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The key to any successful artificial insemination program is doing an adequate job of detecting cows in heat. Not only is heat detection difficult for the inexperienced person, it requires considerable time and labor.

There are devices available on the market which are designed to reduce labor requirements associated with heat detection. One of these devices is the heat-mount detector called KaMar® (KaMar Inc., Steamboat Springs, Colorado).

The purpose of this study was to compare the KaMar patch to a person experienced in detecting yearling heifers in heat.

Materials and Methods

Sixty black bald-faced yearling heifers were used in this 60-day study (April-May, 1971). They were fed to gain approximately 1.5 lb. per day and were of sufficient age to have reached puberty.

KaMar patches were placed (by use of adhesive) anterior to the tail head and just posterior to the hip bones. The pressure applied by an animal mounting a heifer in standing heat would be expected to burst a dye-containing bubble inside the detector. The bursting of this bubble would release the dye and the patch would turn a bright red color. KaMar patches were replaced within one week following activation with a fresh heat-mount detector. Heifers were checked twice daily (morning and afternoon) for positive heat-mount detectors.

One person experienced in heat detection was employed to observe the heifers twice daily for visual expressions of heat. He was inst ucted to ignore the heat-mount detectors on each heifer. Heifers were recorded in heat on the basis of behavior patterns alone.

Results and Discussion

Presented in table 1 is a summary of the results. A total of 116 and 126 heat periods were detected within the two-month period by KaMar and visual observation, respectively. This is an average of 1.9 to 2.1 heat periods per heifer. These data indicate that the heifers had reached puberty and were cycling normally. Only 7 heifers failed to show at least one heat period during the study.

Assuming that any estrous cycle length of 17 to 24 days is normal, any heat detected within 17 to 24 days before or after a second detection was considered an accurate detection. If this assumption is made, 16 false detections (13.8% of total) were made using the KaMar detectors as compared to only 2 false detections (1.6% of the total) by visual observation. There were 11 valid heats detected

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by KaMar but missed visually, while there were 40 valid heats detected visually but missed by KaMar patches. These data suggest that some heat-mount detectors failed to react positively even though mounting by other animals did occur. It also suggests that some heat-mount detectors are accidentally activated.

Some problems encountered with the KaMar heat detectors were (1) losing the detector before showing positive heat (6 heifers) and (2) failing to react when mounting occurred. During this study, 13 heifers were seen standing for as many as 4 mounts without the indicator reacting.

Summary

These data suggest that KaMar heat-mount detectors are not superior to visual observation for heat detection in yearling heifers. Fewer false detections were made by visual observation than by heat-mount detectors (1.6% and 13.8%, respectively) and fewer heat periods were missed by visual observation (11) than heat-mount detectors (40). It is recommended that heat-mount detectors not be used as the sole indicator of heat detection.

Table 1. Comparison of Visual Observation and KaMar Heat Detectors for Determining Heat in a Herd of Crossbred Heifers

Basis of comparison	Means of detecting heat	
	Visual	KaMar
Heats detected	126	116
Abnormal estrous cycles[a]	2	6
Lost patches	--	6
Heifers seen mounted without rupture of detector	--	13
Heats detected by KaMar patches but missed visually	--	11
Heats detected visually but missed by KaMar patches	40	--

[a]Abnormal cycles were considered as any estrous cycle less than 17 days or greater than 24 days in length.