than 90 days over a three- to five-year period. All production (calving rates, weaning rates, market weights) data and specified costs were recorded which included: salt and mineral, supplemental feed, veterinarian costs, growth implants, fly control, sales commission, hauling, day labor, pregnancy testing, bull cost or AI, breeding soundness examinations, replacement heifer or cow purchase, grazing lease, fertilizer, lime, purchased hay, herbicide, and miscellaneous. Each of these farms marketed their calves as feeders at the local stockyards.

This study reduced the length calving season while having no impact on the percentage of cows calving. Reducing the calving season lowered the herd breakeven by 30%, reduced specified costs per AU (animal unit = 1,000-pound cow) and increased income. This data set had small numbers so the results need to be cautiously evaluated. This study supports the economic data collected by Parker and coworkers and observations we have made in the UK IRM Farm Program.

A goal for reducing the calving season for cow-calf operations that market feeder calves desiring to increase profit margin is shown in Figure 4. This is an actual farm outcome which occurred on the Kentucky farm depicted in Figure 1 after two years of management change. Many of the advantages of reducing the calving season that can lead to reduced cow costs and increased revenue are listed below. Compare the calving seasons in Figure 1 and Figure 4 as you consider each of these advantages:

| | 2017 |
|---------------------------------------|-------------|
| Total Cows Exposed to the bull | 27 |
| Number of Calves born in: | |
| January | |
| February | 21 |
| March | 5 |
| April | |
| May | |
| June | |
| July | |
| August | |
| September | |
| October | |
| November | |
| December | |
| Date of First Calf | 2/01 |
| Date of Last Calf | 3/21 |
| Calving Season Length | 49 |
| Total # of Calves Born | 26 |
| # of cows that did not calve | 1 |
| # of Calves that died | 0 |
| Total # of Calves Weaned | 26 |
| Lbs Weaned/Cow Exposed | 500 |

Figure 4. Shortened calving season after two years.

More complete and accurate records. Record keeping and management decisions based on production records are easier when cows are calving over a short period. The culling of cows and selection of replacements are based on production records; however, accurate comparisons of the production of cows within a herd cannot be made unless a certain degree of uniformity exists among their calves. Decisions to keep or cull cows should reflect relative performance of calves within the herd. Acceptable performance implies not only weaning weight but also that a cow produces a calf every 12 months.

Reduced calf death loss. Shortened calving seasons decreases the amount of time producers spend observing cows for signs of calving resulting in fewer death losses at calving. This is vital because percent calf crop weaned is one of the major profit determining factors in a cow-calf operation. In the Kentucky example, the producer lost only one calf after the calving season was reduced.

Improved herd health. Uniformity in timing of vaccinations and routine management practices result in decreased labor requirements and enhanced efficiency. Calving in controlled seasons aids in accurate pregnancy testing and culling of open cows which can reduce feed expense and improve herd efficiency.

Improved brood cow nutrition. Nutrition can be improved by grouping cows according to stage of production and feeding each group accordingly. When cows are strung out in their expected calving dates, some cows may be over/under fed making it difficult to provide adequate nutrition to cows in a cost-effective manner.

Increased market value of feeder calves. Calf crops that are uniform in age and size can be marketed in larger groups. Marketing larger groups of calves generates premiums compared to marketing single calves which increases revenue and profit potential (Figure 4). Kentucky market value of feeder calves increased \$11 per hundred pounds (CWT) when just five “like” calves are marketed in a group compared to selling as a single calf lot.

Heavier weaning/marketing weights. Calves born in the first 21 days of the calving season can weigh 30-50 pounds more at weaning than those born during the second 21-day period. Calves born more than 42 days after the first calves are born have been found to weigh as much as 70 pounds less than those born in the first 21 days and 42 pounds less than calves born in the second 21 days.

Enhanced labor efficiency. Controlling the calving season improves the overall labor efficiency on the farm. The obvious reduction in labor inputs results from fewer days/hours monitoring calving. Other reductions in labor could include fewer trips through the chute to vaccinate according to label, to feed according to stage of production, multiple times for weaning and perhaps for

determining pregnancy. More often, producers with long calving seasons tend to work on a fixed calendar so the timing of vaccinations, feeding, and other management is less than ideal for the animals. Thus, cow-calf operations that calve over short periods of time can reduce the number of times the cows are worked and more efficiently schedule cattle management to reduce the overall labor inputs.

To gain control of the calving season, the best management practice is to remove the bulls from the cows for a period. The bull should be separated from the cows when they are calving and until the breeding season starts again. Bulls can remain in the pasture after the initiation of the breeding season for some time. For example, if bulls remain in the pasture longer than a producer’s planned 70-day breeding season, the veterinarian will be able to tell which pregnant cows will not calve in the desired calving season. The producer can then market these late bred females as bred replacements. Producers could also consider leasing a bull for the breeding season if that option is available in their area. Another option is sharing a bull with a neighbor that has a different calving season. This works well when one producer calves in the fall and the other calves in the spring. Finally, a producer could consider purchasing a bull for a single breeding season and then selling him after the season has concluded. This seems extreme but if a bull can be purchased for \$3,000, managed for only four months (30 days before and after a 60-day breeding season), and then resold for \$2,000, the cost for breeding is only \$1,000. The cost per pregnancy in this scenario would be \$40 per cow for the average herd size of 25 cows.

In summary, management of the calving season should reflect the marketing plan of the cattle operation. Short defined calving seasons enhance the profit potential for cow-calf producers who sell feeder calves. Methods to reduce the calving season can be found in ASC 263.

References

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