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Development of a heat-assessment with factors of the cow Léonie von Tavel, Marc Kirchhofer, Fritz Schmitz-Hsu, Ulrich Witschi Swissgenetics, Zollikofen, Switzerland

Objective: The success or failure of an insemination is mainly dependent on the cow. The heat-assessment of a cow by a technician in the routine process must be done in a short time and whenever possible without the need of information from a third party, eg. the farmer. For this purpose, a simple but effective system is needed to judge the cow in order to predict the success of insemination. The collected data will also contribute to a more reliable estimate of the bull's non-return-rate. We thus propose a system with which the technician enters the relevant data about the cow during the insemination process using a tablet.

Material and Method: Based on literature, an initial set of six factors was chosen to assess the status of the cow and was evaluated in a field test. After that test, the factor Body Condition Score (BCS) was replaced for the final set including:

• Position of the vulva

• Quantity of mucus

• Uterus tonus

• Size of the uterus

• Cervix passage (easy/tight)

• Insemination timepoint (early/late in heat)

These six factors of the cow are scored with three levels each. To simplify data entry and to increase the tangibility for the technician, pictograms are shown on his tablet. Additionally, the technician enters a number from 1 to 6 indicating his personal prediction of the probability of success of the insemination. The collected data are used in the statistical analysis of the insemination result using the Non-Return Rate at 56 days (NR56).

Results: A field test using the initial set of factors (8184 inseminations, 27 technicians) showed that the proposed heat- assessment scores are positively associated with the probability of success of the insemination, e.g., there was a difference of 34.7 %-points in the NR56 between the subset with the best level of all factors and the subset with the worst level of all factors. The personal prediction of the technician at the time of insemination was consistent with the NR56.

Conclusions: The proposed system helps considerably evaluating the cow during the routine insemination process. The obtained data also improve the evaluation of the bull's NR56, which is essential for AI organisations in terms of quality control of the semen straws released to the market.