



Improving Herd Reproductive Efficiency: Profit, Biology & Strategy

By: Kimberley Morrill, PhD—Regional Dairy Specialist

Improving reproductive efficiency, this is a phrase that we often hear but what does it mean? More cows pregnant, less services per conception, pregnancy rate, conception rate, investing in more technology or just more heifer calves each year! These are all things that come to mind.

Reproductive efficiency:

The ability of a dairy producer to get cows bred back rapidly after calving

Reproductive efficiency of a dairy herd plays a key role in farm profitability, has some biological impediments faced by the high producing dairy cow, and there are strategies that dairy producers can use to improve overall reproductive rates.

Importance of reproduction for the economy of a dairy farm:

- Improves milk production
- Increases number of replacement heifers
- Facilitates adequate culling policies

Sale of milk is the largest source of income for dairy farms. Milk production will improve as the average days in milk (**DIM**) decreases, the parity distribution changes as more two year olds are calving in and able to replace older animals or poor doers. There will also be a faster transition from first lactation to a more productive second lactation.

Sources of Income for a Dairy Farm

- Milk (88.1%)
- Sale of prepartum cows (4.9%)
- Sale of cows for dairy purposes (4.2%)
- Sale of cows for beef (2.4%)
- Sale of bull calves 0.4%

The increased number of replacements will allow for greater genetic selection. It will also allow for the sale of excess heifers or milking animals. This allows you get to make the culling decisions. An efficient reproductive program means adequate heifers calving in, and you deciding who gets to leave the herd. You can cull problem cows and not have to worry about dropping in cow number. A younger herd (more two and three year olds) along with healthy replacements, leads to better fertility, less mastitis, less lameness an increase in milk production and profit.

Inefficient reproduction decreases profit by reducing both the efficiency of milk production and the number of available replacement heifers. Additionally, there are increased breeding supplies, labor and veterinary costs for herds with lower reproductive performance.

Biological impediments to high reproductive efficiency faced by the high producing dairy cow:

- Delayed return to postpartum estrous cyclicity.
 - Simple terms - Longer time until the cow return to a normal cycle.
 - This delays the time to first insemination and has long lasting effects on conception and maintenance of pregnancy.
 - Calving problems, and early lactation diseases (metritis, clinical endometritis or fever postpartum) have a negative impact on resumption of a normal estrous cycle in the dairy cow.
- Reduced intensity and duration of estrous expression.
 - This leads to a decrease in the percentage of heats observed and increase in the number of missed heats.
- Reduced fertilization.
- Increased pregnancy loss.



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Strategies to Improve Reproductive Efficiency:

We talked about what is reproductive efficiency, the economics of reproductive inefficiency, biology of what makes some cow inefficiency, now we need to determine how can we improve the reproductive efficiency on our farm? We don't have to go out and buy a new piece of technology. We need to make sure our cows are comfortable, content, correctly fed, well cared for and we need to have a plan and stick to it.

Strategies to improve Reproductive Efficiency

- COW COMFORT
- Transition cow nutrition
- Employees & how they handle cows
- Genetic selection programs for improved health and fertility
- Have a reproductive management plan & stick to it.

COW COMFORT – have you ever heard the saying “*if mama ain't happy, nobody's happy*”? Use this concept with transition and fresh cows. They need more than adequate laying, bunk and drinking space. Heat stress abatement strategies should be in place for the dry cow pens as well as springer lot, calving pen, fresh cow pens, holding area, feed areas and early lactation pens. Heat stress in the dry period and early lactation can have a major impact on the reproductive health of the cow 60 days later. Grouping strategies should limit pen moves during the transition period and during the calving period.

Transition cow nutrition:

This includes prepartum needs of the dam and neonate as well as postpartum nutrient needs of the animal, monitoring body condition

score, monitoring health for early diagnosis of metabolic disease, monitoring for adequate bunk space and monitoring water quality.

Employees: Train employees on proper handling techniques for moving cattle, as well as when to intervene with a calving. Not all cows need assistance during birth, the goal is to minimize intervention and only intervene when needed. Train employees to monitor prepartum and postpartum cows for early diagnosis of disease. Train employees on heat detection.

Reproductive management plan:

- What is your herd's reproductive management plan & protocol?
 - AI to spontaneous estrus herd, natural service, AI to induced estrus, AI to induced estrus after ovsynch, timed AI after ovsynch, presynch/ovsynch or someother combination? Maybe your plan is to send her with the bull and hope he gets the job done... Public service message --- **BULLS ARE DANGEROUS, YOUR LIFE IS VALUABLE.**
- Your reproductive management plan doesn't have to be the same as your neighbor's and shouldn't be, you likely have different goals, but how do you plan do get your cows pregnant? Is everyone on board? Is the protocol written down, and someone assigned to give shots, monitor, breed cows and record the information?
- What is your plan for pregnancy checking cattle?
- What is your resynch program for cattle that have been checked “open”?
- VISUAL HEAT DETECTION, EVERY DAY.

Improving herd reproduction does not occur overnight. It doesn't occur in a month's time. It can take 6 to 12 months. Have a plan in place and stick to the plan. Make small changes and monitor those changes.

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