

Mastitis Impacts Reproductive Performance

Recent studies confirm that preventing mastitis in early lactation animals improves reproductive efficiency. Beyond the udder health benefits, there are dramatic improvements in days to first service, days to conception, and services per conception in cows that are infection-free at first service compared to those herd mates infected near first service.

Three recent studies by Frago (2004), Shrick (2001), and Kelton (2001) examine the correlation between clinical mastitis cases and a decrease in reproductive performance (Table 1).

By calculating the effect on pregnancy value as is done in table 2, it is easy to see that the economic value of good udder health extends beyond that of quality milk and milk production.

So why does mastitis affect reproduction? Although not well understood, studies have shown that there are many possibilities. Moore (1991) revealed a negative correlation between clinical mastitis caused by Gram-negative mastitis pathogens and reproduction due to altered interestrus intervals and decreased luteal phase length. Cullor (1990) suggested that endotoxin might induce luteolysis and influence conception and early embryonic survival by release of inflammatory mediators. Moore and O'Connor (1993) hypothesized that Gram-negative mastitis pathogens may stimulate production of prostaglandin F2a, which subsequently would cause luteal regression. Oliver summarized at the 2000 NMC regional meeting that the reduced reproductive performance may be associated with variation in hormonal patterns, follicular development, embryonic development, and/or uterine environment. At the 2001 NMC annual meeting, University of Guelph researchers presented data that showed cows experiencing a case of clinical mastitis within 30 days after breeding had a 31% conception rate compared to a 47% conception rate for cows that were uninfected during the same time frame.

Good management practices can help avoid the negative mastitis/reproduction effect. Focus is important on close-up heifers, dry cows, close-up cows, fresh cows and early lactation cows. Maintaining clean, dry, comfortable maternity pens and loafing areas are crucial as many of the early lactation infections occur in the periparturient period, three weeks pre and post calving. Good milking hygiene, dry treatments with use of approved udder health products as well as machine maintenance all play a role in mastitis prevention. Good nutrition is also key, as nutrition programs that utilize well balanced rations are important in preventing mastitis by keeping the immune system healthy and help to prevent metabolic disease.

For more information on mastitis prevention talk with your veterinarian or visit the NMC website at www.nmconline.org.

To learn more about the ABS quality udder care products talk with your ABS Representative or see our website at www.absglobal.com.

Study	Parameter	Mastitis	Uninfected
Kelton, et. al. 2001*	Conception Rate†	38%	46%
Shrick, et. al., 2001**	Days to First Service	77.3 ± 2.7	67.8 ± 2.2
	Days Open	110 ± 6.9	85.4 ± 5.8
	Services per Conception	2.1 ± 0.2	1.6 ± 0.2
	Conception Rate†	48%	63%
Frago, et. al. 2004***	Days Open	107 ± 5	88 ± 2
	Services per Conception	2.1 ± 0.1	1.6 ± 0.1
	Conception Rate†	48%	63%

*Based on clinical mastitis event within 30 days post insemination

**Based on clinical mastitis before first service

***Based on clinical mastitis cases

†Conception Rate = Pregnancies/Services (Inverse of Services/Conception from trial data)

	Dollar Value Loss*	Conception Rate Diff.
Kelton, et. al.	\$28	8%
Frago, et. al./Shrick, et. al.	\$52.50	15%

*Assuming a pregnancy value of \$350.00. The dollar loss is the conception rate difference between infected and non-infected animals multiplied by the pregnancy value.

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