

## The Proficiency Testing Service of MoFAL National Food Reference Laboratory and General Evaluation

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Proficiency Testing (PT) is defined as evaluation of participant performance against pre-established criteria by means of interlaboratory comparisons. PT provides the quality assurance of laboratory test results as an external quality control tool, also, encourages the objective evaluation of analysis and the technical development of the studies, and allows feedbacks. National Food Reference Laboratory (NFRL), which is affiliated to the Ministry of Food, Agriculture and Livestock (MoFAL), organizes PTs on the basis of the provision of the article 5, paragraph 2, subparagraph b, of the heading "Laboratory Formation and the Main Tasks" of the "Regulation on the Establishment and Duties of the National Food Reference Laboratory Directorate".

'TS EN ISO / IEC 17043 Conformity Assessment - General Requirements for Proficiency Testing' is an international standard that sets out all the technical and administrative aspects of organizing PTs. All PTs organized by NFRL are implemented in accordance with this standard. International standards (ISO 13528, IUPAC protocol) and statistical methods (Huber H15, Q/Hampel etc.) are used in evaluating the results of PTs.

When all PTs are inspected on the basis of field of interest by the end of 2017, it is seen that 25 Microbiology PTs with 346 participants, 10 Pesticide PTs with 242 participants, 7 Mycotoxin PTs with 329 participants, 4 Elemental Analysis PTs with 167 participants, 6 Histology PTs with 41 participants and 3 GMO PTs with 48 participants have been organized. Besides, when all PTs are inspected on the basis of matrices; microbiologic analysis of *E.coli O157*, *Listeria monocytogenes*, *Salmonella spp.*, *Cronobacter spp.*, Stafilococcal enterotoxins in foods and ready-to-eat foods, residue analysis of pesticides in fruits, vegetables and cereals, residue analysis of naphthalene in honey, mycotoxin analysis of Aflatoxin B1 and total Aflatoxins and Ochratoxin A in dried fruits (dried figs, dried vine fruit), mycotoxin analysis of Aflatoxin B1 and total Aflatoxins in hard-shelled fruits (hazelnut, pistachio) and spices (chili powder), elemental analysis of Lead (Pb), Cadmium (Cd), Arsenic (As), Tin (Sn) in food, elemental analysis of Copper (Cu), Zinc (Zn) in feed, histological analysis of different tissue (bone, cartilage and offal) in meat and meat product preparations, GMO analysis of

different GMOs in cereals have been prepared. It is also seen that general success rates are high for each PT.

The number and diversity of PTs, which were first initiated with GMO PTs in 2010, are increasing every year. An accreditation application has been made for the PT service which is carried out in accordance with TS EN ISO / IEC 17043, and the process is in progress.

Priority in the planning of PT program is given to the issues that are of agronomic and economic importance for our country and the requests from participants. PTs organized by NFRL also serve as an audit mechanism on behalf of Ministry. NFRL requests for corrective/preventive action on nonconformity from participants who do not receive appropriate results, evaluates the conformity and adequacy of the activity, and provides feedbacks to the Ministry. In all conditions, all information about participants are confidential. Considering prices, PTs organized by NFRL offer a significant price advantage over other PTs imported from abroad for external quality control purposes.

**Keywords:** analysis, external quality control, food and feed, laboratory, proficiency test