

Effectiveness of automatic determination of insemination-time after synchronization of ovulation in beef heifers, compared with estrus detection by visual observation



M. Kaim¹, H. Gacitua¹, Y. Kreitzer² and A.R. Lehrer¹

¹Agricultural Research Organization, ²Extension Service, Bet Dagan, P.O.B 6, 50250, Israel

Introduction

- Artificial insemination (AI) requires efficient and accurate estrus detection.
- Electronic technologies based on changes in walking activity or general activity have been developed in an attempt to detect estrus automatically, and to improve the effectiveness i.e. efficiency and accuracy, of estrus detection.

Objectives

To quantify the efficiency and accuracy of estrus detection and determination of AI-time by automatic activity monitoring, compared with visual observations of estrus, in PG treated beef heifers.

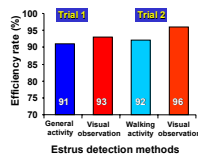
Conclusion

Automatic estrus detection and determination of AI time, by monitoring of either walking or general activity are as efficient, but less accurate, compared with 4x daily visual observations of estrus in beef heifers.

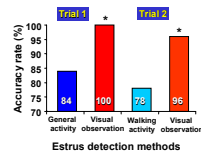
Methods

- Activity monitoring and visual observation of estrus were compared in two trials in 209, 13-15 mo. old, Fleckvieh crossbred beef heifers.
- General activity (trial 1) was monitored using "Heatime" system (SCR Engineers Ltd, Israel).
- Walking activity (trial 2) was monitored using "Afiafit" system (S.A.E. Inc. Israel).
- Heifers were treated by 2 PG injections, 11 d apart, followed by a 4-day period of 4x daily estrus detection sessions and AI, starting 48h after the 2nd PG.
- Observed estrus during the AI period, or P4<1.2 ng/ml plasma on the 4th AI day, were considered ovulation.
- Automatic alerts or visual observation of estrus, coinciding with ovulation were considered "correct detections".
- Efficiency is correct detections as % of total ovulations.
- Accuracy is correct detections as % of total alerts.

Efficiency of estrus detection by general or walking activity monitoring compared with visual observations

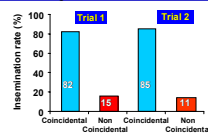


Accuracy of estrus detection by general or walking activity monitoring compared with visual observations



*P<0.05 between estrus detection methods of the same trial.

Rate (%) of heifers inseminated on increased activity in which AI timing coincided or did not coincide with the theoretic AI timing based on visual observation of estrus



AI timing based on activity alert relative to estrus