



THE GLOBAL STANDARD
FOR LIVESTOCK DATA

Procedure 10 of Section 11 of ICAR Guidelines - Computerized Solutions for Periodic Checking of Sensor Systems

Section 11 – Computerized Solutions for Periodic Checking of Sensor Systems

Version March 2023

Network. Guidelines. Certification.

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Change Summary

Date of Change	Nature of Change
March 2023	Creation of document.
July 2023	Approved by General Assembly and published.

1 Introduction

Sensor system validation is the final stage of the ICAR testing and validation process for sensor systems as illustrated in [Procedure 1](#) of Section 11 of the ICAR Guidelines. ICAR-validated sensor systems have demonstrated through ICAR testing that the system delivers data for the purpose and as described in the test report and the manufacturer of the system meets the conditions for validation outlined in Section 11 of the ICAR Guidelines.

When a new or modified sensor system is to be submitted for an ICAR validation test, the test applicant must provide to ICAR several documents as described in [Procedure 1](#). Among these documents are the system installation and routine calibration or periodic checking procedures as described in [Procedure 9](#).

As an alternative to the routine calibration or periodic checking procedure for the sensor system, a computerized solution for monitoring the sensor system may be considered. This solution should focus on ongoing assurance that the system continues to deliver quality data for the parameter(s) requested by the manufacturer in the purpose of the sensor system validation test. Further, the solution should identify deviating or failed components of the sensor system.

2 Basis for computerized solutions for sensor systems

It is here assumed that all of the computerized methods presented below adhere to and respect the following statements:

- a. Instructions for performing the computerized solutions for the sensor system parameters should be provided as part of a new or modified system validation test by ICAR. In addition, use conditions for the solution should be clearly specified.
- b. If the computerized methods are applied as outlined, they may replace the annual routine accuracy test.
- c. At a minimum, these statistical checks should be performed at least once per year. However, for best practices in quality assurance, it is recommended to run these checks more frequently throughout the year, for instance at each recording visit or at the time of data transfer.
- d. These methods must be used for routine test only and do not replace nor are suitable for the installation procedure or test of the sensor system.
- e. The computerized solution for the sensor system should be accessible by the user and identify the performance of each sensor (where applicable) that is part of the system.
- f. While the computerized solution will identify deviating or failed components in the sensor system, it does not replace other aspects of routine maintenance as recommended by the manufacturer.
- g. A modification of an existing computerized solution for sensor systems that provide milk yield measurement may be considered if the solution is based on one of the models described in [Procedure 7](#) of Section 11 of the ICAR Guidelines. Further, the principles in these models may be extrapolated into a solution for other parameters if the design of the sensor system allows for use of the model.
- h. A new or novel computerized solution for sensor systems that provide measurements of other parameters may be submitted for review and validation.

3 Validation of computerized solutions for sensor systems

A new or modified computerized solution will be included as part of the test of a new sensor system when included as part of the test application process. This computerized solution will be included in the test plan for the system and evaluated as such.

A manufacturer may also submit a new or modified computerized solution for the periodic checking of the system after the test is completed and the sensor system achieves ICAR validation. This new or modified solution will be evaluated under a separate test plan, either by the original test centre or another ICAR test centre. In the case of a modified test of a new or modified computerized solution, the original procedure for routine calibration or periodic checking of the sensor system shall continue as standard until the modified test is complete and the solution is validated by ICAR.