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REPRODUCTIVE MONITORING

Why do we monitor reproduction?

1. Find when something about reproduction is broken
2. Evaluate the effectiveness of management changes.

If a cow that is being bred gets pregnant, whatever is being used to monitor reproduction should show an improvement. If she does not get pregnant, the monitor method should show a decrease.

Many feel that average days open (Avg DOPN) is a good monitoring tool. Certainly, most breeding programs are designed to have a short Avg DOPN. To start with it is important that all agree that Avg DOPN is calculated by subtracting the fresh date from the conception date. If a cow doesn't have a conception date, she is not included in the Avg DOPN calculation. (The logic behind this is if you wanted to know the average age of kids starting kindergarten, one would only include the kids that go to school. If you wanted to know the average life span of people in a community, you'd go to the cemetery to get your data. You don't get data from those who haven't met the end date - starting school or dying.)

Consider a three cow dairy.

Cow 1 - is pregnant to a breeding at 90 DIM and is milking 200 days.
Cow 2 - is pregnant to a breeding at 110 DIM and is milking 200 days.
Cow 3 - is open to a breeding at 130 DIM and is milking 200 days.

What is the average DOPN? It is 100 (90 + 110 = 200 /2 =100).

If cow 3 is now found pregnant to a breeding at 160 DIM, what is the new Avg DOPN? It is 120 (90 + 110 + 160 = 360 /3 = 120). Avg DOPN has gotten worse but the last cow got pregnant - which is good.

Now look at the same scenario using pregnancy rate. To start, pregnancy rate is calculated by dividing the number of pregnant cows by the number of eligible heat cycles. For this discussion the voluntary waiting period (VWP) will be 50 DIM. Thus, if we are looking at one cow and she gets pregnant to a 90 day breeding (cycle number 2 as shown in the chart below), her pregnancy rate is 50% (1 pregnancy / 2 cycles).

|---1---|---2---|---3---|---4---|---5---|---6---|
50 71 92 113 134 155 176 DIM

So, starting with the same 3 cow dairy:

Cow 1 - is pregnant to a breeding at 90 DIM and is milking 200 days.
Cow 2 - is pregnant to a breeding at 110 DIM and is milking 200 days.
Cow 3 - is open to a breeding at 130 DIM and is milking 200 days.

|---1---|---2---|---3---|---4---|---5---|---6---|
50 71 92 113 134 155 176 DIM

To calculate the pregnancy rate:

Cow 1 - is pregnant to a breeding at 90 DIM, or 2 cycles.
Cow 2 - is pregnant to a breeding at 110 DIM, or 3 cycles.
Cow 3 - is open to a breeding at 130 DIM, or 4 cycles.

There currently are 2 pregnancies / 9 cycles which equals a 22% pregnancy rate

If cow 3 is declared pregnant to a breeding at 160 DIM

Cow 1 - is pregnant to a breeding at 90 DIM, or 2 cycles.
Cow 2 - is pregnant to a breeding at 110 DIM, or 3 cycles.
Cow 3 - is pregnant to a breeding at 160 DIM, or 6 cycles

Now there are 3 pregnancies / 11 cycles for a 27% pregnancy rate. This monitor method shows an improvement when the desired cow got pregnant. Average DOPN indicated the breeding was getting worse.

It is also very important to remember the economics of reproduction and what it means to a dairy. In most cases, we find that the day the average cow gets pregnant, her value increases by about $300. This "pregnancy value" increases as the calf gets bigger so that on average, when the cow freshens it is equal to the cost of replacing a cull cow (replacement cost minus cull beef cost) or about $1000. Many have asked, "What is the value of increasing a pregnancy rate by one percent?" There are many ways to look at this but here is one simple approach.

If a 1000 cow dairy has a 15% pregnancy rate, it could normally have somewhere between 25% to 30% eligible to be pregnant during any given 21-day cycle. If we say that averages 300 cows, 15% or 45 will get pregnant during each cycle. If the rate goes up 1% then that will be three extra cows per cycle. Assuming 17 21-day cycles in a year, that is 3 x 17 or 51 extra pregnancies. This multiplied by $300 (minimum average pregnancy value) is over $15,000 or about $15 per cow per year for each 1% increase in pregnancy rates. Therefore, one could spend quite a bit of money on reproduction as long as the benefits of increased pregnancy rates followed.

There are many variables in this scenario. First, the lower the pregnancy rate, the higher the pregnancy value of the next cow that gets pregnant.

> Generally, the more of any "thing" one has, the less valuable each increment of that "thing" is. This applies to pregnancies also.

A dairy that is having breeding difficulties will pay a lot to get the next cow pregnant while one that has a good breeding program will justifiably look with suspicion at spending more money for improvement. The value of getting the next cow pregnant will vary from almost $800/ pregnancy in a poor breeding herd (5% pregnancy rates) to about $200/ pregnancy in an excellent breeding herd (35% pregnancy rates).

The second factor is that the increase of 1% represents a different percentage increase depending on where the breeding performance starts. If one has a 10% pregnancy rate, increasing it 1% to 11% will produce 10% more pregnant cows. If one starts with a 20% pregnancy rate, going to 21% will produce only 5% more pregnant cows.

A third variable that goes along with this is that the lower the herd pregnancy rate, the higher the percent of the herd (and therefore the actual number of cows) that are eligible to get pregnant. As the pregnancy rates increase, there are less additional cows that will get pregnant for each 1% improvement. This last variable has only a finite affect on the value of changing pregnancy rates. There quickly comes a point when the faster cows get pregnant, the faster they will calve again and become eligible to breed the next time.

In summary it can be shown that the cost of good reproduction can almost never be too much. Obviously, spending a lot of money with poor success is bad. Not spending money and having poor breeding is not much better. The profits of a good breeding program (as defined by a high pregnancy rate) are well worth all reasonable expenses.

If you would like more information about herd records services, contact the Dairy One main office in Ithaca, New York (1.800.496.3344 or e-mail: dmr@dairyone.com).

Also visit Dairy One's web site to keep up with the latest developments at www.dairyone.com