

AOAC® / Arab Section - Laboratory Proficiency Testing Program

Summary Report of Survey Results

1. Executive Summary

As part of the ongoing commitment of the **Arab Section of AOAC INTERNATIONAL** to enhancing food proficiency testing (PT) programs in the Arab region, a survey was launched to gather insights from the Arab food analytical community about challenges and aspirations in terms of PT programs. The aim of this endeavor is to help shaping the future of PT initiatives tailored to the specific needs of the Arab region.

2. Introduction

2.1. Background

Proficiency testing (PT) programs are pivotal for the accreditation procedures of analytical laboratories. These programs serve as a critical quality assurance tool, enabling laboratories to benchmark their performance against established standards and their peers. Participation in PT programs is often a mandatory requirement for accreditation by international and national regulatory bodies, underscoring their significance in maintaining and improving analytical accuracy and reliability.

By regularly participating in PT programs, laboratories can identify potential areas of improvement, enhance their technical competence, and demonstrate their commitment to maintaining high-quality standards. This not only instills confidence in their analytical results but also ensures compliance with regulatory requirements. Consequently, proficiency testing programs play an essential role in safeguarding public health and safety by ensuring the accuracy and reliability of laboratory analyses, particularly in fields such as “food safety”.

2.2. Purpose of the Survey

The main purpose of this survey is to gauge interest of Arab stakeholders in PT programs provided by AOAC INTERNATIONAL (*AOAC's PT program is accredited according to ISO 17043*)

and thus work towards customized PT programs that can serve to the Arab region’s needs and help overcoming the challenges Arab analytical laboratories are facing.

2.3. Methodology

A structured questionnaire (**Appendix A**) was designed using Google Form and advertised through social media and by email, first to the section’s membership and then to a diverse range of stakeholders, including representatives from government agencies, academic institutions, private laboratories, and industry organizations.

The questionnaire encompassed various aspects, such as current participation in PT programs, perceived challenges, and specific areas of interest or need for customization. The data was collected through online responses. The gathered data was then systematically analyzed to identify key trends and insights, which will inform the customization and orientation of PT programs to better serve the region's unique requirements.

3. Survey Respondents: rates and demographics

The total number of responses received was 31.

The geographical distribution of respondents included 10 Arab countries (Egypt, Jordan, Lebanon, Libya, Oman, Palestine, Saudi Arabia, Tunisia, United Arab Emirates and Yemen). The number of respondents per country is presented in **figure 1**.

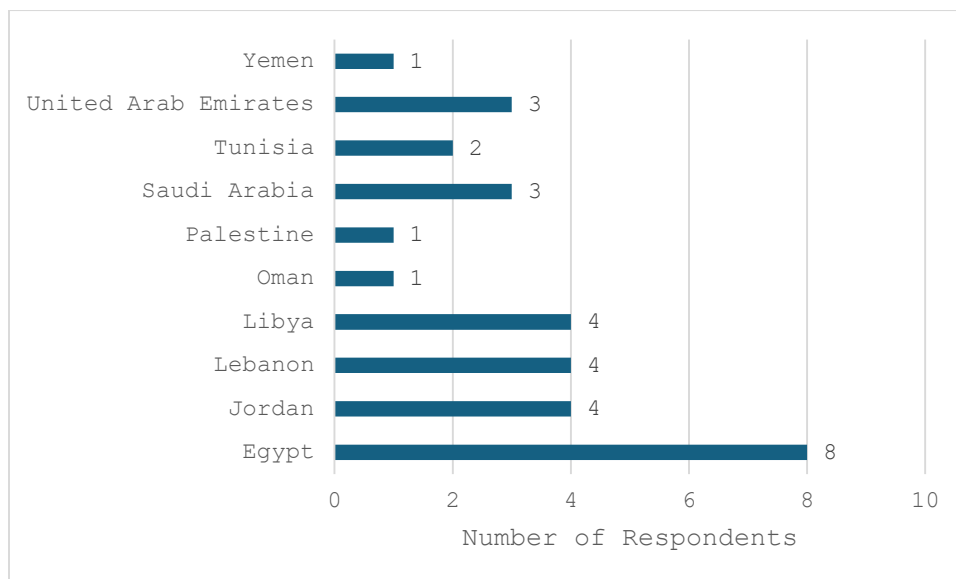


Figure 1: Distribution of respondents per country.

Respondents were mainly from Laboratories (51.6%), followed by Regulatory Bodies (19.4%) and Academia (19.4%) and from other organizations (9.7%), with no representation recorded from accreditation bodies.

Respondents were mainly laboratory managers or heads of departments (35.5%), but also senior analysts, business development managers, head of standards, academic researchers, food safety inspectors and others.

Regarding the accreditation levels of institutions, 35.5% of responses indicated that the laboratory is accredited as per ISO 17025 and around 20% to ISO 9001.

Among the 31 participants, 64.5% declared not being a member of the Arab Section and 71% not being members of AOAC INTERNATIONAL.

4. Survey Respondents: current participation in PT programs

Among respondents from laboratories, 48% declared that they are currently participating in PT programs. Among the answers, **table 1** presents the primary analytes and matrices mentioned.

Table 1: Analytes, matrices and providers mostly mentioned by respondents when asked about PT programs they are currently participating in.

Matrix	Analytes / parameter	Provider
#	Aflatoxins, Ochratoxins, Food preservatives, Microbiology, Stability testing, Brix, Acidity	#
#	#	Fapas
Milk and dairy products	#	CECALAIT
Meat and meat product, olive oil and vegetable oil	Food chemistry	#
Cosmetics and detergents	Chemistry, Active ingredients	#
Leather and textile	Chemical and physical tests	#
Water and food	GMO, Halal test	#
Water and food	Pesticide residues, veterinary drug residues, Nutritional value, heavy metals and microbiology	#

#	Pesticide residues, mycotoxins, veterinary drugs, dioxins and dioxin like PCBs, food additives, microbiology, heavy metals, food contact materials, microplastics, other contaminants like ergot, tropane alkaloids, and food processing contaminants like acrylamide and MCPD.	#
Meat, cereals, feed, water, flour, juice	#	LGC, ASHVI INDIA, GAFTA
Food	Microbiology	Eurofins / BIPEA

5. Findings

In the second section of the survey, respondents were asked to grade their overall level of interest in PT programs provided under the scope of accreditation of AOAC INTERNATIONAL PT program. The level of interest was defined on a scale of grades ranging from 1 to 5, where 1 signified the least interest and 5 the most. Average grades for the 15 PT programs provided by AOAC INTERNATIONAL are presented in **figure 2** (the detailed list of the PT programs provided by AOAC INTERNATIONAL are listed in **Appendix B**).

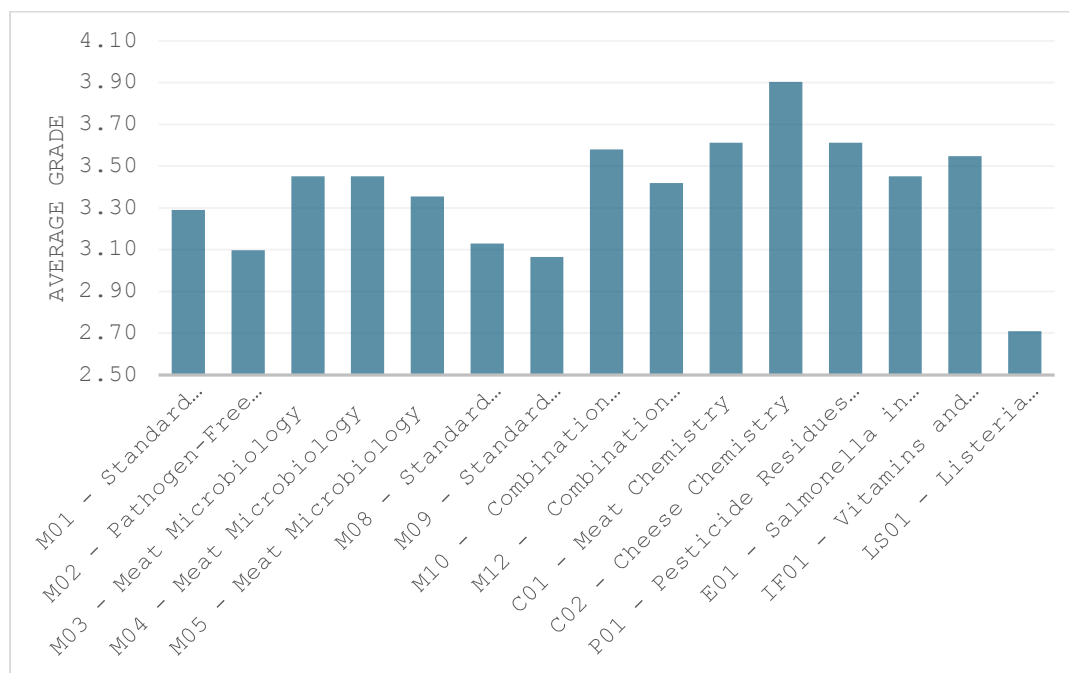


Figure 2: Average grades for the 15 programs provided under the scope of accreditation of AOAC INTERNATIONAL's PT program.

According to the answers, the PT program C02-Cheese Chemistry ranked first in level of interest with an average score of 3.9, while PT program LS01 – Listeria Environmental Swab, ranked last with an average score of 2.71. Programs with scores greater than 3.5 can be considered also of high interest to the region and were as follows: C01 – Meat Chemistry (3.61), P01-Pesticides residues in fruits and vegetables (3.61), M10-Combination Pathogens – Program in Meat Matrix (3.58) and IF01-Vitamins and Nutrients in Infant Formula and Adult Nutritional (3.51).

A general high interest can be noticed for chemistry programs targeting nutritional labelling of cheese and meat products, i.e. moisture, fat, protein, ash, carbohydrate, Cholesterol, Sodium, Potassium, Magnesium, Iron, Calcium, Salt, Calories, Phosphorus, Saturated Fat, Monounsaturated Fat, Polyunsaturated Fat, Trans Fatty Acids, pH and Water activity (aw).

Respondents were asked to indicate their level of interest in participating in program IF01, especially considering the potential launch of this program as a pilot for the region. A significant majority (74.2%) expressed a positive response, showing strong interest in participating in this program if it were to be introduced in the Arab region.

6. Priority Needs

The demand for customized PT programs tailored to the Arab region highlighted the following analytes and matrices:

- Mycotoxins analysis
- Food additives (preservatives and colorants)
- Veterinary drug residues
- Arab local food and produces like dates, olive oil, honey, camel milk, halawa, falafel, hummus, and traditional pastries, camel meat, saffron, or traditional herbal preparations.
- Rumi cheese (microbiological tests)
- Cannabis in Food (Chocolate)
- Legionella in water
- Tropane Alkaloids
- Acrylamide
- Wine and beverages chemistry
- Halal testing
- *Listeria monocytogenes* in dairy

7. Summary and Recommendations

Regarding the Proficiency Testing (PT) programs offered by AOAC INTERNATIONAL, it is evident that the Arab laboratory community shows a stronger interest in chemistry programs related to

the nutritional labeling of cheese and meat, as well as in pesticides residues in fruits and vegetables. A notable interest was highlighted in program IF01, focused on infant formula, where a remarkable majority showed strong interest in participating in this program if it were to be introduced in the Arab region.

In terms of recommendations for developing specific PT programs tailored to the Arab region, there is a clear preference for including local food products of regional significance.

8. Appendices

[Appendix A: Survey Questionnaire](#)

[Appendix B: Scope of Accreditation of AOAC INTERNATIONAL Proficiency Testing Program.](#)