

~Dairy Details~

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Pregnant = Profit

Getting cows pregnant in a timely fashion is critical to a farm's profitability. During times like these, when margins are tight, producers may need to step up their management practices to try and save every dollar they can. According University of Wisconsin researchers, the value of a new pregnancy is \$222 and the cost of a day open in a dairy cow is \$5.20/day. Also, cows that don't get pregnant until late lactation tend to be fat when they are dried off and when they calve, which often leads to fresh cow disease such as ketosis.

The average pregnancy rate in the U.S. is 16%. It used to be a common notion that high producing cows are difficult to get pregnant. Today, it is not uncommon to find many high producing Holstein herds with pregnancy rates in the mid to high 20%'s. Increasing your pregnancy rate will leave you with more replacement heifers, maybe even excess heifers. Replacement costs are one of the highest costs on dairy farms. Having excess heifers because of a high pregnancy rate may allow a producer to sell a portion of their heifers, leading to lower replacement costs, and more cash in pocket.

So how do we increase pregnancy rate? According to Dr. Paul Fricke, a dairy cattle reproduction expert from the University of Wisconsin, there are 4 keys to achieving a high pregnancy rate, while still maintaining high production.

1. Aggressively inseminate cows at the end of the voluntary waiting period
2. Increase fertility to first AI
3. Identify nonpregnant cows and aggressively reinseminate them
4. Increase fertility to 2nd and greater AI

This month we'll discuss the first two key points.

4 Keys to Achieving a High Pregnancy Rate:

Key 1: Aggressively inseminate cows at the end of the VWP:

Pregnancy rate is based off of conception rate (number of pregnancies per inseminations (AI)) and service rate (how many eligible cows are bred). Key 1 helps us increase the service rate portion of pregnancy rate. The best way to achieve Key 1 is to develop strict reproduction protocols and adhere to them. There are a variety of synchronization protocols and it's not one size fits all. Every farm is different and different protocols work for different farms. Some farms use a combination of breeding off of heat detection and timed AI (TAI) synchronization programs (such as Ovsynch). Others breed strictly TAI off of synchronization protocols. Find something that works for your farm, that allows you to get cows bred as soon as possible after the VWP. Ask your veterinarian about the different options that may be available for you to try.



Key 2: Increase fertility to first AI

Key 2 is to increase the conception rate portion of pregnancy rate. Every producer’s goal should be to get as many cows pregnant at the first service as possible. What are some things to can do to increase conception rates at the first service? Or maybe a better question is, what may be limiting our conception rates? According to Dr. Fricke’s research, one of the limiting factors to conception rates in high producing dairy cows is the amount of a hormone called Progesterone that these cows produce. Progesterone is a hormone produced by a Corpus Luteum (CL), which is a structure that develops on the cow’s ovary during the normal reproductive cycle. Cows need progesterone for good fertility. High producing dairy cows are often low in this hormone due to their increased liver metabolism. So what can we do to increase progesterone levels in these cows to increase fertility?

Dr. Fricke’s research shows us that if we can help a cow develop two CL’s on her ovaries, this will help her produce more progesterone leading to better conception rates. The best way to help a cow develop two CL’s to use a Double Ovsynch synchronization protocol, with two prostaglandin injections before TAI. See the figure below for this protocol.

Double Ovsynch Synchronization Protocol

Sun	Mon	Tue	Wed	Thur	Fri	Sat
					GnRH	
					PGF	
	GnRH					
	GnRH					
	PGF	PGF	GnRH	TAI		

The 2nd prostaglandin shot also helps increase conception rates by helping a cow’s CL better regress. A 2nd prostaglandin shot can be added to any type of ovsynch protocol, not just double ovsynch.

Other important factors that affect ability to cycle correctly and her fertility at first AI include:

- **Mastitis:** A Wisconsin study showed that cows with mastitis during the breeding risk period had a 32% conception rate versus a 45% conception rate in cows that didn’t have mastitis.
- **General cow health and fresh cow disease:** Numerous studies have showed decreased fertility in cows with any kind of disease from metritis to displaced abomasum.
- **Overcrowding and environment:** Lying time and bunk space are crucial to a cow’s ability to have proper dry matter intakes and good health. Good intakes are especially important in fresh cows. Another Wisconsin study split cows into three groups based on their change in body condition score (BCS) at calving compared to 21 DIM. Their conception rates at first AI were then compared. Below are the results, that show that cows with good feed intakes have better fertility:
 - o Cows that gained BCS: 84% conception rate
 - o Cows that maintained the same BCS: 38% conception rate
 - o Cows that lost BCS: 23% conception rate

Watch for the discussion and the 3rd and 4th key points in next month’s newsletter.

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