Artificial insemination: Still profitable!

Be sure to consider your AI options before deciding to use natural service bulls! Although some farmers have seen their AI breeding efficiency drop, current estimates show AI is still profitable.

Decrease in fertility? The recent decrease in fertility with AI has only been observed in lactating cows. The chance of pregnancy as a result of one conventional AI breeding is now averaging about 35% on Midwest dairy farms, while heifers are twice as likely to become pregnant (65-70%). The main problem in getting cows pregnant may be the difficulty in catching them in heat. Conventional AI breeding requires the detection of a standing heat. The chance of catching a cow in heat averages 40-45% in the Midwest while it is easier (about 70% chance) to catch a heifer in heat. Increased milk production and other factors may have made it more difficult for cows to start cycling and show good heats. Farmers need to focus on how to avoid "missing" heats. Options to improve heat detection include:

- Training herdsmen to use simple tools such as tail chalk or paint and implement routine heat detection 2-3 times a day.
- Purchasing reproductive management services from an AI organization. Services include daily heat detection, breeding on observed heats, and recording breedings.

Considering the estimated economic advantage of AI, we urge farmers to consider these two options for improvement before using natural service bulls. Farmers using natural service bulls may want to give AI another try!

Are natural service bulls superior? According to common wisdom, mating naturally should produce better results. There are few studies where natural bulls and AI services have been used in fully comparable ways. However, in a few cases involving larger herds, conventional AI service proved equal to, or more efficient than bull breeding when considering results for all seasons. Here are some reasons why natural service bulls may not be superior breeders:

- Slippery concrete floors
- Too many cows per bull; lack of rest
- Dominant bull reduces other matings
- 10% of bulls sterile or sub-fertile
- Lower bull fertility during heat stress
- Bulls fed unbalanced feed rations
- Limited vision, inefficient heat detection

A good tail chalk or tail paint routine helps catch more cows in heat.

WORK EFFICIENCY TIP SHEET

Ideas for more efficient dairy farm work.

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How profitable is AI?

Our comparison tried to mimic average reproductive efficiency on Midwest dairy farms, and assessed the following costs: For AI breeding; reproductive maintenance service, and semen purchased. For NSB breeding; ownership costs, feed costs, cost of infertility and facility wear and tear.

The over-all economic advantage is about $51-79 /cow/year when using AI-only breeding for both cows and heifers. Using AI for heifers is much more profitable (on a per head basis) as compared to AI breeding for cows. Selecting highly tested and higher priced AI bulls can generate a net income of about $28/cow/year compared to using average AI bulls. Other advantages of AI exist, but are more difficult to estimate in economic terms; e.g. reliable expected calving dates, avoid spreading venereal diseases, minimize the spread of genetic defects.

Safe and pleasant working conditions?

In Wisconsin, 10 fatal injuries and four serious non-fatal injuries by bulls were reported in the period from 1990 to 2000. Bulls on the farm are a considerable liability, and may increase the premium for your farm insurance policy. Employees, family members and visitors are at risk. AI breeding can provide peace of mind for the owner/manager and safer working conditions for the employees.

Conclusions:

Our estimates suggest that conventional AI (breed to observed heat) is still cost-effective in spite of a decrease in cow fertility. Using only AI breeding can earn up to $79 more net income per cow per year, while providing a safer work place, reduced liability and ease of mind for the dairy farmer/manager. Modern breeding programs (synchronized heats or ovulations) may give AI a further advantage. Be sure to take a second look at your AI options before deciding to use natural service bulls!

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- Commercial AI organizations providing services in your area.

Artificial Insemination: Dollar/Cow/Year Advantage over Natural Service Bulls*

AI Bulls	cow breeding	heifer breeding	whole herd
Average net merit	21	30	51
High net merit	33	46	79

**For 200 cow operation; conventional AI breeding (no synchronization), average Midwest reproductive efficiency.*

This material was developed by the Wisconsin Healthy Farmers, Healthy Profits Project. Our goal is to find and share work efficiency tips that maintain farmers' health and safety and also increase profits. For more information, call (608)262-7408 or visit our website at ***http:// bse.wisc.edu/hfhp/***

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