



Cattle Producer's Handbook

Reproduction Section

407

An Economic Comparison of Artificial Insemination with Natural Service in Beef Cattle

Jason K. Ahola, *Extension Beef Specialist*
Stephanie J. Etter, *Extension Educator, Canyon County*
University of Idaho

Getting Beef Cows Pregnant

The use of artificial insemination (A.I.) is not new to the beef industry. In 1933, *The Technique of Artificial Insemination* was first published, and by 1936 A.I. was being used on university farms for production and research purposes (Foote 2002). However, only about 13 percent of beef producers currently use A.I. (USDA-APHIS 1998).

When A.I. is used, it's generally more common in heifers and on seedstock operations. Yet, after over 70 years of availability, why are so few commercial cow/calf producers using A.I.?

According to a USDA survey, producers who do not use A.I. indicated that labor and time were the most common reasons for not using A.I. (39%), followed by difficulty/complication (20%), cost (13%), lack of facilities (7%), and a belief that it does not work (3%).

Regardless of the reason(s) why producers don't use A.I., researchers have failed to demonstrate the return (or lack of return) on investment with either A.I. or natural service, until recently. Without this information beef producers have been reluctant to choose A.I. over natural service.

A.I. vs. Natural Service

Ultimately, the choice of A.I. vs. natural service comes down to the cost of producing a pregnancy vs. value of the product produced. The major challenge with economically comparing A.I. to natural service involves characterizing "added value" in the product produced.

Costs associated with A.I. or natural service can be predicted with reasonable accuracy, however, the short- and long-term economic value of improved

genetics and/or a more concentrated (and possibly earlier) calving season are difficult to accurately determine.

Therefore, the objective of this fact sheet is to convey information from recent research about the costs and benefits associated with A.I. and natural service. However, it should be noted that the authors are not comparing 100 percent A.I. vs. 100 percent natural service.

The use of 100 percent A.I. is unrealistic on western commercial cow/calf operations since it typically requires a 45- to 60-day heat detection period. Instead, cow/calf producers can synchronize and inseminate their cows once before turning out clean-up bulls, as is the case on most operations that use A.I. Therefore, the comparison will be "synchronization/A.I. + natural service" vs. "100 percent natural service."

Pros and Cons of Synchronization/A.I. and Natural Service

Before discussing research results, the numerous economic advantages and disadvantages associated with synchronization/A.I. and natural service should be mentioned. This is not an exhaustive list and discussion, and not all of these advantages and disadvantages have been documented in the literature. These items should merely be considered as possible or theoretical advantages and disadvantages for the purpose of critically comparing the two breeding options.

Possible ADVANTAGES of Synchronization/A.I.

Genetic Improvement—With the proper use of A.I., it is generally agreed that a producer can achieve more rapid and greater genetic progress via the use of outstanding or genetically proven sires that are cheaper to access via their semen (e.g., \$15/straw) vs. natural