Heat Detection - Influence of Herdmates

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Researchers at the University of Kentucky have taken a detailed look at heat detection. For three years we had dairy cows under 24 hours surveillance from the time they calved until they were pregnant again, using time lapse video recordings. One interesting part of this research has been studying the influence of a cow's reproductive status on how she will interact with a cow in heat.

It is common knowledge more interaction occurs if two cows are in heat at the same time. We wanted to know how much more interaction? We also wanted the answers to other questions. What is the chance a pregnant cow will interact with a cow in heat? Does the stage of the estrous cycle influence the chance a cow will interact with a cow in heat? This research did yield some answers, and the results are summarized in the table.

Influence of stage of estrous cycle on the percent chance a herdmate will mount a cow in heat.

Herdmate's Stage of Cycle Number of Observations % Chance the Herdmate Will Mount a Cow in Heat

Herdmate's Stage of Cycle	Number of Observations	% Chance the Herdmate Will Mount a Cow in Heat
Herdmates with ovarian cycles but not seen in standing heat		
Estrous Cycle Day[a]		
-1 to 1	34	32
2 to 10	58	13
11 to 19	62	16
Herdmates which have been seen in heat		
Estrous Cycle Day[a]		
-1 to 1	91	62
2 to 10	82	25
11 to 19	68	5
Pregnant Herdmates	101	12

Day[a] of standing heat or lowest milk progesterone is day zero.

The herdmate's reproductive status does influence the chance she will interact with a

cow in heat. If a cow is in standing heat or was in heat yesterday or will be in heat tomorrow, she is the most likely herdmate (62% chance) to mount a cow in standing heat. If a cow is cycling but has not had a standing heat since calving and her ovarian cycle is in the same stage as cow in heat ± one day, she is the second most likely herdmate (32% chance) to mount a cow in standing heat. A cow who is in the first half of her estrous cycle (days 2 to 10) is more likely to mount a cow in heat than a cow who is in the second half of her cycle (days 11-19, 25 vs. 5% chance). Pregnant cows and cows which have not been seen in heat since calving and are on ovarian cycle days 2 through 19 are not very interested in mounting a herdmate in heat.

These results show the percentage of cows detected in heat is influenced by the varying percentage of herdmates who are near or in heat, pregnant, in the first half of their cycle, in the last half of their cycle, in postpartum anestrus, etc. The number of herdmates or "groupmates" in these reproductive states is influenced by herd size, number of groups per herd and seasonal breeding. Heat detection should always receive high priority. The practical implication is if groups/herds are small or a small percentage of the group is "sexually active", heat detection becomes an even more difficult job and deserves increased attention by management.

Another extremely practical application of this information relates to artificial insemination of heifers. If you are breeding a group of 10 to 15 heifers, it usually is not a problem to get all but two or three "stragglers" pregnant. With a high percent of the group pregnant, the chance you will catch the remaining heifers in heat decreases. One must realize that over time the effort devoted to heat detection with the same group of heifers must increase not decrease. A helpful management practice is to place the two or three open heifers with a younger group of non-pregnant cycling heifers.

Synchronizing estrus is a good way to get heifers and cows to come in heat at about the same time. Many synchronization methods are available.

Utilizing an androgenized animal involves having an animal in the herd which has been given male hormones. This animal is always interested in interacting with cows in heat which improves the chance of catching a cow in heat. This technique has worked well in many herds.