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# Heat Tapes—An Aid in Heat Detection

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## Story in Brief

The use of artificial insemination continues to increase in both dairy and beef herds. It is estimated that approximately 30 percent of our dairy cattle and 2 percent of our beef cattle in Oklahoma were artfficially inseminated in 1971. It is expected that we will see increasing use of this beneficial technique in the next few years.

An ever-present problem facing those wishing to use artificial insemination is having a satisfactory heat detection program. One of the major factors involved is lack of time, especially in busy seasons, to spend with the herd looking for cows in heat. Another factor is that some cows have either low-intensity heats or short heats which makes it harder to observe when these animals are in heat. Heat detector tapes are available which are supposed to aid in detecting a higher percentage of cows in heat than can be detected visually. The intent of this research was to compare the efficiency of heat detection by visual observation only with that possible with visual observation plus heat tapes.

Heat tapes aided heat detection significantly. Visual observation detected 87 percent of the possible heats while visual observation plus heat tapes detected 96 percent of the possible heats.

## Introduction

As our dairy farms become larger, good labor harder to secure and our management requirements more complex, many dairy men are having less time to devote to the job of getting a high percentage of the herd safely with calf in the desired period of time. There is little doubt that artificial insemination allows many dairymen access to bulls they could not afford to own. However, if the net result is longer calving intervals and fewer cows delivering calves, then the advantages of artificial insemination are of little real value. It has been recommended that heat checks should be made twice daily. However, research results indicate that with twice daily observation, about 20 percent of the heats will be missed. Increased frequency of observation (3 to 4 times daily) typically reduces

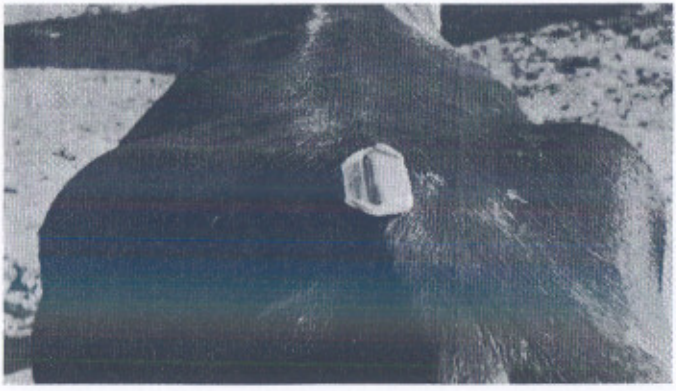

**Figure 1. Heat tape properly placed on the cow.**

the number of missed heats to less than 10 percent. However, competition for the dairyman's time does not allow this to be a widely used solution. In fact, regular, twice daily observation is difficult for some to achieve.

In Michigan, the percentage of dairy cattle bred by artifical insemination is steadily declining as dairymen turn back to using bulls. The main reason for this is that they do not have the time to devote to an adequate heat detection program.

One of the aids currently advertised as helping achieve a high percentage of detected heats is the KAMAR heat tapes. This red-ink-filled capsule device is glued just in front of the tail-head of the cow. When the cow stands to be ridden by another animal, the capsule breaks and stains the patch a bright red. This research explored the problems in using these tapes and compared the efficiency of heat detection by visual observation only with that attained by visual detection aided by heat tapes.

## Materials and Methods

Ninety-four normal cows and heifers in the Oklahoma State University dairy herd were paired by breed and stage of lactation. At 45 to 50 days after calving, a heat tape was fixed to one member of each pair of animals. All animals were maintained in their respective milking groups. Checks for visual heat signs were conducted 2 to 3 times daily on all animals. In addition, those cows with tapes were checked to see if the cow had accepted a ride in between the visual heat checks. Cows observed in heat (by either or both methods) were bred in the evening if observed in the morning and in the following morning if observed in the evening.

The efficiency of heat detection was determined by computing the percentage of the possible heats that were actually detected in a period of time. For example, if 10 cows were started on the study on a given date, all 10 cows (if they are normal) should cycle within 24 days.

## Results and Discussion

The results of this study are summarized in Table 1. In the animals that were checked by visual observation only, 45 heats were possible. Of this number 39 heats were detected for an 87 percent detection rate. With the animals that were checked by heat tapes in addition to visual observations, 49 heats were possible. Of this number, 47 heats were detected for a 96 percent detection rate.

Several observations can be made from this study. First, we were able to achieve a higher degree of detection visually than several studies have reported. However, we apparently were still missing some heats since we achieved an even higher rate of detection with visual observations aided

Table 1. Efficiency of Heat Detection

| Group | Possible heats | Heats detected | Detection rate |
|---|---|---|---|
| | (No.) | (No.) | (%) |
| Visual only | 45 | 39 | 87 |
| Visual plus heat tapes | 49 | 47 | 96 |

by tapes. Some heats were detected at night by tapes only as were some heats during the day periods. This points out the basic advantage of heat tapes—they tell what happened when man was not there to observe. It would appear that the heat tapes can be a distinct aid to heat detection, not only in those busy periods, but in all efforts to get the cows bred back as efficiently as possible.

This study also points out that very few of our normal cows have true silent heats, we more than likely are failing to observe our cows frequently enough to catch normal heats.

Concern has been voiced over how durable the tapes are. Many of the tapes in this study were applied and worn in rainy weather and minimum difficulty was encountered with lost tapes or slipping tapes.

Very little difficulty was encountered with "false positives", i.e., rupture of the tape when the cow was not actually in heat. This can be eliminated almost entirely by placing the tape on the cow properly (see Figure 1). It should be placed so that it takes a standing ride with full chest and brisket pressure to reach and break the tape. Some difficulty was encountered with unbroken tapes on some cows with high tail heads or roughness in the area from rump to pins. More care in tape placement is required on such cows.

Another advantage in using a visual aid is that it makes you keep up with the status of cows closer. We can overlook cows and fail to start breeding them at the proper time with long calving intervals being the end result. The heat tape on a cow signals all concerned that she is eligible to be bred.

The results of this study are in good agreement with other similar studies and indicate that heat tapes can be a distinct aid in detecting heat.