Reproductive Technology in Beef Cow-Calf Herds

The most important factor in cow-calf production is reproduction in the cow herd. If cows do not become pregnant and produce calves, their time in the production process was wasted. Over the years many technologies have been introduced to make producers more profitable. However, many of these technologies have not been adopted by producers.

The USDA's National Animal Health Monitoring System (NAHMS) collected data on reproductive management in beef cow-calf herds. Phase two of the NAHMS Beef '97 Study included 1,190 producers with five or more beef cows from 23 of the leading cow-calf states.[1] This study represented 85.0 percent of all U.S. beef cows on January 1, 1997, and 66.3 percent of all U.S. operations with beef cows.

In general, larger operations made more use of intensive technologies (Figure 1), perhaps in part due to overhead expenses of incorporating new technologies into the

operations. Pregnancy palpation has been used for many years, but only 34.5 percent of operations reported using this technology. Identification of pregnant and open cows allows the producer to make culling decisions. Open cows can be sold at weaning or fed to maintain body weight and then sold in spring when prices may be higher. Pregnant cows can be managed to their optimal body condition for calving. Pregnancy staging can also be used to group cows by gestational length for pre-calving vaccinations and calving.

Semen evaluation of bulls is the most common (39.9 percent) reproductive technology used by producers. Identification of fertile bulls can improve reproductive performance and improve profitability. Sub-fertile bulls, whether from age, disease, or genetics, return fewer calves for the cost of upkeep. Sub-fertile bulls may also prevent good bulls from breeding eligible females. Fertile bulls can improve conception rates of cows and narrow the breeding season. The cow-to-bull ratio can also be increased with reproductively fit bulls, decreasing the number of bulls necessary for the operation.

Figure 1

Percent of Operations that Used the Following Reproductive Technologies by Herd Size
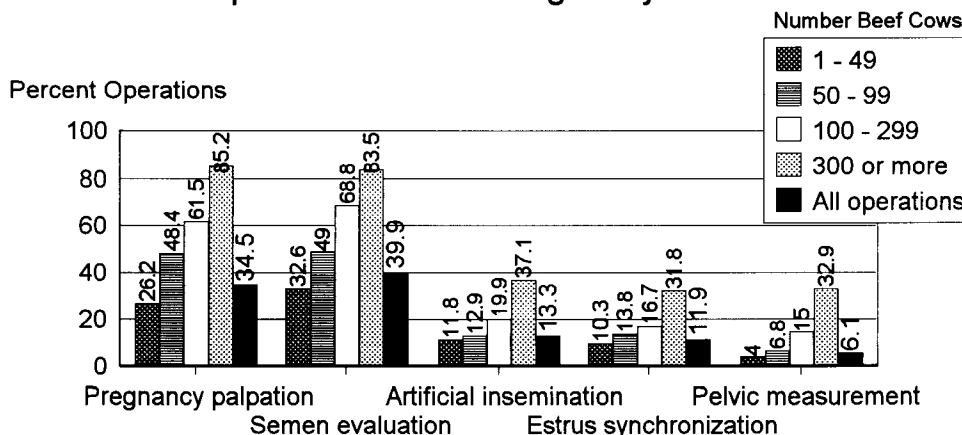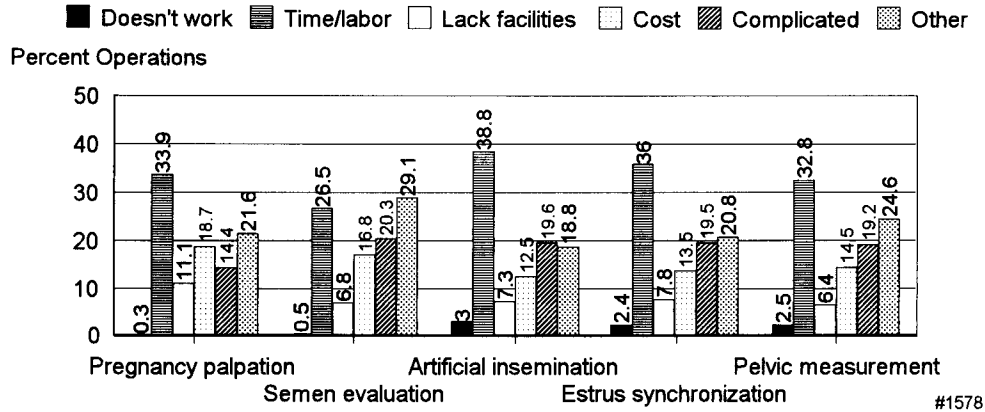

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[1] Alabama, Arkansas, California, Colorado, Florida, Georgia, Illinois, Iowa, Kansas, Kentucky, Mississippi, Missouri, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Tennessee, Texas, Virginia, and Wyoming.

Figure 2

Percent of Operations by Reason for Not Using a Specific Technology

■ Doesn't work   ▤ Time/labor   ☐ Lack facilities   ☐ Cost   ▨ Complicated   ▦ Other

Percent Operations

Pregnancy palpation   Artificial insemination   Pelvic measurement

Semen evaluation   Estrus synchronization   #1578

Artificial insemination (A.I.) has been advocated as a way to improve the genetics of a cow herd and its progeny without the expense of buying a superior bull. Many small operations, those that may not have enough cows to justify using top quality bulls, can benefit from A.I. and possibly eliminate all bulls from the operation. This method would decrease the expense and trouble of keeping bulls on the operation. However, A.I. is only used by 13.3 percent of operations. A.I. involves some overhead expenses, although they can often be recovered from the decreased costs of keeping bulls. Many producers may not be using A.I. because of the time needed for heat detection.

Estrus synchronization allows the producer to breed females in a shorter time period without having to continually observe heats. Many different synchronization programs have been developed using different combinations of hormones to control the estrus cycle. This wide range of options lets the producer select the program that fits his/her particular operation. Estrus synchronization can also be used in bull bred herds to concentrate the calving season. According to the Beef '97 Study, only 11.9 percent of operations utilized estrus synchronization.

Some producers have used pelvic measurements as a tool in selecting replacement heifers. Heifers with larger pelvic canals may be less likely to have difficult births. Meaningfulness of pelvic measurements is controversial. However, most experts agree that, when used with other selection criteria, incidence of dystocia can be reduced. Pelvic measurements, like pregnancy palpation, are relatively easy to incorporate into most operations. However, only 6.1 percent of operations used this technology.

Producers are often restricted in their operations from implementing some of these production-enhancing technologies. The most common reason for not utilizing one of these practices is "lack of time or labor" (Figure 2). Some "other" reason was the next most common followed by "too complicated" and "cost". For some operations, benefits of incorporating some of these improved technologies into their management schemes outweighed the costs. Not only can these practices improve profitability by improving production, some can also decrease costs.

Many smaller operators have not adopted these new technologies for various reasons. However, if they are to remain competitive with larger operations, they need to take advantage of technology that will keep them competitive. By using A.I., small producers can improve their herd dramatically. This technology lets the small producer be aggressive and produce ideal calves with minimal extra expense.

In today's fast changing agricultural business, individual producers cannot afford to get left behind. Technology can help increase production while maintaining or decreasing costs. The uniqueness of individual operations determines the practicality of incorporating new ideas. Producers can use their herd records to identify which practices may be beneficial. However, to remain viable in the beef industry, producers must take a serious look at all options.