

Improving Fertility and Increasing Conception Rates

The dictionary defines fertility as "the state of being fertile, especially the ability to produce young." Conception is "the actual formation of a viable zygote by the union of the male sperm and female ovum." Together, they result in replacement animals and milk production - both of which affect on-farm profitability. To improve fertility and increase conception rates, consider Daughter Pregnancy Rate (DPR) and Estimated Relative Conception Rate (ERCR) respectively. Though they are *very* different from each other, both can positively affect reproductive programs if used correctly.

DPR

Definition: DPR measures the **fertility of a sire's daughters**. It is the ability of daughters of a particular sire to become pregnant relative to a herd's 21-day pregnancy rate. It is expressed as a percent, and each +1 percent DPR equals four fewer days open. Conversely, each -1 percent equals four more days open, relative to the herd average.

â?° Example: 1HO5045 LYNCH has a +1.9 DPR. If your herd's 21-day pregnancy rate is 20 percent, your LYNCH daughters would be expected to have an average 21-day pregnancy rate of 21.9 percent. Likewise, if your herd averages 153 days open, you can expect your LYNCH daughters to average 145 days open and have a week shorten calving interval. Also, this trait (whether positive or negative) is inherited from generation to generation.

Top Five Genex Holstein sires by DPR with LNM\$				
Sire	DPR	Rel.	LNM\$	Rel.
1HO6360 WIZARD	2.9	94	\$410	96
1HO5491 NATION	2.1	92	\$349	94
1HO5627 COMPLETE	2.0	70	\$450	85
1HO5518 HERCULES	2.0	85	\$427	91
1HO5045 LYNCH	1.9	99	\$463	99

â?° Strategic Use of DPR: At four percent, DPR has a relatively low heritability level. However, the importance of DPR to improve fertility over the *long term* has been stressed by an increase in the percent weighting within the new 2006 Lifetime Net Merit \$ (LNM\$) index. DPR now makes up nine percent of the index.

It is recommended to incorporate DPR into your sire selection criteria by selecting sires according to LNM\$. The index formula provides proper balance by recognizing the influence of improved fertility without overemphasis and sacrificing improvement in other areas. Through LNM\$, you can select or the complete cow that performs well in all areas.

ERCR

â?° Definition: ERCR measures a **sire's ability to make pregnancies**. It is the difference in conception rate of a sire compared to other A.I. sires used in the same herd. Each positive ERCR point indicates expected conception rate for that sire to be one percent higher compared to "average" service sires used in the same herd. Conversely, each negative ERCR point indicates expected conception rate for that sire to be one percent lower than "average" service sires used in the same herd.

Example: 1HO6833 TRES has an ERCR of +3. Therefore, if the average conception rate of the average A.I. service sire used in your herd is 20 percent, then you would expect the average conception rate for TRES to be 23 percent within your herd.

Strategic Use of ERCR: The benefit of a positive ERCR is recognized in the *short term*. While the use of positive ERCR sires can improve the probability of a bull to produce a pregnancy when a cow is bred, it has basically no genetic component (less than one percent) to increase fertility in future generations.

Top Five Genex Holstein sires by ERCR with LNM\$				
Sire	ERCR	Rel.	LNM\$	Rel.
1HO7235 TOYSTORY	+4	91	\$436	81
1HO6738 DON	+4	92	\$345	82
1HO6783 TRES	+3	95	\$514	85
1HO5551 JUST	+3	95	\$340	92
1HO5433 COSMO	+3	98	\$323	94

Primary selection emphasis for A.I. service sires should focus on bulls with high LNM\$ to increase overall profitability. ERCR should be used as a secondary selection tool when choosing sires to incorporate into a breeding program. Choosing high LNM\$ sires with positive ERCRs will help increase conception rates while still breeding for the complete cow that performs well in all areas.

DPR is a science-based evaluation that can provide increased reproductive efficiency in succeeding generations. ERCR is anecdotally evidenced. It can be used as a management tool to increase pregnancies, but has only a small bearing on future generation's fertility.