

Chapter 1

Introduction

What is a cow's job? Think of her as your employee. You provide her with housing, food & water, health benefits, etc. In return she comes to the parlor 2-3 times per day to be milked. During her time in the parlor she "works" for approximately 15 minutes. You provide for her needs and in return she "works" for 30 to 45 minutes a day. Her work is to produce high quality milk.

How does she produce high quality milk? Initially, a heifer must have a calf. At the end of gestation there is an increase in prolactin and uterine lactogenic hormones that stimulate mammary development. In subsequent years the process is repeated with each pregnancy. So, the cows must become pregnant to stimulate mammary development.

Similarly, we know that the most productive time of the lactation is during peak milk. That period occurs sometime between 30-150 days in milk (DIM). The more time a cows spends during this part of her lactation during her lifetime, the more profit she will generate. The dairyman needs to maximize this time.

Therefore, to maximize profit, cows need to become pregnant on a regular basis. To accomplish getting a cow pregnant on a consistent basis, the reproductive program of a farm needs to be a high priority. The reproductive program must also be relatively easy to implement. In this booklet you will find a practical way to improve your herd.

Improvement can be measured in a variety of ways, including days open, days to first service, calving interval, etc. However, a relatively new way of examining a herd's reproductive performance includes HEAT DETECTION RATE (HDR) and PREGNANCY RATE (PR). National average, from various databases, for HDR and PR are 35% and 14%, respectively. Herds that are in the top 10% for these parameters will have rates of greater than 60% and 20%. From experience, herds that attain greater than 20% pregnancy rates will ultimately have excess heifers waiting to come into the herd! It creates a new area on the farm to generate more profit.

Let's say there is pen with 100 cows in it and today they are all 60 days in milk (DIM). The farm has decided on 60 DIM as their voluntary waiting period, so all 100 cows are eligible to be bred. Over the next 21 days 35 of the 100 cows are bred. Therefore, the HDR is 35/100 or 35%. Subsequently, 14 of the 35 cows that were bred become pregnant. Now, 14/35 or 40% is the conception rate. However, for pregnancy rate you want to divide 14 by the 100 eligible cows or 14%.

The definition of HDR and PR follows:

HDR = # of cows bred / # of cows eligible to be bred for each 21 day period during a year

PR = # of cows pregnant / # of cows eligible to become pregnant for each 21 day period during a year

Thus, actually PR incorporates HDR and conception rate. PR equals HDR times conception rate. If you do not have a software program that figures PR for you, you can use your DHI reports. It will give you the % of heat observed (equivalent to HDR). You then can multiply this by your conception rate and get a crude estimate of PR.

There have been several articles discussing the decline of fertility in dairy cattle. This especially pertains to the lactating cow. There are several reasons for this decline, including inbreeding, increased production, time management on the farm, nutrition, etc. We do know that as a cow increases her production, two effects on her estrus expression occur. Those two effects are a decreased time in estrus and a decreased intensity of estrus expression. A cow producing 100# of milk will only spend approximately 6 hours in heat rather than the usual 18 hours (more typical of a beef cow) that we have learned. On top of that, she will make far fewer mounts than a lower producing cow. All this leads to a more difficult time for the producer to find the cow in heat.

However, the conception rate among heifers has not declined to near the extent that it has in the milking herd. So there is potential to reverse this trend of poor fertility. There has been increased emphasis on sire selection for increased fertility using daughter pregnancy rate (DPR) and services per conception (SCR). Along the same lines crossbreeding has gained some favor among producers. It is well known that the beef crossbred cows tend to be more fertile than a straightbred. There is now data indicating the same in dairy cattle. Also, the use of estrus synchronization has allowed producers to get more cows pregnant and subsequently start to put some selection pressure on fertility within their herds.

The increase in the number of pregnant cows leads to the opportunity to do more voluntary culling and/or selling of excess breeding stock. There are several ways to economically evaluate better reproduction. An increase in days open can be valued at between \$0.50-4.50 per day, a pregnant cow is worth \$250 to 600 more than an open cow, or each % point increase in PR is equal to roughly \$35 per cow. This last estimate is the basis for the reproductive calculator that is included with this booklet.

Unfortunately, no one is going to give you a bonus check for being successful in getting cows pregnant. However, with time and patience, the increase in the number of pregnant cows will allow the producer to voluntarily get rid of low producers, chronic problem cows, high somatic cell count cows, and poor fertility animals. Likewise, producers that are attaining success with their reproductive programs are now able to merchandise excess bred heifers, which is a great addition to the cash flow of the farm.