No Risk Pregnancy Risk

Pregnancy Risk, (PR) (also referred to as pregnancy rate) represents a major innovation in measuring and managing dairy herd reproductive efficiency. In a nutshell, PR is the percentage of animals that became pregnant of those that were eligible to become pregnant with in a 21 day period.

PR = Number eligible to become pregnant/number that became pregnant * 100

The Pregnancy Risk calculation can vary substantially by source. We recommend that you use the PR that you can get from your Dairy One Technician through their Dairy Comp 305 field technician program, or your own Scout or Dairy Comp 305 program, to measure your herd's reproductive performance.

Before "PR" we relied on measures like "Days Open", "Days to First Breeding", "Services per Conception" and "Calving Interval". Even after looking at all of these different measures we still were not able to tell how we were doing at getting animals pregnant, or even determine if the breeding program is getting better or worse. Most of the traditional numbers indicated you were doing worse right after you fixed a problem and began getting animals bred and pregnant.

The industry has rapidly made the transition to using PR and it has become available from several different sources. The three most common sources for PR are Dairy Comp 305, the DRMS Herd Summary report and PC DART.

We compared the PR from four different calculations on ten large dairies to help us understand how much the values can vary between sources. We intentionally selected large dairies that we know had good reproductive records so that our results would be significant.

Four Different Sources of Pregnancy Risk Estimation, Four Different Estimates

10 Different Herds, Each with Greater than 200 Cows
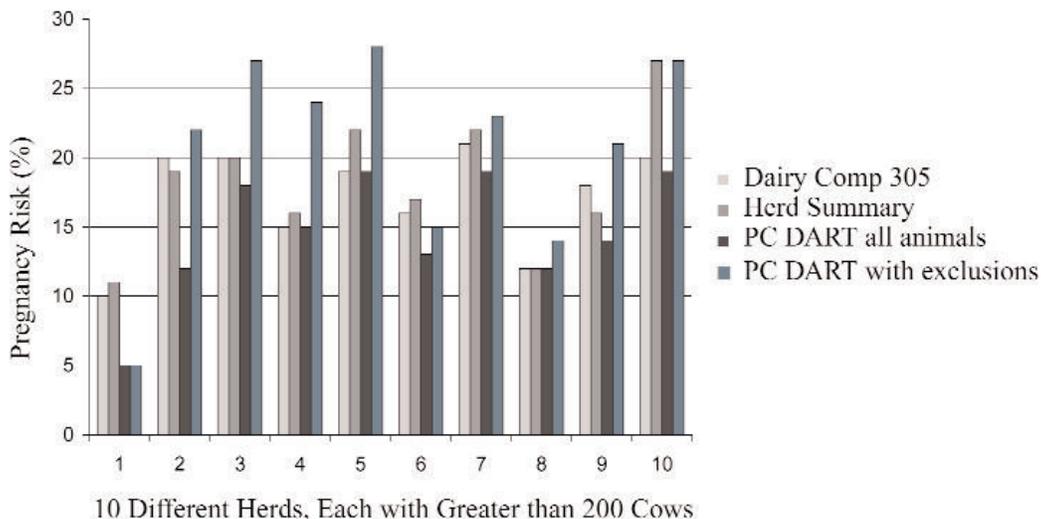
There are many subtle reasons PR varies by source, but the big reason is the number of animals considered eligible or "at risk" of becoming pregnant.

Animals eligible to become pregnant meet at least these four criteria.
1. They are past their voluntary wait period.
2. They are not already pregnant.
3. They are not yet determined "Not to Breed" or "Do not Breed" (DNB).
4. For AI breeding analysis, they are not yet in a bull pen (although for this comparison we left bull pen animals in the Dairy Comp calculation).

Because of constraints in the various records systems, the only source from our comparison above that can handle each of these circumstances correctly is Dairy Comp 305. The biggest reason is that Dairy Comp and Scout keep dates for when animals were put with a bull, or were determined "do not breed" (DNB) cows. Those dates allow the software to consider an animal eligible to become pregnant up until the day she is put in a bull pen or made a DNB and then have her become ineligible.

For PC DART to remove a DNB animal or a bull pen animal from the eligible group, we must remove her as eligible for her entire lactation. Also in order to remove natural service animals from the calculation it will also remove animals that have never had a service, because it can not tell which animals are with a bull. Only Dairy Comp 305 and Scout can evaluate the effectiveness of bull pens because it can consider animals' breeding performance past the date they moved to the bull pen, while also holding their earlier reproductive performance against the AI program.

You can see from the graph of example herds that these subtle differences can make a big difference. One other difference that should be pointed out is that the PR from Dairy Comp 305 is based on the last 12 months to consider all seasons, and PCDART is based on the last 9 months.

Pregnancy Risk is clearly the best way to summarize and monitor herd reproduction. However, depending on the characteristics of your herd, PR can vary widely among sources. Based on the way it determines eligible animals, we recommend using the Dairy Comp 305 or Scout value, which can also be calculated for you by your Dairy One technician.

Dairy Comp 305 **Pregnancy Risk** (BREDSUM\E)								
Date	Br Elig	Bred	Pct	Pg Elig	Preg	Pct	Aborts	
2/09/04	100	28	28	98	18	18	1	
3/01/04	**81**	**34**	**42**	**78**	**14**	**18**	**1**	
3/22/04	77	23	30	76	12	16	2	
Middle periods excluded to save space								
11/08/04	81	37	46	81	18	22	0	
11/29/04	75	27	36	74	9	12	0	
12/20/04	70	19	27	61	2	3	0	
1/10/05	78	26	33	0	0	0	0	?? Preg Stat
1/31/05	53	25	47	0	0	0	0	?? Preg Stat
Total	1159	454	39	1128	187	17	6	

Typical Pregnancy Risk in the Northeast is about 14%, Good is over 17%, the best are over 20%.

Above is a sample of a Dairy Comp 305 Pregnancy Risk report.
The last year is divided into 21 day periods.

Eligible animals (Br Elig) are those past their voluntary wait period, who are not already pregnant, and not yet declared "Do Not Breed".

Look at the second period on the above report.
· 81 animals are eligible to be bred in the 21 day period beginning 3/1/04
· 34 were bred That makes the heat detection, (or service rate) 34 / 81 = 42%
· 14 animals conceived in the period

Notice that only 78 of the animals are considered eligible for the Pregnancy Risk calculations. That means that three animals were bred in the period, but left the herd before we learned the result of the breeding they received in the period so we eliminate them from the calculation.

$$14 / 78 = 18\% \text{ pregnancy risk for that period}$$

If you add up all of the columns you have the total number of eligible cycles, breedings, pregnancies and can repeat the calculation (using the eligible column for pregnancy) or 187 / 1128 = 17%. The calculation is not made for the last two periods since it is too soon to have animals diagnosed pregnant.

The aborts column shows the number of pregnancies from any given period that were lost.

Pregnancy Risk vs. Conception Rate
Do not confuse Pregnancy Risk with Conception Rate (people often do). If you had 100 animals eligible for pregnancy in a 21 period and bred 40 of them, and 10 became pregnant that would result in a 10/40 = 25% conception rate, but a 10/100 = 10% Pregnancy Risk.

Summary
PR, commonly known as Pregnancy Risk or Pregnancy Rate, is the best way to evaluate a herd's reproductive efficiency. The industry's rapid adoption of PR has given rise to it being calculated by several sources. The different sources and methods of calculation can result in substantially different results – primarily because of which animals are considered eligible to be pregnant but also because of different spans of time being considered. Because of these wide variations, and Dairy Comp 305 and Scout's ability to handle DNB and Bull pen animals smartly, we recommend the calculation from those two softwares as the preferred method of evaluating a herd's PR.