



Organization of proficiency testing schemes on physicochemical properties of pesticides formulations

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Our task is to prevent the safety of the food chain and the quality of food in order to protect the health of humans, animals and plants

CONTEXT

The laboratories involved in the quality control analyses of pesticides placed on the European market are generally ISO/IEC 17025:2005 accredited. This standard requires these laboratories to ensure the quality of their results (Item 5.9.1) for instance by:



~~Replicate tests using the same or different method or retesting of retained items.~~
 ↓
 ??? Biased results ???

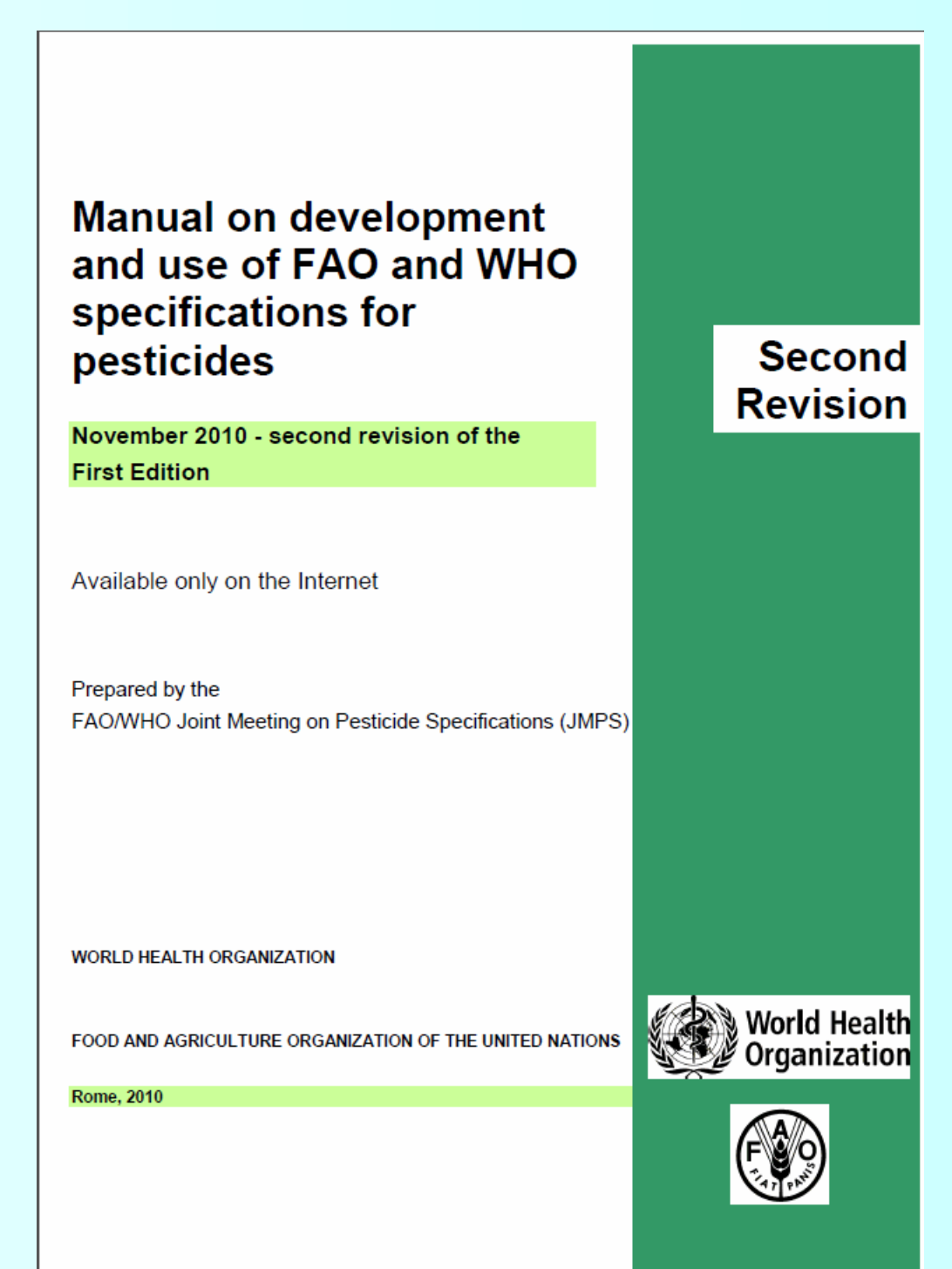
~~Regular use of certified materials and/or internal quality control using secondary references materials.~~
 ⚠

~~Participation in interlaboratory comparison or proficiency testing schemes.~~
 ⚠ (→ 2008)
 (Lack of profitability for “classical” providers ???)

PROJECT

In 2008, the BU PT Schemes of FASFC decided to organize this type of PT on conditions that:

- Analysis of real formulations easily available;
- Analyzed parameters based on FAO—WHO specifications;
- Availability of official (CIPAC*) methods for active ingredient determination
 (and alternation of analytical techniques: HPLC – GC for successive PT’s);
- For the first ones, restricted to European participants (to limit customs and logistics problems);
- Assisted by a technical working group of experts in plant protection products analysis;
- Limited registration fee;
- ISO/IEC 17043:2010 accreditation asap ! → Obtained in 2011



*CIPAC: Collaborative International Pesticides Analytical Council

Results’ evaluation

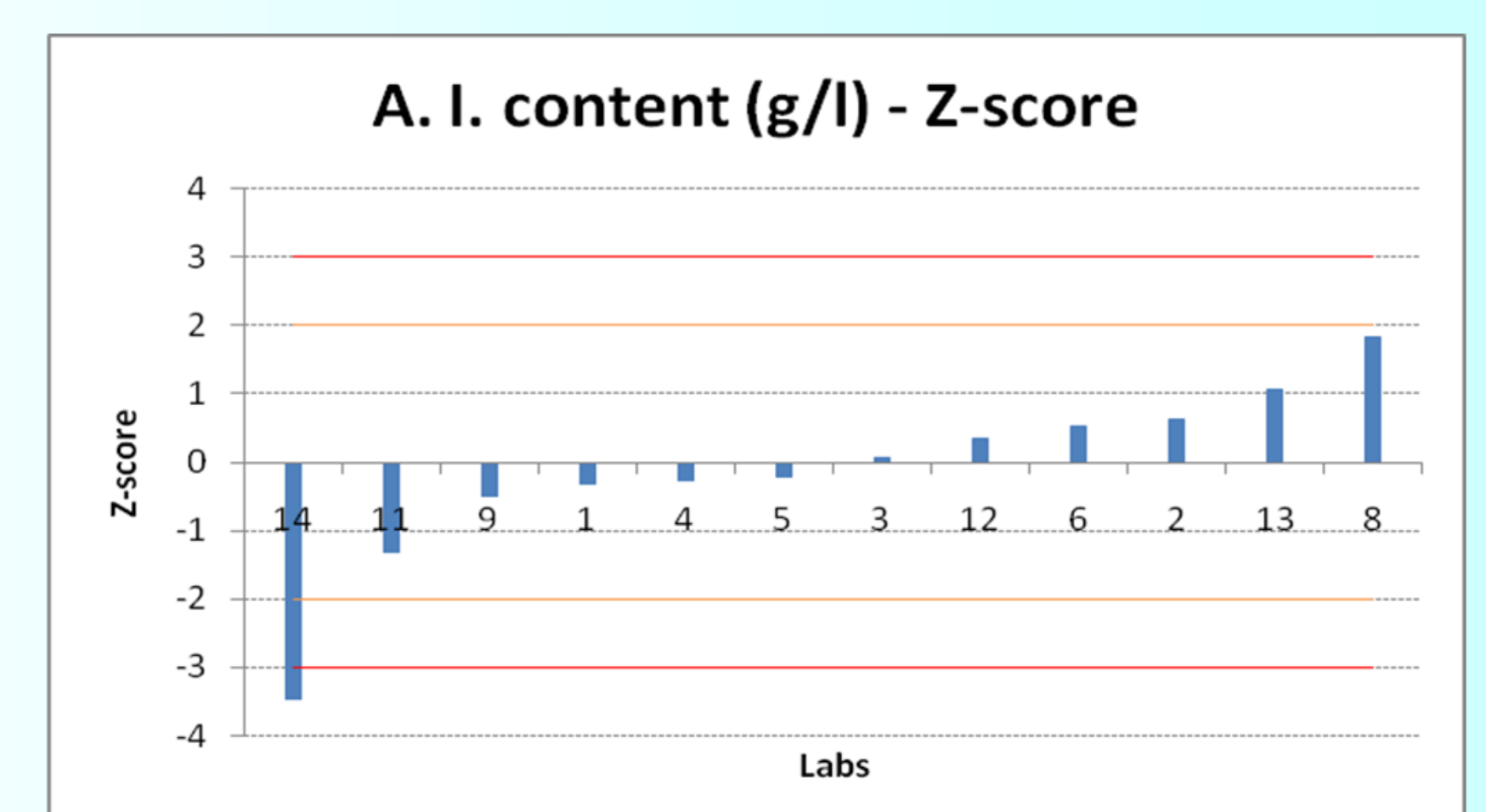
- Statistics according to ISO 13528 (Algorithm A).
- Assigned value = consensus value from the participants’ results (Chosen because no reference value available (no reference materials) and no historical data to select expert laboratories. None of participants is accorded higher status).

Performance assessment:

$$z\text{-score} = (x - X) / \sigma$$

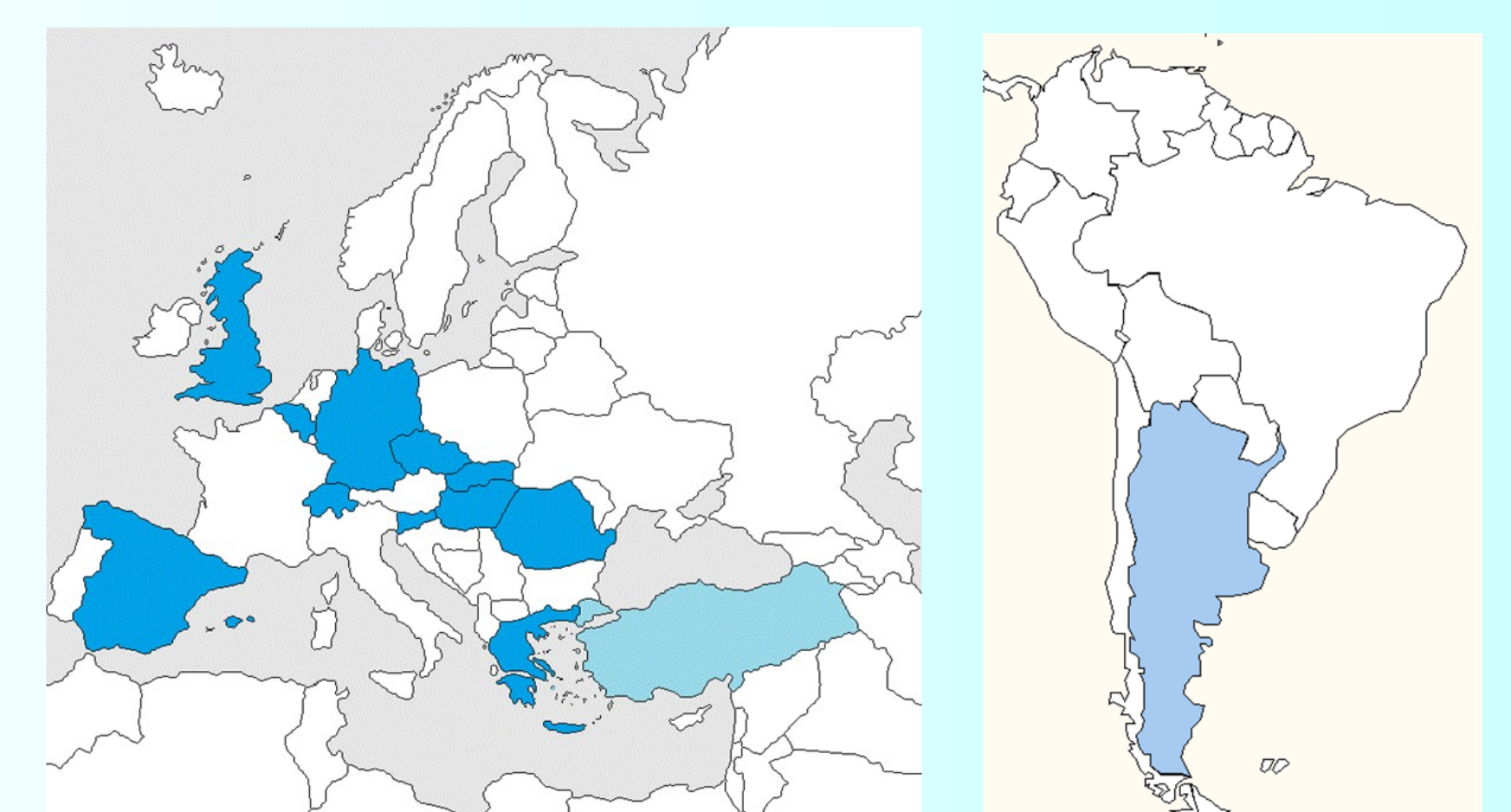
where: x = the result reported by the participating laboratory;
 X = the robust mean;
 σ = the robust standard deviation for proficiency assessment.

$|z| \leq 2$ (Green smiley)
 $2 < |z| \leq 3$ (Yellow smiley)
 $|z| > 3$ (Red sad smiley)



Year	2008-2009	2010	2011	2012	2013
ISO/IEC 17043	-	-			
Participants	13	14	17	17	17
Formulation	Soluble concentrate (SL)	Aqueous suspension concentrate (SC)	Water dispersible granules (WG)	Aqueous suspension concentrate (SC)	Soluble Granules (SG)
Parameters*	6	8	7	9	7

Participants



*Active ingredient content (g/kg (and g/l for liquid formulations)), density, pH of formulation and 1% dilution, foaming properties, wet sieve test, suspensibility, wettability, degree of dispersion, spontaneity of dispersion, flowability.

CONCLUSIONS

After 5 PT rounds, the main conclusions are:

- . the participants are globally very satisfied with the organization (4.5/5);
- . the results are in general very good but :
 - . some participants do not strictly follow the analytical conditions mentioned in the protocols, which leads to “poor” results;
 - . some “simple” methods (like pH determination) cause problems to participants;
 - . the assessment of results is not always feasible (statistical requirements not met).

In the future, the organizers want to increase the number of participants and the frequency of PT’s.