



Associazione Italiana Allevatori

Laboratorio Standard Latte

Proficiency Test

Proficiency Tests (PT or Ring Test) are analytical comparison tests between laboratories.

PTs allow the participating laboratory to evaluate its analytical accuracy, the reliability of routine performance and to compare the results with those of other facilities.

Periodic participation in interlaboratory circuits provides an adequate and independent tool to monitor over time, and possibly improve, the quality of one's analyzes.

Laboratorio Standard Latte (LSL) of the Associazione Italiana Allevatori (AIA) organizes interlaboratory evaluative tests on milk, cheese and forage matrix, in compliance with the UNI CEI EN ISO / IEC 17043 standard and the statistical processing is performed in compliance with the ISO 13528 standard and / o UNI ISO 5725-2.

The management of the PT concerns all the processes necessary for its realization and no phase is subcontracted.

PT scheme

Laboratorio Standard Latte carries out the activities described below:

- Issue of the annual calendar of the proposed schemes
- Acquisition of participation requests
- Quality control of the incoming matrix
- Preparation of test samples
- Homogeneity check of samples
- Distribution of samples
- Verification of delivery
- Analysis of test samples
- Stability check of samples
- Acquisition of the results sent by the participants
- Statistical processing of the results
- Issue of the Report
- Management of complaints and appeals

How to participate

All those who perform the tests covered by the PT schemes can enroll in the circuits organized by LSL.

Participants receive at the end of the year the necessary documentation to plan their participation in the PTs for the following year. This documentation consists of the price list and the sample shipment calendar. The same information can be downloaded from the LSL website www.aia.it/lsl

For each PT scheme there are several shipping dates during the year. The laboratory that intends to participate sends its participation request by e-mail, indicating the date on which it wishes to receive the PT.

The participating laboratory receives, by email, the operating protocol of each PT scheme. The protocol contains all the information necessary for the correct execution of the analyzes and it lists the determinations to be carried out with the possible identification (marked with an asterisk (*)) of those parameters not included in the accreditation.

In addition, each participant in the PT scheme receives a personalized form in Excel format via e-mail for data acquisition with the unique participation code. The assigned code is known only to the participating laboratory and to the coordinator of the PT.

The information relating to the compilation of the results transmission sheet is also reported in the operating protocol.

The PT Scheme Coordinator is responsible for maintaining and managing the analytical results provided by the participants.

All the laboratories participating in the PTs organized by LSL are committed to behaving highly professional. To avoid collusion, LSL does not disclose any information until the Report is issued.

If falsification of the results and collusion between the participants is suspected, the data are not processed, and the laboratories are excluded from the test.

The report is published on the website ww.aia.it/IsI

Test samples

LSL's staff are highly qualified, and the skills of the technicians are documented.

The matrix of the test samples is the same as the samples normally analyzed by the laboratories participating in the PT scheme.

Test samples are subjected to quality controls before being distributed to participating laboratories. Homogeneity and stability are verified in accordance with ISO 13528 - Statistical Methods for Use in Proficiency Testing by Interlaboratory Comparisons. All information is reported in the Report.

Samples that do not pass the homogeneity check are not distributed to the participants.

The stability check is performed at the end of the PT. If the result is negative, the sample is canceled and communication to the participating laboratories takes place formally.

Packaging and distribution of test samples

The test samples are entrusted for transport to express couriers who guarantee coverage of the service on a national and international scale. The couriers provide LSL with a report with the list of laboratories to which they have entrusted the delivery: in this way it is possible to monitor the actual arrival of the samples at the requesting laboratory. The laboratory that does not receive the samples within 48 hours of shipment must contact LSL which will arrange for a new shipment.

Suitable packaging and eutectic plates are used to guarantee the cold chain and conservation of the samples until delivery.

Once the samples have been received at their laboratories, participants are required to check their status. If samples are visually deteriorated, the participating laboratory must contact LSL which will arrange, as soon as possible, the shipment of new samples.

Analysis, recording and sending of results

The operational protocol indicates the description, storage, treatment of the sample, the deadline for carrying out the analyzes (batch expiry date) and sending the results. Laboratories that do not analyze the samples within the defined deadline will not be included in the statistical processing.

Unless otherwise specified, the participant uses the analysis method normally used in his laboratory. LSL requires duplicate analysis of the sample, to evaluate the repeatability of the PT.

The performance of the laboratory is evaluated on the average of the two replicates.

The results of the analyzes recorded on the submission form provided to the participant must be sent to the e- mail address indicated.

All records relating to the schemes are kept for a minimum of 48 months.

Statistical analysis

The PT coordinator performs statistical processing according to ISO 13528 and ISO 5725-2 standards.

The times for issuing the Report vary from a minimum of 20 working days to a maximum of 40 from the date of shipment of the samples, depending on the PT scheme.

LSL publishes the Report on the LSL website. Each report contains statistical processing and graphical representations of the results.

The report also shows the name of the schema coordinator and manager.

Performance evaluation

Laboratorio Standard Latte carries out two types of PT schemes: qualitative and quantitative schemes. In qualitative schemes the results of the participants are compared with an expected value.

In quantitative schemes, the evaluation of participants' performance is based on the assigned value and the standard deviation of the results.

The expected value is the consensus value of the participants and the associated measurement uncertainty is estimated in accordance with ISO 13528. The calculation method is shown in the Report of the scheme.

The calculation of the standard deviation complies with the ISO 13528 standard and it is described in the Report.

Performance indicators

In qualitative schemes, the value 1 is assigned to each correct result and zero in the case of an incorrect result. The results transmitted are considered satisfactory and equal to those expected (presence / absence).

In the case of quantitative schemes, the performance of the participants is assessed by calculating the z-score and the Euclidian distance D.

Z SCORE

In compliance with what is indicated in the ISO 13528 standard, the laboratory evaluates its performance by calculating the zscore:

$$zscore = (xi-val ass)/sti$$

that is, the ratio between the difference of the result from the corresponding assigned value and the standard deviation of the PT.

The zscore can have a positive value (overestimates the assigned value) or negative (underestimates the assigned value) and is evaluated as follows:

$|zs| \leq 2$ Satisfying

$2 < |zs| < 3$ Doubt

$|zs| \geq 3$ Unsatisfactory

The laboratory must evaluate its performance on the zscore obtained from the standard deviation of the PT in which it participated.

LSL, where possible, also provides the fixed Zscore value that can be used by the participants for the only purpose of monitoring their own performance over time (it has no evaluation purpose for the PT).

EUCLIDIAN DISTANCE D

The Euclidian distance D, or distance from the axes, is calculated as:

$$D = \sqrt{(mdiff^2 + stdiff^2)}$$

mdiff²: average of the differences from the assigned value

stdiff²: standard deviation of the differences from the assigned value

Indicates the accuracy of the laboratory, i.e. how much the analytical result differs from the assigned value. In the table provided in the report you can evaluate your performance by comparison with the other participants.

Statistical processing is carried out with a minimum of 12 valid results. Otherwise, the data will be reported in the Report without any statistical processing, but with adequate information on the matter.

Communication with the participants

The participant in the PT can request clarifications and explanations, even by telephone, by contacting the Coordinator or the Head of the PT scheme directly.

All documentation relating to the processing of the PT is kept for a minimum of 48 months.

Treatment of personal data and confidentiality

By participating in the PT scheme, the client laboratory gives consent to the processing of personal data, pursuant to Regulation (EU) 679/2016, for the purposes related to the provision of the service. The retention period of personal data is 5 years.

Participants in the PT are listed in the Final Report with formal consent to the publication of their name. All information provided by the participant is treated confidentially.

All LSL staff sign, upon hiring / collaboration, the commitment to confidentiality and non-disclosure of information.

The analytical results modules submitted by the participants are uniquely identified by a code. Only the PT Scheme Coordinator owns the code / laboratory checklist. In order to prevent sensitive data from being viewed by unauthorized persons, all personal computers in the laboratory are password protected.

Complaints and Appeals

Participants in the PT have the opportunity to send a complaint. The PTP will provide, via e-mail, information relating to the complaint within 15 days of receiving it.

Participants in the PT can appeal in relation to the final result provided by the LSL and the performance assessment within 20 days following the issue of the Report. The appeal is accepted only in written and motivated form. The appeal is evaluated by the PTP Manager together with the Quality Management Manager. The customer is formally informed on the receipt of the appeal and on the examination times as well as the methods of resolution.