Réseau laitier canadien
Canadian Dairy Network

Is Cow Fertility Important to YOU?

One might say that an animal's reproductive ability is the most important component of dairy herd management. Unless a cow can become pregnant and produce a calf, it will not normally start producing milk and once her productive life begins, it requires regular cycles of conception and calving to initiate each subsequent lactation. In addition, without the production of calves, which is the desired end result of each successful reproductive cycle, the herd would have to rely on outside sources of replacement heifers. So how important is the fertility of the heifers and cows in your herd?

It is very well known that reproductive performance is dependant upon many variables. Some of the most obvious include nutrition, health, heat detection, insemination technique, semen quality and genetics. From the perspective of Canadian Dairy Network, this last factor, namely the genetic potential of each cow and their sire, is of primary interest. While Canada has world-class genetic evaluation systems for other traits such as production, type and longevity, the capabilities have been lacking to allow for a national genetic evaluation system for fertility traits … at least until now!

A few years ago, Canadian Dairy Network led industry partners in the establishment of a national database to store breeding data for all dairy breeds in Canada. Nowadays, all inseminations performed by A.I. technicians employed by CIAQ, Eastern Breeders Inc, Gencor and Westgen are forwarded electronically to CDN on a regular basis, which are accumulated in the national database. In addition, all breeding data collected by milk recording agencies are also sent to CDN for processing. These include inseminations performed by A.I. technicians or the herd owner as well as natural services performed by herd sires. The problem, however, is that many producers enrolled on milk recording are currently not providing their breeding data to their DHI technician for recording. This process for data collection is especially important for herd owners that inseminate their cows themselves.

Given the accumulation of insemination data since 1998, the CDN database surpasses several million breeding records. Combining this data with calving dates from lactation records and the associated appraisals for calving ease, including calf survival, is the foundation for a new genetic evaluation system for reproductive performance traits that is being jointly developed by geneticists at CDN and the University of Guelph.

The first phase of this important project is expected to yield bull proofs for four measures of daughter fertility as early as August 2004. These measures include the age of a bull's daughters when they are first inseminated as a heifer, the fertility of those daughters as heifers, the interval between the daughters first calving and the subsequent first insemination and, finally, the fertility of those daughters in first lactation. Preliminary results show that the age at first insemination of a bull's daughter is the most heritable measure of daughter fertility. Since conception rates for heifers and cows are known to be distinct traits, it is important to have a genetic measure of each

bull for both traits as well as the interval between first calving and first insemination since this can be highly affected by management factors that differ from herd to herd. In August 2004, the goal will be to provide Canadian producers with a genetic evaluation of A.I. sires for the fertility of their daughters based on a combination of these four measures across heifers and cows.

So, how valuable do you feel bull proofs representing the fertility of their daughters would be to you for sire selection and herd management? Assuming that cow fertility is important in your herd, one would deduct that such genetic evaluations would be very useful. If so, it is important that producers become more conscience about ensuring that their breeding data is recorded, either through their A.I. technician if the service is provided by a Semex Alliance partner organization, or directly recorded by their DHI technician. It should also be noted that providing breeding data to the DHI representative is very useful groundwork for herds using the DHI service for subsequently submitting electronic calf registrations to the breed association.

Phase two of this comprehensive research project is the development of a complete genetic evaluation system that provides bull proofs and cow indexes for many traits related to reproductive performance. The concept underlying this state-of-the-art system is that a dairy cow goes through several cycles of breeding, pregnancy and calving throughout her life starting from a virgin heifer to a mature cow with many lactations. While each trait related to fertility (ie: age at first service for heifers, interval between calving and first service for cows as well as conception and/or non-return rates after first service), to pregnancy (ie: abortion rate and gestation length) and to calving (ie: ease of calving and calf survival) is unique in itself, considering all genetic relationships across these traits provides a more accurate portrait of the reproductive performance of each cow and therefore of the sires within each breed. Although the implementation of phase one is scheduled for next year, no specific time frame has currently been established for completing phase two. As stated earlier, for such a complex genetic evaluation system to work well, it is important that as many dairy herds across the country provide complete breeding, insemination and calving ease data as possible to the DHI technicians who visit over 13,000 milk-recorded herds annually.

Therefore, if cow fertility is important to you, then be active in providing the most accurate and complete data for both breeding and calving ease to your DHI representative. All inseminations performed by CIAQ, EBI, Gencor or Westgen technicians are already automatically forwarded to the national database at CDN but all other breeding and insemination records need to be collected by DHI staff. Genetic evaluations for cow fertility and other reproductive traits are currently under development so provision of this data by herd owners across Canada is key to accurate bull proofs and cow indexes for these traits in the future.