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Evaluating and troubleshooting dairy cow reproduction

When it comes to dairy farm profitability, reproductive management will have one of the biggest impacts, along with forage quality and milk quality. Successful reproductive management optimizes the amount of time cows are at a high level of milk production during their lifetime, provides a continuous supply of replacements (or calves for the beef market), prevents cows from getting over conditioned and having fresh cow disease problems and ultimately reduces involuntary culls.

The most used parameter to measure reproductive efficiency on a dairy herd is pregnancy rate (PR). PR measures the number of cows over 50 DIM per 21 day period that are eligible to become pregnant that actually get pregnant. PR is directly a result of two other parameters we measure, which are insemination rate (IR) and conception rate (CR). IR is the number of cows eligible to be bred who actually get bred, while CR is the cow's chance of conceiving when she is bred. When evaluating a herd's PR, reasons for a poor IR are typically the easiest to identify and improve. CR issues can be more difficult to address.

Setting goals

Realistic goals for each herd can vary depending on facilities, labor and other factors, but here is what I think is reasonable. A good achievable PR for most tie-stall herds should be in the mid 20's, while free-stalls should be striving for high 20's to over 30% PR.

Insemination rate considerations

Free-stall herds should have an IR over 60%, with over 70% being achievable. An over 50% IR is reasonable for a tie-stall herd, the difference being due to the difficulty of natural heat detection in a tie-stall system. Here are some factors to consider.

Days to first service

The amount of time it takes for a cow to be bred for the first time, along with the conception rate of this breeding, has the biggest impact on pregnancy rate. Every cow needs to be bred once by at least 90 DIM. Delayed voluntary waiting periods are becoming trendy lately and it does make sense for some producers, but if you are not hitting the appropriate reproduction benchmarks, you need to breed early.

How long it takes for open cows to be re-inseminated

It is important to identify bred cows that are open by heat detection and regular pregnancy diagnosis. A good protocol must be in place for animals checked open at pregnancy diagnosis.

Heat detection vs timed AI

The herds with the best PR's usually use a combination of natural heat detection and synchronization programs. There are many options available. I have seen some high reproductive performance herds rely heavily on natural heat detection but use a timed AI program as a backstop to ensure no cows fall between the cracks and everyone is bred in a timely manner. I have also seen some high performing herds with a very aggressive timed AI program that enrolls all cows, but there is heat detection and breeding going on in the background. Both can work well. The best breeding program for your herd will also be the one that can be practically implanted on your farm. Discuss this with your veterinarian to help you decide what might be right for you.

Conception rate considerations

As mentioned earlier, problems in CR can be more difficult to address than IR issues. First service CR will have the biggest impact on your pregnancy rate and should be over 40%. You should also strive to have your combined CR with all breeding's over 40%. Some herds are achieving over 50% for both. Factors that influence CR will often also influence cow health and production. Here are some things to consider when investigating poor CR.

Fresh cow disease

Fresh cow diseases, whether clinical or subclinical, can have major negative consequences on CR, especially first service. This includes ketosis, retained placenta, milk fever and endometritis. The cause of these diseases can vary. Nutrition, preventative medicine, animal movements, pen management, bunk space, etc. will influence the risk of fresh cow disease. Work closely with your veterinarian and nutritionist to identify and resolve these issues.

Overcrowding

I think overcrowding is often overlooked when trying to identify the cause of poor conception. This can be overcrowding in the dry cow pen or lactating herd. Overcrowded animals are under much stress due to competition for bunk, water and lying space, and avoid conflict with other animals. Performance in general will suffer in an overcrowded barn and CR is no exception.

Feed quality and nutrition

Poor quality forages and supplements, inconsistent mixing, sorting, slug feeding, mineral and vitamin deficiencies, and the presence of toxins can all have negative consequences on CR. Elevated milk urea nitrogen (MUN) can result in poor CR and early embryonic death. The actual upper threshold of MUN is debatable but if you are struggling to get cows pregnant and MUN in your milk pickups are consistently over 14, I think it should be addressed. Work closely with your nutrition consultant to help make sure your cows are getting what they need and that feed quality issues are being managed.

Breeding technique and semen handling

Resolving poor breeding technician performance can be a sensitive issue. I would start by ruling out other causes that may artificially make a particular technician's numbers look bad. Is there a particular group of animals or circumstances this technician needs to work with. If it is you, be honest with yourself and consider taking a refresher course or delegating the breeding to someone else. Proper animal restraint makes it much easier to perform the breeding technique well. Make sure you are following a good protocol for semen thawing and preparation, and that the semen stays protected at the appropriate temperature right up until insemination. If semen is stored on-farm, inspect the tank for any defects and ensure it is filled with enough nitrogen.

Putting it all together

Finally, good record keeping is going to make evaluating your reproductive performance and identifying opportunities for improvement **MUCH** easier. Use your on-farm data management software to track breedings and outcomes based on technician, type of service, service number, lactation and more. This will be helpful in allowing your veterinarian and other advisors to better analyze your reproduction data and develop solutions. Our veterinarians can assist you with deciding what would be useful to record and how to interpret your data to make sound reproductive management decisions.

Thomas Veens

Upcoming Stat Holidays

The clinic will be closed for Family Day Monday February 19, 2024, re-opening Tuesday February 20, 2024. As always, veterinarians will be available 24-7 for emergency service. The Saturday fee schedule will remain unchanged from non-stat weekends.