

Timing of Insemination

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We can use the following information to facilitate our AI program.

- 1) The length of standing heat is variable, averages 8-9 hours, and is considerably shorter in some situations.
- 2) Ovulation (release of the ovum/egg) does not occur until 24 to 32 hours after the start of standing heat ... the average is 28 hours.
- 3) The egg has a fertile life of less than 12 hours after it is released from the ova.
- 4) Sperm live for an average of 24 hours after they are deposited in the cow's reproductive tract.
- 5) The first 6 hours sperm are inside the cow they undergo a biochemical change called capacitation. Capacitation is necessary for sperm to be able to fertilize the egg.
- 6) The goal is to time insemination so there are many live capacitated sperm cells in the oviducts to greet the egg at the time of ovulation.

While these average figures vary between animals and from one heat cycle to the next, they are a valuable guide to determine the best time to breed.

The time-tested rule for when to breed is the a.m./p.m. -p.m./a.m. rule:

- 1) A cow observed in standing heat in the morning should be bred the afternoon of the same day.
- 2) A cow observed in standing heat in the afternoon or evening should be bred the following morning.

The a.m./p.m.-p.m./a.m. rule is the industry standard, but it is interesting that acceptable fertility has been achieved when insemination is scheduled only one time each day as long as it is the same time every day. In one study with over 7,000 inseminations the 75 day nonreturn rate was similar for a.m./p.m. and once a day inseminations. Cows bred extremely late will have lower conception rates. The take home message is if we are inseminating our own cows, the a.m./p.m.-p.m./a.m. rule is the rule we should use. That said, if breeding twice a day results in logistical issues, then we can breed once each day and not lose a lot of sleep over that management practice. The once a day plan that works well for

many dairy farmers is to inseminate in the mid-morning and inseminate all cows which have been seen in standing heat since the mid-morning insemination the previous day.