Reproduction from a Different Angle

Inspecting reproduction from the beef industry’s perspective

Combine a beef cow’s reproductive efficiency with a dairy cow’s milk production and you’re bound for success—if it were only that easy. In an ideal world, the modern dairy cow and her production potential would be combined with the reproductive performance of the beef cow. To learn more about accomplishing both goals in your dairy operation, we have outlined concepts and management practices beef producers utilize today to maintain reproductive efficiency.

The Differences Examined
While the physiological differences between beef and dairy cattle may be obvious, the beef industry’s approach can serve as a guide to improve dairy cattle reproduction. Dr. Cliff Lamb, Professor and Assistant Director at the University of Florida’s North Florida Research and Education Center, highlights multiple differences between beef and dairy cattle that can cause reproductive differences.

• **Nutrition.** Nutritional requirements are another significant difference between beef and dairy cattle. Most dairy cows are unable to consume enough energy through the diet to maintain required metabolic needs when lactation begins. Dairy cows often go into a negative energy balance shortly after they calve. While beef cattle may have a short interval of negative energy balance as their offspring nurses, their diet and energy metabolism is quite different from dairy cattle. Their energy is used for additional weight gain, while the dairy cow is often losing weight and energy is diverted to milk production. This directly impacts the energy balance and the ability of dairy cows to divert energy for reproductive functions.

• **Body condition.** Managing the dairy cow through the transition period is difficult as cows gain and lose body condition in such a short time period. Transition cows should maintain a healthy body condition to satisfy increased energy requirements after calving. While this is not often a challenge for beef producers, maintaining body condition can plague dairy cattle, especially when animals lose weight quickly or gain excessive weight, leading to metabolic disorders or delayed ovulation.

• **Ovulation.** Dr. Lamb notes that one difference between beef and dairy cattle is ovulation. While many dairymen focus on how production influences fertility, it is not production that changes the length of time until ovulation begins. Instead, the sensation of the calf’s suckling changes the cow’s postpartum length. Research studies have found that beef cattle that are suckled following calving experience their first ovulation later than those whose calves are removed.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Days to First Ovulation (Days)</th>
<th>Days to First Estrus (Days)</th>
<th>Observed in Estrus (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calf present</td>
<td>30.4</td>
<td>33.3</td>
<td>57.1</td>
</tr>
<tr>
<td>Calf restrained</td>
<td>15.3</td>
<td>15.7</td>
<td>85.7</td>
</tr>
<tr>
<td>Calf removed</td>
<td>17</td>
<td>19.6</td>
<td>57.1</td>
</tr>
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Table 1 above compares the reproductive outcomes of beef cattle with a calf present for suckling, a calf only allowed to suckle for a certain amount of time and a calf removed completely from suckling. “I actually think the extra time before ovulation helps beef cows from a fertility standpoint.
by giving that uterus an opportunity to fully recover,” says Dr. Lamb. “The hormonal changes occur to allow the cow to start cycling again; it’s more natural.”

It is important to note that milking cups do not have the same effect on ovulation that a suckling calf does, and therefore do not delay the onset of ovulation in dairy cattle.

**Utilize your Advantages**
Physiological differences between beef and dairy cows are fixed. Though it seems that beef producers have the advantage in terms of reproductive efficiency, there are certain dairy production aspects you can use to your advantage. We have indicated a few concepts.

- **Opportunity to handle cows daily.** “Some dairy producers may not realize how lucky they are; they get to handle their cattle every day,” says Lamb. The systems used to synchronize estrus for beef cows are used out of convenience, so beef cows are not handled as often. Since dairy producers are with the cattle every day—for milking, herd health and other daily tasks—they can identify changes in performance, health or appetite, and more routinely identify animals in estrus or implement synchronization protocols.

- **Timed A.I. protocols.** There has been an increase in the number of beef producers who are implementing timed A.I. protocols, following the dairy industry. Heat detection efficiency is the primary factor prompting beef producers to switch to timed A.I. With more extensive experience with A.I. protocols, dairy producers can continue to perfect these programs within their operations for maximized reproductive performance.

- **Trained A.I. technicians.** Using a professional A.I. service can help ensure the success of your reproductive program. Frequently, many beef operations use natural service, a practice which can be challenging for dairy operations. Having a trusted technician breeding cows provides peace of mind for your breeding program.

**Management Practices**
Many times it’s the things that seem insignificant that can have the biggest impact. Following simple management practices can help improve your reproductive efficiency.

- **Keep ration top of mind.** Since the energy provided in the diet is essential for the dairy cow to meet production, maintenance and reproductive potential, review rations routinely to deliver the nutrients needed for peak milking production and reproductive efficiency.

- **Ensure 100% compliance.** Oftentimes the smallest errors can have significant impacts on the success of a reproductive program. If one dose is not given to the proper cow at the proper time within a synchronization program, the cow will not be prepared for breeding. Each cow must receive the right dose at the right time for 100% compliance.

- **Strategically group cows.** Group cows by lactation number and stage of lactation. First calf heifers and mature cows should be separated to ensure younger animals have the ability to perform to their potential.

- **Understand and learn from differences.** While beef cattle and dairy cattle have very different physiological needs, the beef industry can offer great insight into future opportunities. Routinely reviewing new research and findings in beef cattle reproduction can serve as a window to future technologies.

Although challenges and difficulties associated with fertility exist, applying techniques from beef producers can help your dairy select new and progressive programs to improve reproductive efficiency.