



THE GLOBAL STANDARD
FOR LIVESTOCK DATA

Procedure 6 of Section 11 of ICAR Guidelines - Evaluation of Installation and Routine Calibration Procedures for Recording and Sampling Devices

Section 11 – Evaluation of Installation and Routine Calibration Procedures

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Change Summary

Date of Change	Nature of Change
October 2021	Creation of separate Procedure.
July 2023	Approved by General Assembly and published.

1 Installation test

Note: All platform scales, balance beams and spring scales used as reference during installation and routine calibration tests must be of adequate range of weighing and must be calibrated at the beginning of a test. The accuracy of platform scales, balance beams and spring scales should be at least within 0.02 kg.

After installing milk recording devices in a new parlour or an extended parlour, the performance of the device must be tested by means of an installation test. This test is carried out in agreement with the member organization and/or in collaboration with the technician of the manufacturer or an authorized dealer. The manufacturer or the dealer is responsible for the installation, calibration and testing of the measuring or recording devices before the acceptance test is carried out.

An installation test for a milk recording device consists of a milking test and/or, depending on the requirements for calibration testing, a parameter check for the calibration as provided by the manufacturer and evaluated during the ICAR test of the device. For measuring or recording devices providing estimates of parameters other than milk yields, the installation test consists of the procedure provided by the manufacturer and evaluated during the ICAR test of the device.

Only when results of the installation test are within the limits for the test, the device may be used for official recording.

1.1 Milking installation test for milk recording devices

The milking installation test for milk recording devices must follow the following steps to be valid.

Step 1

Record three test observations with the milk meter and the reference and calculate the difference between the milk meter and the reference. The calibration of the milk meter is considered correct if the average difference is less than or equal to 150 % of the limits for bias according to *Table 2. Limits of error for milk yield and fat percentage per species for milk recording devices with a sampler in [Procedure 4](#) of Section 11.*

The average difference of all the devices on the farm shall be less than or equal to 100% of the limits for bias according to Table 2. Limits of error for milk yield and fat percentage per species for milk recording devices with a sampler in [Procedure 4](#) of Section 11.

Step 2

If the difference exceeds the test [limits](#), the milk recording device(s) involved shall be recalibrated and three new readings per device shall be completed. The calculation and checking mentioned in step 1 shall be repeated.

Step 3

If the difference is still larger than 150% of the limits, an additional three more readings shall be completed, and the average difference of six readings will be calculated. The calibration of the milk meter is considered correct if the average difference is less than or equal to 150% of the limits for bias according to **Errore. L'origine riferimento non è stata trovata..**

If the average difference does not meet these limits, the milk meter is not acceptable. Readjustment, repair or replacement must be done by the manufacturer, after which the above procedure must be repeated.

Note: In some situations the milk recording device needs more than three observations for a correct milking test. In this case, the procedure as given by the manufacturer and approved by ICAR must be used.

1.2 Reference installation test for milk recording devices

In the case that each device has an individual calibration factor, this factor will be recorded before the milking test following the procedure of the manufacturer and the results of the reference method will be stored following the instructions of the Member Organization. In case the device is adjusted during the milking test, the reference test has to be redone after adjustment.

1.3 Installation test for other measuring or recording devices

In the case of measuring or recording devices providing estimates of parameters other than milk yields, the installation test must follow the procedure provided by the manufacturer and evaluated during the ICAR test of the device.

2 Routine calibration test

A routine calibration test procedure to test the device has to be carried out annually in the field. The method for testing has to be provided by the manufacturer as part of the test application ([Procedure 1](#) of Section 11). The validity and reproducibility of the routine calibration procedure will be tested during the field test.

It is preferred that this procedure should be conducted without milking cows; for instance by a test with water or other method is appropriate.

Routine calibration tests for ICAR-certified devices are available on the ICAR website for [certified meters](#), [scales](#), and [automatic milking systems](#).

In the case that the routine calibration test procedure is modified from the original procedure evaluated during the ICAR test of the device, the modified procedure must be reviewed by ICAR.

Details on the application for testing of modified devices may be found in [Procedure 1](#) of Section 11.

2.1 Routine calibration tests of on-farm installed milk recording devices

The routine calibration test must be carried out at least once every 365 days due to maintenance reasons and in accordance with the manufacturer's requirements. The routine calibration test also includes check on accuracy of the device.

Different procedures may be followed to do the calibration test regarding the accuracy of the device:

- a. The milk recording device may be tested according the routine procedure for calibration testing provided by the manufacturer and reviewed during the ICAR test of the recording device. In case the recording device includes a milk analyser, the accuracy for analysing fat and protein content shall be part of the routine calibration test.
- b. An electronic computerized milk recording device/system may be subjected to an automatic check of errors as part of a milk recording program (this procedure can be given by a manufacturer, member organization or third-party farm management

software suppliers). The procedure must be reviewed and certified by ICAR as detailed in [Procedure 7](#) of Section 11.

The routine calibration procedures described above may be extended by comparing milk yield and fat percentage and protein percentage (in the case of milk analysers) of the bulk tank with the results of the recording day. If the differences exceed 5%, an investigation is necessary and a routine calibration check of the milk recording devices as described in this procedure will need to be conducted.

2.2 Routine calibration tests of portable milk recording devices

The routine calibration test has to be carried out at least once every 365 days. The milk recording device shall be tested according to the procedure provided by the manufacturer and reviewed during the ICAR test of the recording device. The routine calibration procedure and the limits of error may be found in the technical manual of the manufacturer and on the ICAR web page for [ICAR-certified meters](#).

2.3 Routine calibration or check tests for other measuring or recording devices

In the case of measuring or recording devices providing estimates of parameters other than milk yields, the installation test must follow the routine calibration or check procedure provided by the manufacturer and evaluated during the ICAR test of the device.