CARING FOR THE
FACES & SPACES
OF WISCONSIN

Do We Still Need the AM-PM Rule?

By Ryan Sterry

For over a half century dairy producers have been indoctrinated in the use of the AM-PM rule for AI of dairy cattle. Basically, the AM-PM rule dictates that a cow should receive AI 12 hours after being observed in estrus. If a cow is seen in estrus in the AM she should receive AI that PM, and conversely cows seen in estrus in the PM should receive AI the following morning.

So how did the AM-PM rule come about? Research in the 1940's by George Trimberger at Nebraska demonstrated that conception rates were greatest when cows were inseminated between the middle and the end of estrus, but were still acceptable between 6 to 12 hours after estrus. Cows bred immediately at the beginning of estrus had slightly lower conception rates, thus the recommendation to wait came about. At that point in history, AI in cattle was still in it's infancy, and these findings gave producers the first recommendation on when to AI cattle.

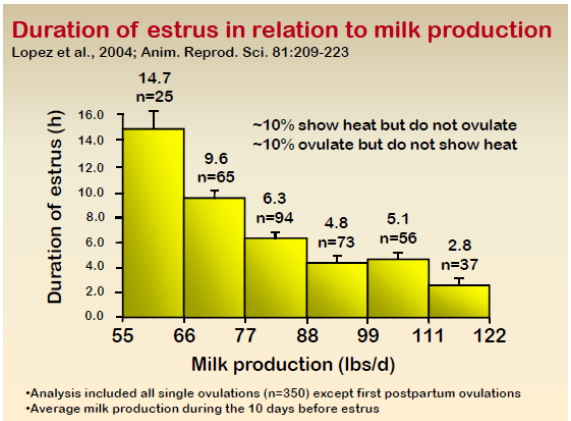
Strictly adhering to the AM-PM rule requires twice daily AI. In recent years, though, studies have indicated that once daily AI can result in the same fertility as twice daily AI.
Nebel et al., 1994. J. Dairy Sci. 77:3185-3191

Treatment	# of Cows	75 d Non-return Rate %
AM/PM rule	3659	60.1
Once Daily AI	3581	60.6

Why the discrepancy? There are a couple possible reasons. First, the experiments by Trimberger did not include the number of cows that is expected by today's standards to draw conclusions. Observations using the HeatWatch System at Virginia Tech do verify much of the early findings though. In their experiment, conception rates were greatest from 4 to 12 hours after the onset of estrus. Cows bred from 0 to 4 hours after the onset of estrus did have lower conception rates.
Dransfield et al., 1998. J. Dairy Sci. 81:1874-82.

Hours onset estrus to AI	Number of Breedings	Conception Rate %
0-4	327	43.1
4-8	735	50.9
8-12	677	51.1
12-16	459	46.2
16-20	317	28.1
20-24	139	31.7
24-26	7	14.3

Secondly, our modern high producing dairy cow exhibits estrous behavior for a shorter time than her ancestors. Work at UW-Madison shows that duration of estrus declines with increasing milk production.



So what is the take home message? Today's high producing dairy cow is more difficult to observe in estrus. If we knew exactly when she first exhibited estrus, there would be some benefit to the AM-PM rule and twice daily AI. But the reality on most farms is that we don't know when a cow first exhibited estrus. There is more risk in breeding a cow too late than too early with the AM-PM rule, which is why once daily AI have proven to be equally successful.

For more information, please contact:

Ryan Sterry
UW-Extension Polk County
Agriculture Agent
(715) 485-8600
ryan.sterry@ces.uwex.edu