The Impact of Reducing the Length of the Calving Season

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Story in Brief

Reducing the length of the calving season can be the first step toward improved beef production efficiency. The objectives of this demonstration were to reduce the length of the calving season and to document the production and economic impact when converting a long calving season (> 200 d) to a short calving season (< 90 d). A 3-part plan was developed for 6 cow-calf herds to reduce the length of the calving season. The average number of years to reach the cooperator’s desired cow herd calving season was 3.8 ± 0.75 yr. The percentage of cows calving during the desired calving season was higher for the final year compared to the benchmark year (92.0 ± 11.66% vs. 46.3 ± 14.01%, respectively; P < 0.002). The mature cow calving percentage did not change from the benchmark year to the final year (89.2 ± 6.05% and 87.2 ± 9.47%, respectively; P > 0.75). The average length of the calving season decreased from 273.3 ± 84.88 d in the benchmark year to 85.2 ± 4.75 d in the final year (P < 0.002). Due to the limited number of farms and large variability, there were no (P ≥ 0.14) differences for herd break-even, specified costs/animal unit (AU) and income over specified cost/AU from the benchmark year to the final year; however, herd breakeven decreased 30%, specified costs/AU decreased 40% and income over specified cost/AU increased 100%. Thus, shortening the calving season is perhaps one of the most important and cost-effective practices that can be implemented by a producer.

Introduction

Having a defined breeding season, and thereby a defined calving season, allows producers to devote more attention to cows during calving, a critical time in the production process when adverse events can dramatically affect production. In a USDA (2009) survey, 54.5% of the beef cattle operations accounting for 34.1% of all the beef cows did not have a set calving season. About one-third of the operations had a single breeding season, and these operations accounted for 48.4% of the beef cows. Of operations with one breeding season, 69.7% completed calving within 3 mo, with an average breeding season of 110 d. The most common factors determining the timing of the calving season include tradition, weather, forage availability, increasing weaning weights, market cycle, and labor availability. With the profitability of a cow-calf operation more difficult to obtain, reducing the calving season can be the first step toward improving production efficiency. Other advantages of a short calving season include uniform lots of calves, improved herd health management, cow nutrition, and culling and selection of replacement heifers. Therefore, the objectives of this demonstration were to reduce the length of the calving season and document the production and economic impact when converting a long calving to a short calving season.

Experimental Procedures

Six beef cow-calf operations in Howard (n = 2), Dallas (n = 2), Union, and Montgomery counties contacted their local county Extension agent and expressed their desire to participate in the Arkansas Beef Improvement Program (ABIP) Breeding and Calving Seasons Special Project. The goals of the ABIP project were to reduce the length of the calving season and to document the production and economic impact when converting a long calving season (> 200 d) to a short calving season (< 90 d).

In collaboration, the producer, county Extension agent and Animal Science faculty developed a 3-part plan to reduce the length of the calving season. The 3 parts included: 1) determine when the cows were calving (annual calving distribution); 2) establish the months and length of the desired calving season; and 3) develop a management plan to transition the cow herd to the desired calving season.

Part one of the plan determined the current annual calving distribution (benchmark year). It was typical for a large group of cows to calve January through May, with very few cows calving in the summer months (June, July and August) and an additional group calving in the fall. The second part of the plan was the producer determining the desired calving period (months and length). Some producers selected a fall calving season and some a spring calving season. All of the producers selected a calving season of ≤ 90 days. From the benchmark calving distribution, a plan was developed by the producer, agent and Animal Science faculty to reach the desired calving season (part 3). Supplemental feeding, mineral supplementation, bull breeding soundness examinations, and other management factors that could affect reproduction rates were reviewed and changes were made if necessary.

Because of the uniqueness of each farm, a specific plan was designed for each cow herd. The projected dates for the beginning and end of the breeding and calving seasons were determined and monitored yearly. Most producers had a benchmark calving season greater than 7 months and often times the herd was split into 2 groups (fall and spring calving groups). Over time the breeding season was restricted in order to obtain the desired calving season. This entailed moving some cows from spring to fall calving or fall to spring depending upon the primary calving season desired.

The cow-calf producer was required to complete a budget for each year of the program that included herd inventory, number of animal units (AU), production information, income, and costs. The herd inventory reflected the number of animals as of January 1 of the budget year. It included mature cows (a female pregnant with at least her second calf), growing heifers, growing bulls, first-calf heifers (heifers that were pregnant or nursing their first calf but were not pregnant with their second calf), bulls for breeding the mature cow herd and heifers, and growing bulls (6 to 16 mo of age). Total number of AU in the cow herd was calculated based on ME requirements as described by Gadberry and Troxel (1999).

Production information for the mature cows included calf-crop percentage, culling percentage, replacement rate, death loss, and

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number of females exposed to the bull. Calf-crop percentages were determined by dividing the number of calves weaned by the number of females exposed to the bull.

Income summary included the number of cattle and calves sold, average BW/head, and average price/lb. Included in the income section were calculated values for total pounds sold, total income, average selling price, total pounds sold/AU, and income/AU. The selling price established in the benchmark year was used to determine income in subsequent years to prevent market price fluctuations from confounding the results.

The specified costs 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. No overhead items, such as family expenses, machinery, depreciation, etc., were included in the budget. Summarized values included total specified cost/AU, herd break-even (specified cost divided by pound of beef sold) and income over specified cost/AU.

Calving season length, percent of cows calving in the desired season, net calf crop, herd breakeven and income over specified costs/AU for both the benchmark year and final year were analyzed using a simple paired t-test. All means are reported as the raw mean ± the calculated standard deviation.

**Results and Discussion**

The average number of years to reach the cooperative's desired calving season for the cowherd was 3.8 ± 0.75 yr. The results of the benchmark year and the final year are summarized in Table 1. The percentage of cows calving during the desired calving season was higher for the final year compared to the benchmark year (92.0 ± 11.66% vs. 46.3 ± 14.01%; P < 0.002). The mature cow calving percentage did not change (P > 0.75) from the benchmark year (89.2 ± 6.05%) to the final year (87.2 ± 9.47%), but the average length of the calving season decreased (P < 0.002) from 273.3 ± 84.88 d to 85.2 ± 4.75 d for the benchmark year and the final year, respectively.

Due to the limited number of farms and large variability, there were no differences for herd break-even (P > 0.24), specific costs/AU (P > 0.68) and income over specified costs/AU (P > 0.14) from the benchmark year to the final year. When comparing means, break-even decreased 30% from $0.61 ± 0.22/lb to $0.43 ± 0.25/lb from the benchmark year to the final year, respectively. Specified costs/AU decreased 40% from $209.70 ± 145.68 to $126.20 ± 40.41, whereas income over specified cost improved 100% from $95.00 ± 68.27/AU to $189.70 ± 133.50/AU, from the benchmark year to the final year, respectively. Although these differences were not statistically significant, they were financially relevant to the cooperators. These results provide evidence that these farms increased beef production efficiency and improved profitability by decreasing the length of the calving season. This project was very successful but required a cattle cooperator who was committed to reducing the calving season and would stay with the program for 4 to 5 yr.

**Implications**

Shortening the length of the calving season is one of the most important cost-effective practices that can be implemented by a cow-call producer. Cost of the change is minimal and production costs can be reduced without reducing production which leads to improve production efficiency. A short controlled calving season forms the cornerstone for additional prudent management practices. Without a short calving season (< 90 d), opportunities for increasing production efficiency and reducing the cost per calf weaned are limited.

**Acknowledgements**

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**Literature Cited**


**Table 1. Length of calving season, percentage of cows calving in the desired calving season, mature cow calving percentage, herd breakeven, specified costs per AU and income over specified cost per AU for the benchmark year and the final year of the calving season project (mean ± SD).**

<table>
<thead>
<tr>
<th>Production item</th>
<th>Benchmark year</th>
<th>Final year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of calving season (d)</td>
<td>273.3 ± 84.88a</td>
<td>85.2 ± 4.75a</td>
</tr>
<tr>
<td>Percentage of cows calving in the desired calving season (%)</td>
<td>46.3 ± 14.01a</td>
<td>92.0 ± 11.66b</td>
</tr>
<tr>
<td>Mature cow calving percentage (%)</td>
<td>89.2 ± 6.05a</td>
<td>87.2 ± 9.47a</td>
</tr>
<tr>
<td>Herd breakeven ($/lb)</td>
<td>0.61 ± 0.22a</td>
<td>0.43 ± 0.25a</td>
</tr>
<tr>
<td>Specified costs per AU ($)</td>
<td>209.70 ± 145.68a</td>
<td>126.20 ± 40.41a</td>
</tr>
<tr>
<td>Income over specified cost per AU ($)</td>
<td>95.00 ± 68.27a</td>
<td>189.70 ± 133.50a</td>
</tr>
</tbody>
</table>

*Means within rows without a common superscript differ (P < 0.002).

Specified cost divided by pounds of beef sold.

The specified costs included: salt and mineral, supplemental feed, 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.

Income over specified costs divided by the AU grazing on the farm. An AU is equal to a 1,000 lb cow.