



Food and Agriculture
Organization of the
United Nations

5th Meeting of the European and Eurasian Soil Laboratory Network (EUROSOLAN)

18-19 October 2023



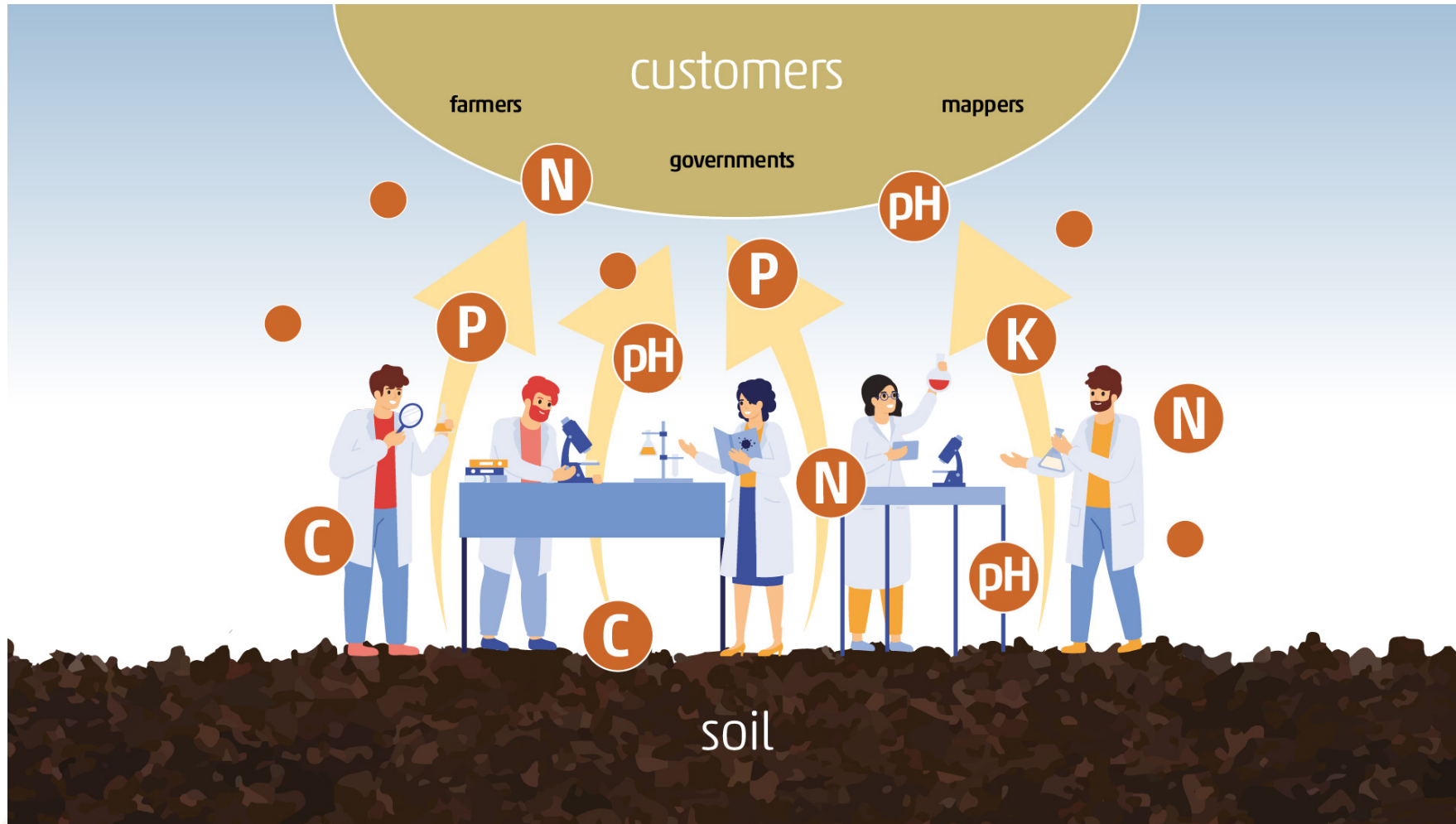
The Global Soil Laboratory Network (GLOSOLAN) and its initiative on soil spectroscopy (GLOSOLAN-Spec)

Mr. Filippo Benedetti, FAO

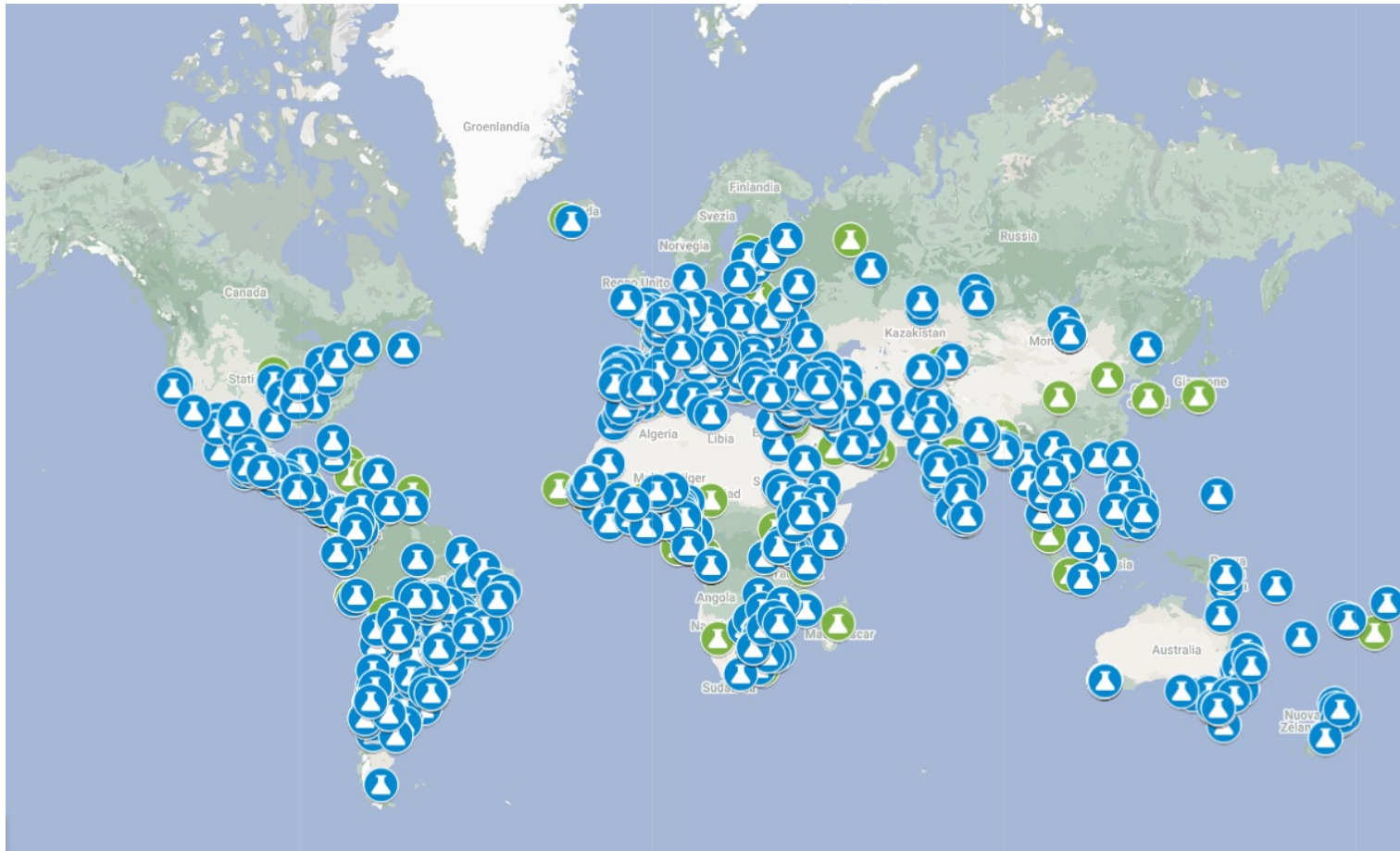
EUROSOLAN
EUROPEAN AND EURASIAN SOIL LABORATORY NETWORK



Soil laboratories: where soil samples become data



GLOSOLAN: bringing soil laboratories to the forefront worldwide since 2017

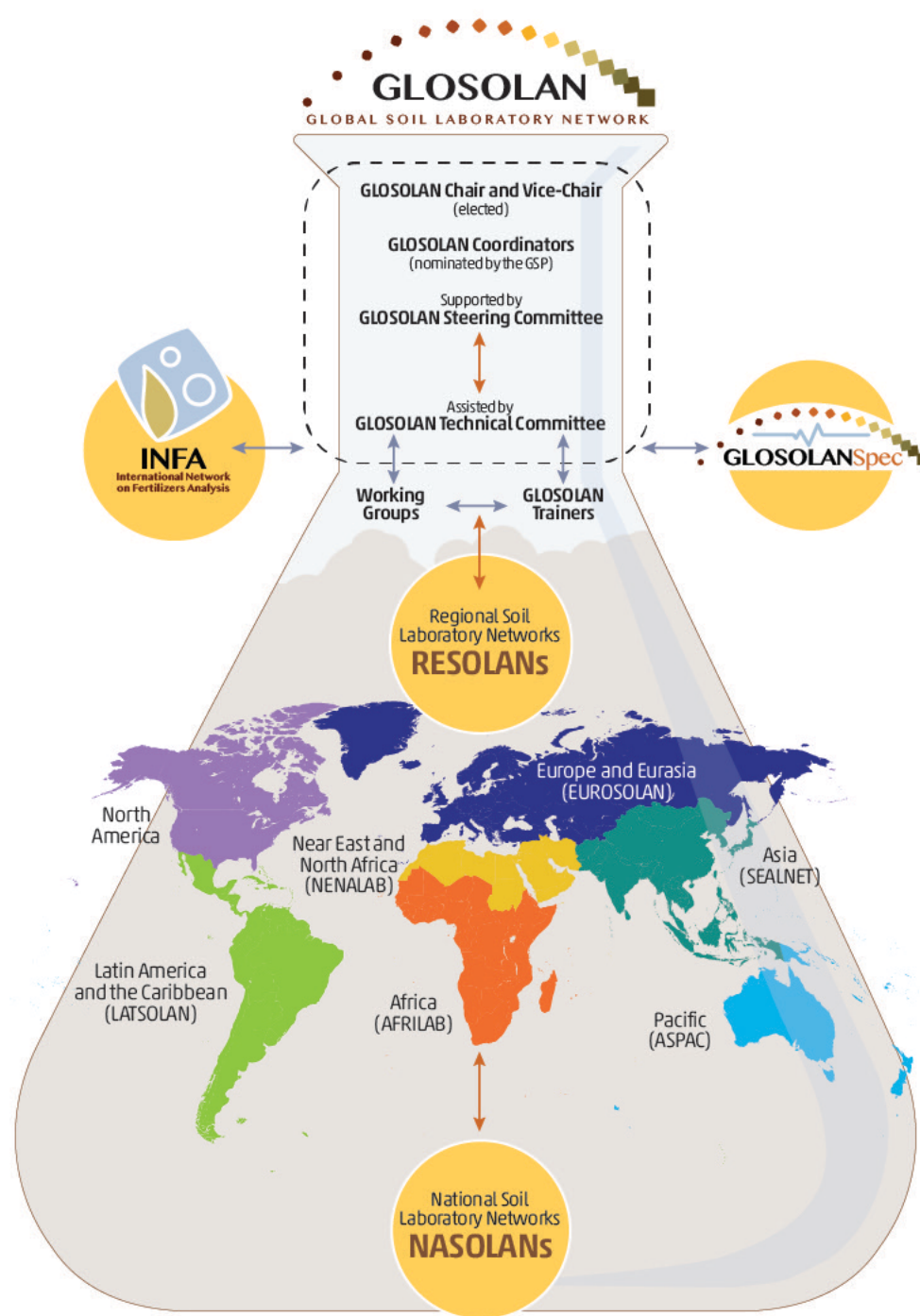


Currently grouping together around 1 000 soil testing institutions from around 170 countries



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We operate at all levels...

GLOBAL



REGIONAL



NATIONAL

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Collaborative and participative approach ...



... where the most advanced laboratories help those who need to improve

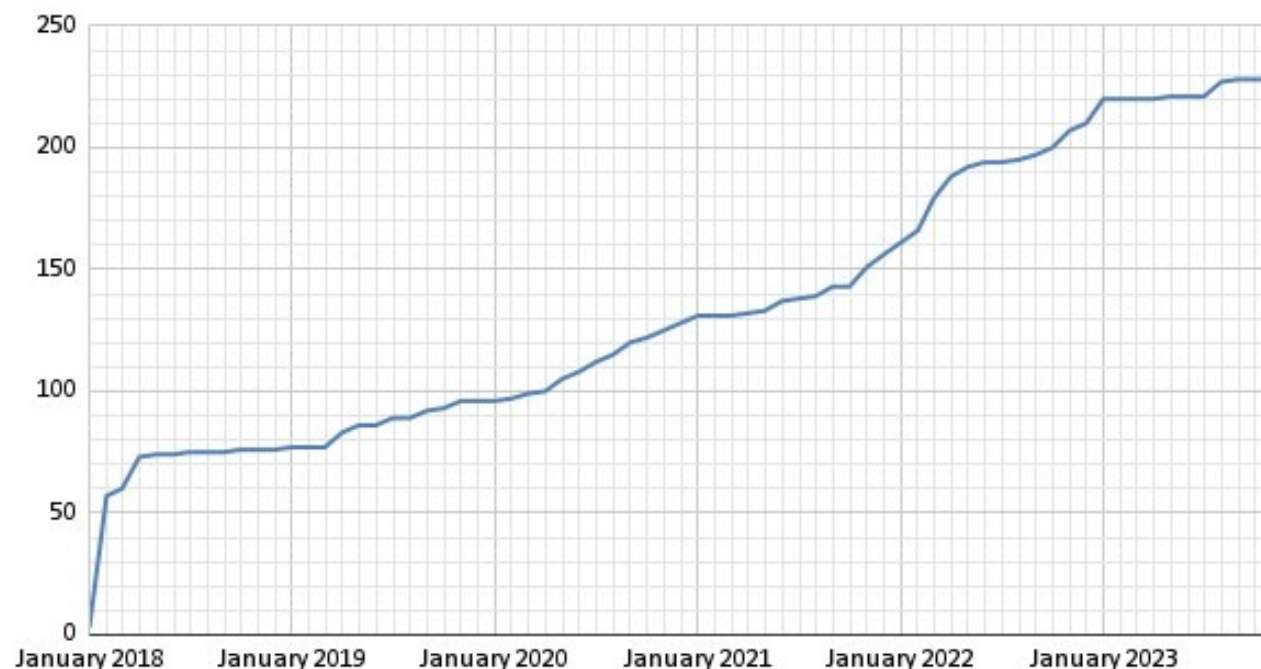
Current status of EUROSOLA



- Currently: 228 registered laboratories
 - Europe: 168
 - Eurasia: 60

Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Kazakhstan, Kosovo, Kyrgyzstan, Latvia, Luxemburg, Poland, Portugal, Republic of Moldova, Republic of North Macedonia, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Spain, Switzerland, The Netherlands, Turkey, Ukraine, United Kingdom, Uzbekistan

EUROSOLAN growth

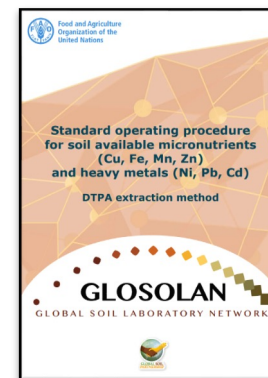


Harmonization of Standard Operating Procedures (SOPs)



Globally harmonized protocols, with a bottom-up, collaborative and inclusive approach.

- Include step-by-step instructions, sections on health and safety, quality assurance and control (QA/QC),
- Contribute to the replicability of an analysis and to the quality and reliability of the data,
- Available online, for free and in several languages.



New SOPs published in the last months:

- Soil respiration rate
- Soil moisture by gravimetric method
- Cation exchange capacity and exchangeable bases
- Available micronutrients by DTPA extraction method
- Quasi total elements in soil by acid digestion including heavy metals

Under publication:

- Boron by hot water extraction
- Bulk density

Under final review:

- Particulate organic carbon by physical fractionation
- Microbial biomass

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Experts from the other GSP Technical Networks supported the harmonization and review of the SOPs from joint working groups



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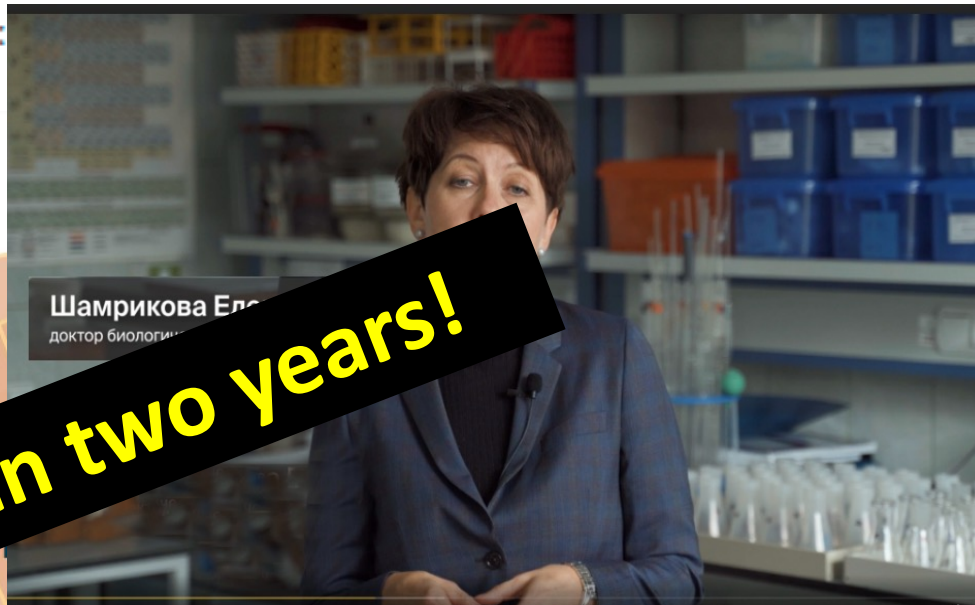


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Standards



the following:



Almost 10 000 views in two years!

Walkley-Black method
Titration and colorimetric method

Walkley-Black
titration and colorimetric method

методом Уокли-Блэка
титрованием и колориметрическим



Capacity building

- In-person training sessions
 - Djibouti, December 2022
 - Uzbekistan, May 2023
 - Dakar, October 2023
- Webinars
- Video training
- Guidelines

Several topics covered:

- SOPs implementation
- Quality control and good practices
- Health and safety
- Equipment
- Soil spectroscopy



Uzbekistan, May 2023



Webinar on quality control, in Spanish, July 2022



Djibouti, December 2022

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GLOSOLAN global PT 2021-2022

- 240 laboratories from around 110 countries
- Targeted parameters: C, N, P (using GLOSOLAN SOPs)
- Each lab received a set of 10 homogenized (sterilized) soil samples (6 soil types/5 blind replicates)
- Thanks to the support of BGS (UK) and IRD (France)

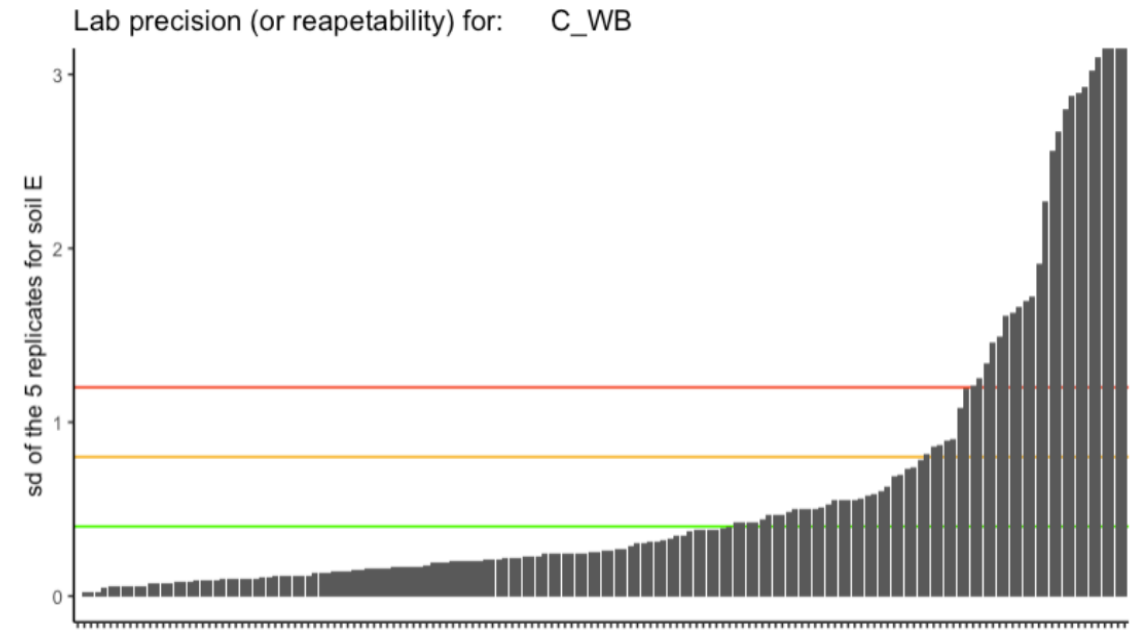


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Outcomes

- Around half of the participating laboratories provided **precise result**. However, the **remaining half of the labs showed to have some problems and a consistent number of labs have serious problems with analytical accuracy and precision**
- GLOSOLAN needs to continue investing in harmonizing SOPs and assessing and monitoring laboratory performance through global, regional, and national PTs.
 - Build the capacity to organize PTs
 - **Launch of 3 regional PT in 2023**
 - **Eurasia (led by RUSOLAN, thanks to the support of PhosAgro)**
 - Asia (led by the Philippines)
 - Africa+NENA (thanks to the support of BGS and IRD)
 - Launch of several national PTs
- High-performing laboratories have a key role to play in helping and training less successful laboratories on a regular basis



Exchange of soil samples for scientific purposes remains a major issues in many countries

GLOSOLAN initiative on soil spectroscopy (GLOSOLAN-Spec)



- Primer for soil spectroscopy: to introduce theory and concepts of soil spectroscopy at the beginner level (available in different languages)
- Training in soil spectral modelling in R (six sessions)
- Webinars with spotlight on state-of-art, research and discussion
- Launch of the International Capacity Development Group on Soil Spectroscopy (SoilSpecNet)



UPCOMING TRAININGS

- Artificial intelligence and machine learning in soil spectroscopic modelling
5 July 2023 | 9:00 CEST
SPEAKERS: Zefang Shen and Raphael Viscarra Rossel
LANGUAGE: English
[Details of the event](#) | [REGISTRATION](#)

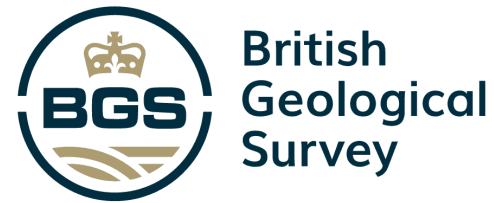
PAST TRAININGS

- Soil Spectroscopy and Deep Learning-based modeling for decision-making in agricultural contamination
3 March 2023 | 15:00 CEST
SPEAKER: Franck Albinet
LANGUAGE: English
[Details of the event](#) | [WATCH the RECORDING](#) | [DOWNLOAD the PRESENTATION](#)
- Towards operational large-scale soil spectral libraries
11 October 2022 | 14:30 CEST
SPEAKER: Leonardo Ramirez-Lopez
LANGUAGE: English
[Details of the event](#) | [Presentation \(available soon\)](#) | [Video recordings](#)
- Soil sample preparation for MIR measurement. Is fine grinding necessary for accurate MIR predictions?
07 September 2022 | 16:00 CEST
SPEAKER: Dr Nuwan Wijewardane
LANGUAGE: English
[Details of the event](#) | [Presentation](#) | [Video recordings](#)
- Interpretation of mid infrared spectra of soil - Direct use of spectra to provide new insights

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Thanks to the kind support of



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A decorative graphic consisting of a series of colored squares and dots arranged in a curved path from the top left towards the right. The colors transition from dark brown to light beige.

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