



**Food and Agriculture  
Organization of the  
United Nations**



# **Report of the Second meeting of the African Soil Laboratory Network (AFRILAB)**

Virtual meeting, 30 September, 1 and 8 October 2020 (English-speaking countries)

Virtual meeting, 6 – 8 October 2020 (French-speaking countries)

**AFRILAB-II/20/Report**

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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## 1. Introduction

Due to the COVID-19 outbreak, the second meeting of the African Soil Laboratory Network (AFRILAB) was organized virtually using the Zoom Video Communications® platform. Due to the impossibility of having any simultaneous interpretation, English and French speaking participants were divided into two groups to attend the training sessions of the meeting. In this regard, participants from English-speaking countries in Africa attended the training sessions together with the European and Eurasian Soil Laboratory Network (EUROSOLAN) on 30 September and 1 October. Participants from French-speaking countries had their training sessions on 6 and 7 October. Both groups gathered to attend the training session on health safety and the decision making session on 8 October (see the agenda in Annex II and III). Each group attended a four-hour meeting each day. It should be noted that the training sessions for the two groups were slightly different:

- English-speaking countries in Africa were mainly trained on external quality control, equipment purchasing, use and maintenance, and health and safety;
- French-speaking countries in Africa were mainly trained on internal and external quality control, and health and safety.

One hundred and ten laboratory staff members from twenty-eight African countries (Benin, Botswana, Burkina Faso, Cameroon, Democratic Republic of Congo, Djibouti, Eswatini, Ethiopia, Gabon, Ghana, Ivory Coast, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mozambique, Namibia, Niger, Nigeria, Republic of Guinea, Republic of the Congo, São Tomé and Príncipe, Senegal, Togo, Zambia, Zimbabwe) attended the meeting.

The English meeting was opened by Mr. Joseph Uponi, AFRILAB Chair from Nigeria, while the French meeting was opened by Mr. Moustapha Abdourahaman, AFRILAB Vice-Chair for the French-speaking countries from Niger. Mr. Uponi and Mr. Abdourahaman recalled the objectives of the meeting: (i) to inform African laboratories on the progresses and activities of GLOSOLAN, including the establishment of the National Soil Laboratory Networks, (ii) to discuss the downscaling the GLOSOLAN PT in Africa, (iii) to train soil laboratories, and (iv) to define AFRILAB's position in GLOSOLAN.

Ms. Zineb Bazza, facilitator of the African Soil Partnership within the Global Soil Partnership (GSP), made a contribution at the beginning of the AFRILAB French meeting to reaffirm the importance of laboratories in producing reliable data for use in sustainable soil management.

## 2. Highlights and conclusions

### 2.1. English meeting

#### **External quality control**

This training session took place on 30 September. Great attention was paid to the actions taken by the laboratories that participated in the GLOSOLAN PT 2019 to improve their performance. Malawi and Nigeria shared their experiences while Mr. Christian Hartmann (IRD France) and Mr. Michael Watts (British Geological Survey, United Kingdom) provided general guidance and moderated the discussion on how laboratories should react to a PT. Ultimately, Ethiopia and Belgium shared their experience in organizing national PTs. In this regard, GLOSOLAN encourages national reference laboratories especially to organize

national PTs to allow all laboratories registered in GLOSOLAN to be tested. This also refers to GLOSOLAN's current inability to involve all its member laboratories in global PTs.

### **National Soil Laboratory Networks**

Mr. Filippo Benedetti (GSP Secretariat) presented the GLOSOLAN work plan on the establishment of National Soil Laboratory Networks (NASOLAN) and the downscaling of GLOSOLAN activities to the very local level. The discussion was enriched by laboratories from Mozambique, Hungary, Zimbabwe, Ukraine, Nigeria and Belgium that presented how they established, are establishing or plan to establish their NASOLAN. The establishment of NASOLANs is important for:

1. Enabling all soil laboratories in a country to interact with each other, overcome common challenges and help each other build their soil analysis capacity;
2. Promoting the processes of harmonization of soil analysis at the national level;
3. Facilitating the transfer of the knowledge acquired by the laboratories participating in GLOSOLAN activities at the national level. Laboratories benefiting from GLOSOLAN training should transfer the knowledge acquired to other laboratories in their country. This process is also essential to overcome language and cultural barriers.

The main obstacles to the establishment of NASOLANs in the European and Eurasian region are related to:

- Communication problems: especially in countries where laboratories are far apart, where the exchange of soil samples and the organization of trainings and meetings may be an issue. Otherwise, small countries with few laboratories for soil analysis may have difficulties in setting up an adequate network. The latter could be solved by bringing together laboratories from (small) neighboring countries in inter-national/sub-regional networks;
- COVID-19: it has badly affected the establishment of national networks since many countries have planned their first NASOLAN meeting in 2020. Even by using virtual meeting tools, some countries have claimed that the establishment and organization of the network launch meeting has been delayed;
- Availability of financial resources: this represents a common challenge since all activities implemented at national level have a cost. In this regard, it was suggested to look for donors and projects. By advertising NASOLANs' needs and challenges, GLOSOLAN can help NASOLANs to attract donors and mobilize national governments, which should play a key role in sustaining their national laboratories;
- Agreement on priorities: it is necessary to develop the NASOLAN work plan and to ensure that all member laboratories coordinate their actions and move in the same direction. The work plan should be endorsed at the NASOLAN annual meetings and should foresee the necessary human and financial resources to comply with the workload.

In order to support laboratories in establishing their NASOLAN, GLOSOLAN has prepared terms of reference and guidelines on how to establish a NASOLAN. These documents have been sent to all GLOSOLAN members for review and will be endorsed at the fourth GLOSOLAN meeting on 11-13 November 2020. Please note that national reference laboratories play a key role in establishing and enlarging their NASOLAN, as well as in implementing the NASOLAN work plans (see the [Terms of Reference of soil laboratories in GLOSOLAN](#)).

Nevertheless, GLOSOLAN supports the establishment of NASOLAN by creating a dedicated webpage for each country. The information reported on these webpages are the following:

- Status of the establishment of the network. Established/under establishment/not established
- Name of the network and number of members in the network
- Brief history on the network with a focus on the steps undertaken by the laboratories to establish it, the obstacles encountered and potential supporters.
- Information on the activities implemented and meetings organized by the network. In this section, meetings material and outcome documents of the activities implemented by the NASOLAN will be published.
- Main needs and challenges of the network
- Main needs and challenges of the laboratories in the network
- Information on the National Reference Laboratory
- Information on the soil laboratories belonging to the NASOLAN

The NASOLAN webpages provide multiple advantages:

- They increase the visibility of the national network at the national, regional and global level;
- They ensure that all soil laboratories have access to their NASOLAN information;
- They allow projects and initiatives to connect with NASOLAN and its members. In this regard, soil laboratories can be easily contacted and involved in projects and initiatives independent of GLOSOLAN and the GSP;
- They draw the attention of donors to the needs of NASOLAN and soil laboratories.

Therefore, it is essential that soil laboratories work on developing and updating their NASOLAN webpage.

### **Laboratory equipment purchasing, use and maintenance**

Ms. Lesego Mooketsi-Selepe, AFRILAB vice-Chair, opened the training session on soil laboratory equipment by presenting [GLOSOLAN's good practices in purchasing and operating laboratory equipment](#). Building on GLOSOLAN's experience in equipment purchasing, Ms. Caon reported that laboratories receiving equipment from GLOSOLAN in 2020 (i) know what they want but do not know how to request it, (ii) provide rather vague or incomplete technical specifications, and (iii) do not know what to put as quality control criteria. In this regard, she presented some guidelines and principles to be applied in procurement. The answers of the participants to the survey on procurement are presented in Annex IV.

Ms. Estefania Perez-Fernandez and Mr. Leonardo Ramirez-Lopez from BUCHI Labortechnik AG, Switzerland, closed the session by training participants on equipment installation, use and maintenance. Their intervention was particularly appreciated by the participants.

## **2.2. French meeting**

The first day of the meeting was dedicated to learning about the participating laboratories and to the presentation of AFRILAB and GLOSOLAN. Indeed, the majority of the participants in this meeting belonged to laboratories new to GLOSOLAN that joined the network thanks to the support of the Institut de Recherche pour le Développement (Research Institute for Development), France. The participants had the

opportunity to present their laboratories' capacities and indicate their main needs and expectations towards GLOSOLAN and AFRILAB. In total, seventeen laboratories from twelve countries presented themselves that day.

### **Internal quality control**

Ms. Patricia Moulin (IRD France) introduced participants to internal quality control (QC), emphasizing the importance of producing good-quality data and the difference between internal and external QC practices. Ms. Moulin reported the steps needed to set up and run internal quality control exercises, with an emphasis on how the preparation of samples in the laboratory. The discussion was enriched by presentations from laboratories in Cameroon and Senegal that shared their experiences in running internal quality controls.

### **External quality control**

Mr. Christian Hartmann (IRD France) opened the session by presenting the results of the inter-laboratory comparison (or proficiency testing – PT) organized by GLOSOLAN in 2019. Thereafter, the participants from laboratories in Niger and Cameroon who participated to the GLOSOLAN PT 2019, reported on the actions they have implemented to improve the performance of their laboratories after receiving their PT results.

Great attention was paid to the set up of inter-laboratory comparison exercises in the francophone African sub-region as well as in the African region as a whole. This led to the establishment of a working group to work on the organization of PTs in 2021. The participants who expressed their interest in taking part in the working group are:

- Yao Guy Fernand (Ivory Coast);
- Razafimbelo Tantely (Madagascar);
- Souleymane Dambe (Mali);
- Alfred Kouly Tine (Senegal);
- Marie Pierre Tine (Senegal), who also proposed her laboratory (IRD) as a PT soil samples provider.

The GLOSOLAN Coordinator will send an email to AFRILAB members to inquire if other experts are interested to join this working group. For this end, an email will be sent soon to all laboratories.

### **2.3. Training session on health and safety**

On 8 October, participants from English and French-speaking countries in Africa gathered to attend the training session on health and safety, which was given by Ms. Hanane Aroui in both English and French. To stimulate discussion, Ms. Aroui used interactive tools such as animations and videos, and integrated the results of the survey on health and safety in her presentation. The results of the survey are presented in Annexes V and VI.

## **3. Position of AFRILAB in GLOSOLAN**

Ms. Caon presented the agenda of the Fourth GLOSOLAN meeting to the participants and asked for their opinion on:

- The SOPs GLOSOLAN should work on harmonization in 2020-2021, which was followed by the identification of regional leaders. The SOPs AFRILAB will propose GLOSOLAN to work on in 2020-2021 are reported in table 1.

Table 1 - SOP to harmonize in 2021, proposed by the English-speaking countries of AFRILAB

Parameters and method	Regional leaders (country)
CEC and exchangeable bases by Ammonium acetate	<ul style="list-style-type: none"> <li>- Takesure Tendayi (Zimbabwe)</li> <li>- Lesego Mooketsi-Selepe (Botswana)</li> <li>- Souleymane Chaoulani (Niger)</li> </ul>
Exchangeable acidity potassium chlorine	<ul style="list-style-type: none"> <li>- Joseph Uponi (Nigeria)</li> <li>- Rose Ndango (Cameroon)</li> </ul>
Available micronutrients (Fe Zn Cu Mn Mo) – extraction using DTPA and EDTA	<ul style="list-style-type: none"> <li>• DTPA: Souleymane Dambe (Mali)</li> <li>• EDTA: Thembinkosi Mbedzi (Zimbabwe)</li> </ul>
Quasi-total elements by digestion using aqua regia	<ul style="list-style-type: none"> <li>- Marie Pierre Tine (Senegal)</li> <li>- Egbe Williams (Nigeria)</li> <li>- Rose Ndango (Cameroon)</li> <li>- Njeru Gachini (Kenya)</li> </ul>

- The need to review [FAO Soils Bulletin 74 – “Guidelines for Quality Management in Soil and Plant Laboratories”](#). More than the half of participants (53 percent) reported not being familiar with this document, while 25 percent reported being familiar with it but not to applying it. Overall, only 22 percent of the participants declared being aware of and using this document. Nevertheless, those who reported being aware of this document expressed the need to update it.

In conclusion, Ms. Caon reminded participants that anyone who is interested and has the capacity to prepare large amounts of homogeneous soil samples could become a PT samples provider to GLOSOLAN. Furthermore, participants were asked to kindly review the material to be discussed and endorsed at the fourth GLOSOLAN meeting (11-13 November 2020) and to contribute to the development of their NASOLAN webpages. Participants should pay special attention to reviewing their country profiles in the “global assessment on soil laboratories capacities and needs 2020”. Lastly, Ms. Caon reminded participants that the launch meeting of the International Network on Fertilizers Analysis (INFA) will take place in December 2020. All laboratories carrying out or interested in carrying out soil fertilizers analysis are invited to join this GLOSOLAN sub-network and contribute to the implementation of its work plan. Ms. Caon will soon send additional information on this meeting by email. In the meantime, participants are invited to complete a short survey aiming at collecting information to open the discussion at the launch meeting.

#### 4. Venue and time of the next meeting

COVID-19 gave the opportunity to test new virtual meeting tools such as Zoom. The organization of virtual meetings makes it possible to involve more laboratories, laboratory staff and countries than in-person meetings, as there is not the hindrance of covering travel costs. Moreover, virtual meetings allow available financial resources to be allocated to other activities such as trainings, purchasing equipment for

laboratories in need and improving laboratory facilities. On the other hand, virtual meetings do not allow for informal conversations and brainstorming that can lead to more and better opportunities for cooperation between laboratories, institutions and countries.

On this basis, participants were invited to give their views on the organization of future AFRILAB meetings. Forty-three percent of the participants proposed to continue organizing AFRILAB meetings online every year, 23 percent expressed their willingness to return to in-person meetings as soon as possible, and the remaining 34 percent proposed to alternate in-person and virtual meetings.

## Annex I. List of participants

Ms. Lucrezia Caon, Global Soil Partnership Secretariat, FAO HQ

Mr. Filippo Benedetti, Global Soil Partnership Secretariat, FAO HQ

Ms. Zineb Bazza, Global Soil Partnership Secretariat, FAO HQ

Ms. Nopmanee Suvannang, GLOSOLAN Chair

Mr. Christian Hartmann, IRD France

Ms. Hanane Aroui, IRD France

Ms. Patricia Moulin, IRD France

Mr. Leonardo Ramirez-Lopez, BUCHI Labortechnik AG, Switzerland

Ms. Estefania Perez-Fernandez, BUCHI Labortechnik AG, Switzerland

Mr. Michael J. Watts, British Geological Survey (BGS), UK

<b>Country</b>	<b>Participant</b>	<b>Laboratory Official Name</b>
Benin	Oussou Cossi Tiburce Brice	Laboratoire des Sciences du Sol, Eaux et Environnement/INRAB
Botswana	Lesego Mooketsi-Selepe	Soil and Plant Analytical Laboratory
Botswana	Luisa Moipolai	National Environmental Laboratory
Burkina Faso	Ouedraogo Inoussa	BUNASOLS
Burkina Faso	Nana Harouna	BUNASOLS
Burkina Faso	Sanon Kiétéré Faïçal Joseph	BUNASOLS
Cameroon	Rose Ndango	Analytical Services Laboratory, International Institute of tropical Agriculture (IITA)
Cameroon	Mfopou Mewouo Yvette Clarisse	LASPEE/IRAD
Cameroon	Youdom Youtha Armelle Stéphanie	LASPEE/IRAD
Cameroon	Amina ABOUBAKAR	LASPEE/IRAD
Cameroon	Nyeket Aline Beatrice	LASPEE/IRAD
Democratic Republic of Congo	Irène Kibali	Université de Kinshasa
Democratic Republic of Congo	Eric Lutete Landu	Université de Kinshasa
Democratic Republic of Congo	Lunze Lubanga Daniel	Laboratoire des sols de Mvuazi, Institut National pour l'Etude et la Recherche Agronomiques (INERA)
Democratic Republic of Congo	Bamulumba Tshimankinda	Cadastre Forestier

Djibouti	Sougueh Cheik	The Pedology Laboratory at the Centre d'Études et de Recherche de Djibouti - CERD
Djibouti	Nasser Mohamed	The Pedology Laboratory at the Centre d'Études et de Recherche de Djibouti - CERD
Eswatini	Senzo Ntshakala	Soil Testing Unit
Ethiopia	Musefa Abegaz	Soil Laboratory of Holeta Agricultural Research Center - Ethiopian Institute of Agricultural Research Center (EIAR)
Gabon	Mabicka Obame Rolf	INSAB
Gabon	Musadji Neil-Yohan	INSAB
Germany	Ulrich Diekmann	Physikalisch-Technische Bundesanstalt
Germany	Jonathan Krull	Physikalisch-Technische Bundesanstalt
Ghana	Adams Sadick	Analytical Services Laboratory/Soil Research Institute
Ghana	Amenuvor Prosper	CSIR-Environmental Analytical Laboratory
Ghana	Vincent Logah	Kwame Nkrumah University of Science & Technology, Kumasi
Ivory Coast	Koné Armand	Unité de Recherche Gestion Durable des Sols / Université Nangui Abrogoua
Ivory Coast	Yao Guy Fernand	Laboratoire Central Sols, Eaux et Plantes / Centre National de Recherche Agronomique (CNRA)
Ivory Coast	Kouassi Yéboua Firmin	Université Nangui Abrogoua
Kenya	Esther Gikonyo	National Agricultural Research Laboratories KALRO
Kenya	Bernard Waruru	National Agricultural Research Laboratories KALRO
Kenya	Njeru Gachini	National Agricultural Research Laboratories KALRO
Kenya	Elvis Weullow	Soil Plant Spectral Diagnostics Lab -ICRAF
Kenya	Andrew Sila	World Agroforestry Centre, (ICRAF)
Kenya	Karuri Hannah	University of Embu Soil Laboratory
Kenya	Samoei David	University of Eldoret
Kenya	Doreen Meso	University of Eldore
Lesotho	Malefetsane Khesuoe	Soils Lab, Department of Agricultural Research
Madagascar	Razafimanantsoa Marie Paule	Laboratoire des Radiosotopes
Madagascar	Andriamananjara Andry	Laboratoire des Radiosotopes
Madagascar	Rabenarivo Michel	Laboratoire des Radiosotopes
Madagascar	Rafolisy Tovonarivo	Laboratoire des Radiosotopes

Madagascar	Razafimbelo Tantely	Laboratoire des Radiosotopes
Malawi	Emmanuel Mbewe	Soil and Plant Analytical Research Laboratory. Lilongwe University of Agriculture and Natural Resources
Malawi	Luca Desideri	FES - Agrilab
Malawi	Wesley Feldman	FES - Agrilab
Malawi	Daniella Wetten	FES - Agrilab
Malawi	Munason Munthali	FES - Agrilab
Malawi	Alick Mphembera	ARET
Mali	Souleymane Dambe	LPCM/ FST -USTTB
Mali	Demebele Djeneba	Sol-Eau-Plante/Institut d'Economie Rurale
Mali	Traore Idrissa	Sol-Eau-Plante/Institut d'Economie Rurale
Mauritanie	Cheikh Ahmed El Moctar	Laboratoire de Pédologie et fertilisation Centre National de Recherche Agronomique et de Développement Agricole (CNRADA)
Mozambique	Momade Ibraimo	Laboratorio Regional de Analise de Solo e Plantas LRASP. Nanpula
Mozambique	Ricardo Maria	Institute of Agricultural Research of Mozambique Central Soil and Plant tissue testing Laboratory
Mozambique	Tarcilia Tcheco	Institute of Agricultural Research of Mozambique Central Soil and Plant tissue testing Laboratory
Mozambique	Rafael Domingas	Institute of Agricultural Research of Mozambique - Central Soil and Plant tissue testing Laboratory
Mozambique	Vilanculos Stlia	Institute of Agricultural Research of Mozambique - Central Soil and Plant tissue testing Laboratory
Mozambique	Manhica Manhica	Institute of Agricultural Research of Mozambique - Central Soil and Plant tissue testing Laboratory
Mozambique	Dias	Institute of Agricultural Research of Mozambique - Central Soil and Plant tissue testing Laboratory
Mozambique	Nhatsave	Institute of Agricultural Research of Mozambique - Central Soil and Plant tissue testing Laboratory

Mozambique	Cambula	Institute of Agricultural Research of Mozambique - Central Soil and Plant tissue testing Laboratory
Mozambique	Chirindze	Institute of Agricultural Research of Mozambique - Central Soil and Plant tissue testing Laboratory
Mozambique	Amburete	Institute of Agricultural Research of Mozambique - Central Soil and Plant tissue testing Laboratory
Mozambique	Mimi Dimande	Institute of Agricultural Research of Mozambique - Central Soil and Plant tissue testing Laboratory
Mozambique	Arlindo Anibal	Institute of Agricultural Research of Mozambique - Central Soil and Plant tissue testing Laboratory
Mozambique	Stília Vilanculos	Institute of Agricultural Research of Mozambique - Central Soil and Plant tissue testing Laboratory
Namibia	Ella Ndakumwa Shiningayamwe	Analytical Services (Agricultural Lab) Ministry of Agriculture, Water and Land Resources
Niger	Elh Moudi Moustapha Abdourahaman	Laboratoire de sol eau végétaux et engrais/ INRAN
Niger	Maidagi Maman	LASEVE
Niger	Mallam Ali Sayo Chaibou	LASEVE
Niger	Chaoulani Souleymane	LASEVE
Niger	Jangorzo Salifou Nouhou	UDDM/Jangorzo Engineering
Nigeria	Joseph Uponi	Analytical Service Laboratory/IITA
Nigeria	Egbe Williams	National Soil, Fertilizer and Water laboratory, Federal Ministry of Agriculture and Rural Development (FMARD)
Nigeria	Ilu Ibrahim	General purpose laboratory, Department of Soil Science, Ahmadu Bello University, Zaria
Nigeria	Temitope Sobolu	Rotas Soil Laboratory Ibadan
Nigeria	Kunle Popoola	Soil Science laboratory, Institute of Agricultural Research and Training (IAR&T) Ibadan
Nigeria	Ojionuka Ngozika	Soil Science laboratory, Department of Soil Science and Land Resources Management, University of Nigeria, Nsukka
Nigeria	Umoh Major	Soil Science laboratory, Department of Soil Science and Land Resources Management, University of Uyo

Nigeria	Koleola Adebayo	Soil Science Laboratory, Federal University of Technology, Minna
Nigeria	Namson Tsaku	Agronomy Reseach laboratory, Department of Agriculture, Nassarawa State University, Lafia
Nigeria	Suleiman Garba	Phosphorus/institute for Agricultural Research Ahmadu Bello University Samaru Zaria Nigeria
Republic of Guinea	Diallo Hassane	Laboratoire central/IRAG
Republic of the Congo	Mazoumbou Jean Claude Ruffin	CRDPI et IRA
Republic of the Congo	Lydie-Stella Koutika	CRDPI
Republic of the Congo	Tiburce Matsoumbou	CRDPI
Republic of the Congo	Alpiche Diamesso	CRDPI
São Tomé and Príncipe	Antónia Dos Santos Neto	Laboratoire du CIAT-STP/Agrochimie Institution: Centre de Recherche Agricole de São Tomé et Príncipe (CIAT-STP)
São Tomé and Príncipe	Wizelfina Dores	Laboratoire du CIAT-STP/Agrochimie Institution: Centre de Recherche Agricole de São Tomé et Príncipe (CIAT-STP)
São Tomé and Príncipe	Elvira Guadalupe	Laboratoire du CIAT-STP/Agrochimie Institution: Centre de Recherche Agricole de São Tomé et Príncipe (CIAT-STP)
Senegal	Alfred Kouly Tine	Laboratoire Sols-Eaux-Plantes de l'Institut Sénégalais de Recherches agricoles (ISRA) du Centre national de recherches agronomiques (CNRA) de Bambey
Senegal	Anna Ndiaye	lanoratory of water and fertilizer quality control/Ceres Locustox
Senegal	Alassane TRAORE	Institut de Technologie Nucléaire Appliquée
Senegal	Laure TALL	Laboratoire Natinl de Recherches sur les Productions Végétales/Institut Sénégalais de Recherches Agricoles (LNRPV/ISRA)
Senegal	Marie Pierre Tine	IRD
Senegal	Alfred Kouly Tine	Laboratoire Sols-Eaux-Plantes de l'Institut Sénégalais de Recherches agricoles (ISRA) du Centre national de recherches agronomiques (CNRA) de Bambey
Senegal	Ramatoulaye Ndiaye	Laboratoire d'analyse de sol/eau /plante ISRA Saint-Louis

Togo	Mawussi Gbénonchi	Laboratoire d'Analyses des Sols et des Végétaux / Ecole Supérieure d'Agronomie – Université de Lomé
Togo	Samuel Essowédéou Sékou Ani	Laboratoire sols, eaux, végétaux et engrais
UK	Mark Kalra	British Geological Survey (BGS)
Zambia	Gideon Musukwa	Soil Science Service Laboratory/ University of Zambia
Zambia	Belinda Kanninga	ZARI/ Soil fertility lab
Zambia	Womba Kaumba	Copperbelt University, Kitwe
Zimbabwe	Washington Mutatu	Agricultural and Industrial Research Laboratory Zimbabwe Sugar Association Experiment Station
Zimbabwe	Takesure Tendayi	Soil Science & Agricultural Engineering, UNIVERSITY OF ZIMBABWE
Zimbabwe	Tonderai Chihota	Superfert
Zimbabwe	Spicer Munjeri	Zimlabs
Zimbabwe	Thembinkosi Mbedzi	University of Zimbabwe

## Annex II: Agenda for the English-speaking countries

<b>Wednesday, 30 September 2020</b>	
11:00 – 11:15AM CET	<p><b>Opening, endorsement of the agenda and group picture</b>  <i>Mr. Giorgi Ghambashidze, EUROSOLAN Chair</i>  <i>Mr. Joseph Uponi, AFRILAB Chair</i>  <i>Ms. Lucrezia Caon, GLOSOLAN Coordinator, GSP Secretariat</i></p>
11:15 – 11:40AM CET	<p><b>Item 1. Global Soil Laboratory Network updates</b>  <i>Ms. Nopmanee Suvannang, GLOSOLAN Chair</i></p>
<b>Training session 1: External quality control</b>	
11:40AM – 12:20PM CET	<p><b>Item 2. How to take action after participating in a PT</b>            10 minutes presentation per country</p> <ul style="list-style-type: none"> <li>- The case of <b>Malawi</b>  <i>Mr. Wesley Feldmann, FES – Agricultural Laboratory, Malawi</i></li> <li>- The case of <b>Nigeria</b>  <i>Mr. Egbe Williams, National Soil Laboratory, Federal Ministry Of Agriculture And Rural Development Kaduna, Nigeria</i></li> <li>- General guidelines and open discussion</li> </ul> <p><i>Moderators: Mr. Christian Hartmann, IRD France and Mr. Michael Watts, British Geological Survey</i></p>
12:20 – 1:00PM CET	<p><b>Item 3. Downscaling GLOSOLAN PTs</b>            10 minutes presentation per country</p> <ul style="list-style-type: none"> <li>- The case of <b>Ethiopia</b>  <i>Mr. Musefa Redi Abegaz, Holeta Agricultural Research Center, Ethiopian Institute of Agricultural Research, Ethiopia</i></li> <li>- The case of <b>Belgium</b>  <i>Mr. Clémence Mariage, Axe Echanges Eau-Sol-Plantes, GxABT, Liege University, Belgium</i></li> </ul> <p><i>Moderator: Mr. Christian Hartmann, IRD France and Ms. Lucrezia Caon, GSP Secretariat</i></p>
1:00 – 2:00PM CET	<b>Lunch break</b>
2:00 – 2:20PM CET	<p><b>Item 4. Establishment of the National Soil Laboratory Networks (NASOLAN)</b>  <i>Mr. Filippo Benedetti, GSP Secretariat</i></p>
2:20 – 3:40PM CET	<p><b>Item 5. Case studies on the establishment of NASOLAN</b>            10 minutes presentation per country</p>

	<ul style="list-style-type: none"> <li>- <b>Georgian Soil Laboratory Network</b> <i>Mr. Giorgi Ghambashidze, Laboratory of Soil Research named after Prof. Ivane Sarishvili, Soil Fertility Research Service, Scientific-Research Centre of Agriculture (SRCA), Georgia</i></li> <li>- <b>Mozambique Soil Laboratory Network</b> <i>Mr. Ricardo Marcus de Jesus Maria, Institute of Agricultural Research of Mozambique, Central Soil and Plant tissue testing Laboratory, Mozambique</i></li> <li>- <b>Hungarian Soil Laboratory Network</b> <i>Ms. Agnes Nagy, Food Chain Safety Centre Non-profit Ltd., Soil Conservatory Laboratory, Velenca, Hungary</i></li> <li>- <b>Zimbabwe Soil Laboratory Network</b> <i>Mr. Washington Mutatu, Zimbabwe Sugar Association Experiment Station, Agricultural Chemistry &amp; Soil Laboratory, Zimbabwe</i></li> <li>- <b>Ukrainian Soil Laboratory Network</b> <i>Mr. Maksym Solokha, Laboratory of Instrumental Soil Research Methods of the National Scientific Center "Institute for Soil Science and Agrochemistry Research named after O.N. Sokolovsky", Kharkiv, Ukraine</i></li> <li>- <b>Nigerian Soil Laboratory Network</b> <i>Mr. Egbe Williams, National Soil Laboratory, Federal Ministry Of Agriculture And Rural Development Kaduna, Nigeria</i></li> <li>- <b>Walloon laboratory network</b> <i>Mr. Clémence Mariage, Axe Echanges Eau-Sol-Plantes, GxABT, Liege University, Belgium</i></li> </ul> <p>Moderator: Mr. Filippo Benedetti, GSP Secretariat</p>
3:40 - 4:00PM CET	<p><b>Item 6. A small fish in a small sea – The perspective of a private soil testing laboratory in Portugal</b> <i>Mr. Alan Evans, A2 Análises Químicas, Portugal</i></p>
<b>Thursday, 1 October 2020</b>	
<b>Training session 2: Equipment purchasing, use and maintenance</b>	
11:00 – 11:20AM CET	<p><b>Item 7. Good practices on purchasing and operating laboratory equipment</b> <i>Ms. Lesego Mooketsi-Selepe, AFRILAB Vice-Chair</i></p>
11:20AM – 1:00PM CET	<p><b>Item 8. Procurement of laboratory equipment</b></p> <ul style="list-style-type: none"> <li>- Presentation of the survey's results</li> </ul>

	<ul style="list-style-type: none"> <li>- GLOSOLAN experience on procurement <i>Ms. Lucrezia Caon, GSP Secretariat</i></li> </ul> <p><i>Moderator: Ms. Špela Velikonja Boltat, EUROSOLAN vice-Chair</i></p>
1:00 – 2:00PM CET	<b>Lunch break</b>
2:00 – 4:00PM CET	<p><b>Item 9. Equipment installation, use a maintenance – good practices</b> <i>Ms. Estefania Perez-Fernandez, Ms. Jessical Oliver and Mr. Leonardo Ramirez-Lopez, BUCHI Labortechnik AG, Switzerland</i></p>
<b>Thursday, 8 October 2020</b>	
<b>Training session 3: Health and safety</b>	
9:30 - 11:30AM GMT	<p><b>Item 10. Training on health and safety (in French and English)</b> <i>Ms. Hanane Aroui, IRD France</i></p>
11:30 – 11:45AM GMT	<b>Break</b>
<b>Session 4: Decision making session</b>	
11:45AM – 1:30PM GMT	<p><b>Item 11. AFRILAB position in GLOSOLAN (in French and English)</b></p> <ul style="list-style-type: none"> <li>- Decision on the SOPs to harmonize in 2021 and identification of regional leaders</li> <li>- Opinion on the need to update the FAO Soils Bulletin 74 – “Guidelines for Quality Management in Soil and Plant Laboratories” - (<a href="http://www.fao.org/3/W7295E/W7295E00.htm">http://www.fao.org/3/W7295E/W7295E00.htm</a>)</li> <li>- Other</li> </ul> <p><i>Moderators: Ms. Lucrezia Caon, FAO and Mr. Joseph Uponi, AFRILAB Chair</i></p>
1:30PM GMT	<b>Closure of the meeting</b>

## Annex III: Agenda for the French-speaking countries

<b>Mardi, 6 octobre 2020</b> Tuesday, 6 October 2020	
9:00 – 9:30AM GMT	<p><b>Ouverture de la salle de reunion virtuelle pour permettre aux participants de se connecter et de tester la qualité des liaisons.</b>  <i>Opening of the virtual meeting room to allow participants to connect and test the quality of their connection</i></p>
9:30 - 9:45AM GMT	<p><b>Ouverture, approbation de l'ordre du jour, photo de groupe</b>  <i>Opening, endorsement of the agenda and group picture</i></p> <p><i>M. Moustapha Abdourahaman, AFRILAB Vice-Chair</i></p> <p><i>Mme Zineb Bazza, facilitator of the African Soil Partnership at the GSP, FAO</i></p> <p><i>Mme Lucrezia Caon, GLOSOLAN Coordinator, GSP Secretariat</i></p>
<b>Session 1: Présentation des participants</b> <i>Session 1: Presentation of participants</i>	
9:45 – 11:00AM GMT	<p><b>Point 1. Présentation des laboratoires</b>  <i>Item 1. Presentation of the laboratories</i></p> <p>10 minutes de présentation par laboratoire</p> <p>Modérateur: <i>M. Filippo Benedetti, GSP secretariat</i></p> <ul style="list-style-type: none"> <li>- <b>Cameroon</b>, Soils, Plants, Water and Fertilizers Analysis Laboratory (LASPEE) by Amina Aboubakar</li> <li>- <b>Côte d'Ivoire</b>, Laboratoire Central Sols, Eaux et Plantes (LCSEP) by Yao Guy Fernand</li> <li>- <b>Côte d'Ivoire</b>, UR Gestion Durable des Sols by Armand Koné</li> <li>- <b>Djibouti</b>, The Pedology Laboratory at the Centre d'Études et de Recherche de Djibouti - CERD by Nasser Mohamed</li> <li>- <b>Gabon</b>, Laboratoire d'Analyses des Sols et de l'Environnement by Rolf MABICKA</li> <li>- <b>Madagascar</b>, Laboratoire des Radiosotopes - Université d'Antananarivo Madagascar by Andry Andriamananjara and Marie Paule Razafimanantsoa</li> <li>- <b>Mauritanie</b>, Laboratoire Pédologie et Fertilisation by Cheikh Ahmed El Moctar</li> </ul>

	<ul style="list-style-type: none"> <li>- <b>Mali</b>, Laboratoire de Physico-Chimie des Matériaux (LPCM) by Souleymane Dambe</li> <li>- <b>Niger</b>, Laboratoire de sol eau végétaux et engrais/INRAN by Maman Maidadgi</li> <li>- <b>République de Guinée</b>, Laboratoire central/IRAG by Hassane Diallo</li> <li>- <b>République Démocratique du Congo</b>, Laboratoire du cadastre forestier de la RDC by Joseph Bamulumba</li> <li>- <b>République Démocratique du Congo</b>, Laboratoire des sols INERA Mvuazi by Daniel Lubanga Lunze</li> <li>- <b>São Tome et Príncipe</b>, Laboratoire du CIAT-STP/Agrochimie by Antónia Neto</li> <li>- <b>Senegal</b>, Centre régional en Ecotoxicologie et Sécurité Environnementale (CERES-Locustox) by Anna Ndiaye Traore</li> <li>- <b>Senegal</b>, Institut de Technologie Nucléaire Appliquée, Université Cheikh Anta Diop by Alassane Traore</li> <li>- <b>Senegal</b>, Laboratoire Sols-Eaux-Plantes de l'Institut Sénégalais de Recherches agricoles (ISRA) du Centre national de recherches agronomiques (CNRA) de Bambey by Alfred Kouly Tine</li> <li>- <b>Senegal</b>, Laboratoire des Moyens Analytiques Dakar, by Marie-Pierre Tine</li> </ul>
11:00 – 11:10AM GMT	<p><b>Point 2. Présentation du Réseau africain des laboratoires des sols</b>  <i>Item 2. African Soil Laboratory Network presentation</i></p> <p><i>M. Moustapha Abdourahaman, AFRILAB Vice-Chair</i></p>
11:10 – 11:30AM GMT	<p><b>Point 3. Présentation du GLOSOLAN (réseau mondial de laboratoires), des RESOLANs (réseaux régionaux de laboratoires) et des NASOLAN (réseaux nationaux de laboratoires)</b>  <i>Item 3. GLOSOLAN, RESOLAN and NASOLAN presentation</i></p> <p><i>M. Christian Hartmann, IRD France</i></p>
11:30 – 11:45AM GMT	<b>Pause</b>
<p><b>Session 2: Formation aux procédures de contrôle de qualité internes aux laboratoires</b>  <i>Session 2: Training on internal quality control</i></p>	

11:45 – 12:30PM GMT	<p><b>Point 4. Principes généraux du contrôle de qualité</b>  <i>Item 4. General principles of the internal quality control</i></p> <p><i>Mme Patricia Moulins, IRD Sénégal</i></p>
12:30 - 12:50PM GMT	<p><b>Point 5. Exemples de la mise en place et exécution du contrôle de qualité effectué dans certains laboratoires</b>  <i>Item 5. Examples of setting up and running internal quality controls</i></p> <ul style="list-style-type: none"> <li>- L'exemple du Cameroun  <i>The example of Cameroon</i>  <i>Mme Armelle Stéphanie Youdom Youtha, LASPEE/IRAD, Cameroun</i></li> <li>- L'exemple du Sénégal  <i>The example of Senegal</i>  <i>Mme Marie Pierre Tine, IRD, Sénégal</i></li> </ul> <p>Modérateur: <i>Mme Patricia Moulins, IRD Sénégal</i></p>
12:50 - 1:30PM GMT	<p><b>Point 6. Comment préparer un échantillon de contrôle interne au laboratoire</b>  <i>Item 6. How to prepare an internal control sample in the laboratory</i></p> <p><i>Mme Patricia Moulins, IRD Sénégal,</i></p>
1:30PM GMT	<p><b>Clôture de la journée / Closure of the day</b></p>
<p><b>Mercredi, 7 octobre 2020</b>  <i>Tuesday, 7 October 2020</i></p>	
9:00 – 9:30AM GMT	<p><b>Ouverture de la salle de réunion virtuelle pour permettre aux participants de se connecter et de tester la qualité des liaisons.</b>  <i>Opening of the virtual meeting room to allow participants to connect and test the quality of their connection</i></p>
<p><b>Session 3: Formation aux procédures de contrôle de qualité externe</b>  <i>Session 3: Training on external quality control</i></p>	
9:30 – 10:00AM GMT	<p><b>Point 7. Présentation du contrôle inter-laboratoire réalisé par le GLOSOLAN en 2019 et principaux résultats</b>  <i>Item 7. Presentation of the inter lab comparison realized by GLOSOLAN in 2019 and main results</i></p> <p>Modérateur: <i>M. Christian Hartmann, IRD France</i></p>
10:00 – 10:30AM GMT	<p><b>Point 8. Comment prendre en compte les résultats du contrôle inter-laboratoire pour améliorer la qualité de ses résultats ?</b>  <i>Item 8. How to take into account the results of the inter-lab comparison to improve the quality of my lab?</i></p>

	<ul style="list-style-type: none"> <li>- Exemple du <b>Niger</b> <i>M. Elh Moudi Moustapha Abdourahaman, Laboratoire de sol eau végétaux et engrais/INRAN, Niger</i></li> <li>- Exemple du <b>Cameroun</b> <i>Mme Amina Aboubakar, Soils, Plants, Water and Fertilizers Analysis Laboratory (LASPEE), Cameroon</i></li> </ul> <p>Modérateur: <i>M. Christian Hartmann, IRD France</i></p>
10:30-11:30AM GMT	<p><b>Point 9. Mise en place d'un contrôle inter-laboratoires en Afrique</b> <i>Item 9. Setting up an inter-lab comparison in Africa</i></p> <ul style="list-style-type: none"> <li>- Compte rendu des discussions du réseau des laboratoires africains anglophones et européens <i>Report on the discussions of the African English speaking and European network</i></li> <li>- Discussion pour identifier des pays capables de fournir des échantillons de sol <i>Discussion to identify countries able to provide soil samples</i></li> <li>- Qui sera responsable de l'organisation ? <i>Interlab comparison governance</i></li> <li>- L'envoi des échantillons aux divers pays concernés <i>How to send the samples to the countries</i></li> <li>- Le choix des analyses à réaliser <i>Which analysis have to be conducted</i></li> <li>- Ressources financières <i>Financial resources</i></li> <li>- Calendrier <i>agenda</i></li> </ul> <p>Modérateur: <i>M. Christian Hartmann, IRD France</i></p>
11:30 – 11:45AM GMT	<b>Pause</b>
<p><b>Session 4: Achat, utilisation et entretien des équipements</b> <i>Session 4: Equipment purchasing, use and maintenance</i></p>	
11:45 – 12:30PM GMT	<p><b>Point 10. Sensibiliser le personnel du laboratoire aux bonnes pratiques des laboratoires</b> <i>Item 10: Make staff aware of good laboratories practices</i></p> <p><i>M. Christian Hartmann, IRD France</i></p>
12:30 – 12:50PM GMT	<p><b>Point 11. Bonnes pratiques d'achat et d'exploitation du matériel de laboratoire</b> <i>Item 11. Good practices on purchasing and operating laboratory equipment</i></p> <p><i>Mme Patricia Moulins, IRD Sénégal and M. Christian Hartmann, IRD, France</i></p>

<p>12:50 – 1:30PM GMT</p> <p>1:30PM GMT</p>	<p><b>Point 12. Achat d'équipement de laboratoire</b>  <i>Item 12. Procurement of laboratory equipment</i></p> <ul style="list-style-type: none"> <li>- Présentation des résultats de l'enquête  <i>Presentation of the survey's results</i></li> <li>- Expérience GLOSOLAN sur les achats  <i>GLOSOLAN experience on procurement</i></li> </ul> <p><i>M. Christian Hartmann, IRD France</i></p> <p><b>Clôture de la journée / Closure of the day</b></p>
<p><b>Jeudi, 8 octobre 2020</b>  <b>Thursday, 8 October 2020</b></p>	
<p>9:00 – 9:30AM GMT</p>	<p><b>Ouverture de la salle de reunion virtuelle pour permettre aux participants de se connecter et de tester la qualité des liaisons.</b>  <i>Opening of the virtual meeting room to allow participants to connect and test the quality of their connection</i></p>
<p><b>Session 5: Formation sur l'hygiène et la sécurité</b>  <i>Session 5: Training on health and safety</i></p>	
<p>9:30 – 11:30AM GMT</p>	<p><b>Point 13. Enquête sur l'hygiène et la sécurité (H&amp;S) dans les laboratoires (en français et anglais)</b>  <i>Item 13. Training on laboratory health and safety (in French and English)</i></p> <p><i>Mme Hanane Aroui, IRD France</i></p>
<p>11:30 – 11:45AM GMT</p>	<p><b>Pause</b></p>
<p><b>Session 6: perspectives et prise de décisions</b>  <i>Session 6: perspectives and decision making</i></p>	
<p>11:45 -1:30PM GMT</p>	<p><b>Point 14. Position d'AFRILAB dans GLOSOLAN (en français et en anglais) et clôture de la réunion</b>  <i>Item 14. AFRILAB position in GLOSOLAN (in French and English) and closure of the meeting</i></p> <ul style="list-style-type: none"> <li>- Décision sur les SOP à harmoniser en 2021 et identification des leaders régionaux  <i>Decision on the SOPs to harmonize in 2021 and identification of regional leaders</i></li> <li>- Avis sur la nécessité de mettre à jour le Bulletin FAO des sols 74 - "Guidelines for Quality Management in Soil and Plant Laboratories" (<a href="http://www.fao.org/3/W7295E/W7295E00.htm">http://www.fao.org/3/W7295E/W7295E00.htm</a>)  <i>Opinion on the need to update the FAO Soils Bulletin 74 – "Guidelines for Quality Management in Soil and Plant Laboratories"</i></li> <li>- Autre</li> </ul>

	Modérateurs: <i>Mme. Lucrezia Caon, FAO, M. Joseph Uponi, AFRILAB Chair et M. Moustapha Abdourahaman, AFRILAB Vice-Chair</i>
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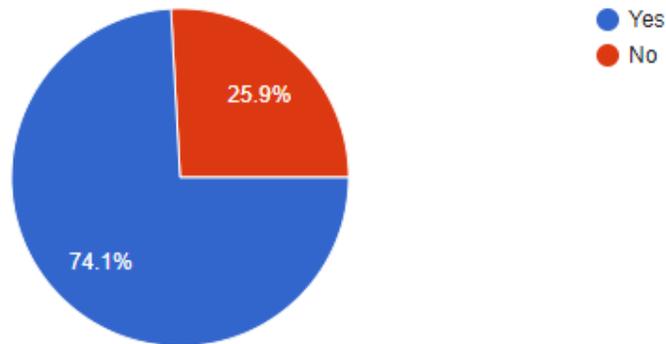
## Annex IV. Survey on procurement

Participants to the meeting were asked to complete an online survey on procurement to enrich the discussion on equipment purchasing, use and maintenance. Please note that respondents were from EUROSOLAN and English speaking countries in Africa. In total, 58 responses were submitted.

The main questions in the survey and answers by participants are herewith reported:

**Is your laboratory directly responsible for procuring the equipment and consumables it needs?**

58 responses



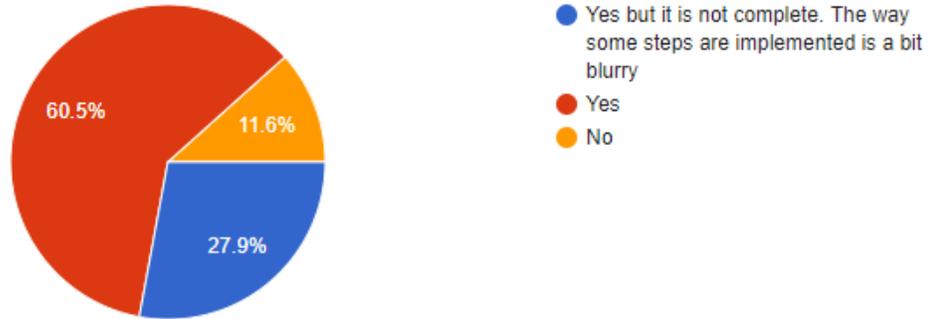
**How do you procure the equipment and consumables you need of?**

15 responses



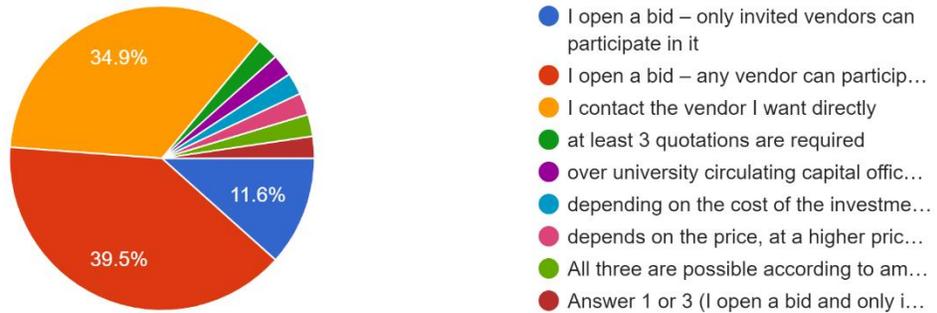
Do you have a transparent and well organized procurement procedure (for example a written document reporting how the items to procure should be identified, technical specifications prepared, the bid launched and the offers evaluated)?

43 responses



How does your procurement work?

43 responses



When do you do a procurement for equipment and consumables?

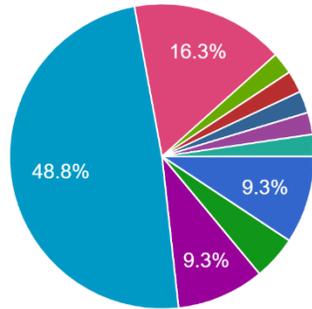
43 responses



▲ 1/2 ▼

### When do you do a procurement for equipment and consumables?

43 responses



● When i see a need to improve the analytical capacity of my laboratory (new equipment to replace obsolete one or add new tests) and when my consumables are used up

● 1, 4, 5, 6, 7

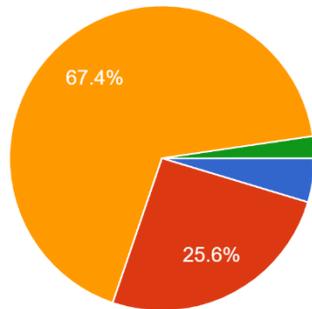
● Every time it is needed before running out consumables, when equipment needs to be repaired or when i get an order

● Answers 1, 5, 6, 7

▲ 2/2 ▼

### On what basis do you decide what vendor to rely on?

43 responses



● I go for the cheapest offer

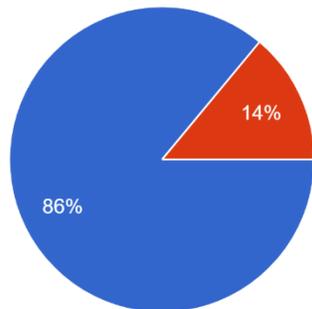
● I go for the best quality equipment/consumable

● I look for a compromise between the price and the quality of the equipment/consumable

● Some consumables have been traditionally purchased from certain vendors by my Institute so I go to them for such. Some consumables for some other vendors

### Do you have any evaluation criteria to evaluate the offers you receive from vendors (e.g. if the vendor offers any warranty, training and in person/remote support, etc.)?

43 responses



● Yes

● No

Thirty-five respondents reported the following evaluation criteria they adopt:

- We consider establishing contract repairs for continued maintenance
- Quality, Prize, Service
- Depends on the instrument
- Price, quality, delivery, payment terms
- Quality, interviewing present users, known examples to be checked
- Check with vendor where the equipment etc. has been supplied before and guarantee
- The supplier whose material is cheap and to a large extent of fairly good material. Some decisions will be taken into consideration, like if it is equipment, I will consider if a supplier put in name of the equipment, description of the material include in this are catalogue number, and other way of identification of the material reagent. This should include the name of the material, expiry date. Otherwise, before the usage of the product it might have expired thereby rendering it useless. Other important feature is storage. These are majorly consumables that we make use of in the laboratory, just like reagent too so if you watch out for quality in the material features like heat capacity of glassware.
- Availability of the product at time - reliability of the acquisition process - quality of the technical support of the vendor
- Call for suppliers quotations, Check the quotation if the quotes contain adequate information like Catalogue number, description and all of that Check for Price although the cheapest price does not mean the best , check for date of manufacturing at times especially if the materials to be purchased are reagent .
- Good technical backstopping
- Payment on delivery
- Dependability of the vendor
- The main criteria is technical specifications, then price
- Warranty, training and in person/remote support, spare parts
- Compliance to supply of required documents, technical specification and cost evaluations
- Reliability on the manufacturer and on the vendor
- Credibility-have they supplied before
- Price, service, quality, specifications (detection limit), speed, software
- Availability of the certificate of analysis
- Price, cost of analysis, warranty period, cost of spare parts and repairs, extra training for personnel, customer service options, user- and environment friendliness
- Quality
- His financial capacity, training, technical back up in case of breakdowns
- Warranty; Training and person/remote support; knowledge about the quality certification of the enterprise.
- After sales service and support, price, prompt delivery
- Warranty and safety when handling the product, training personnel,
- Experience of interaction with suppliers (their reliability). 2. Recommendations from colleagues from other institutions. 3. Stable image of the supplier company.
- Price and quality

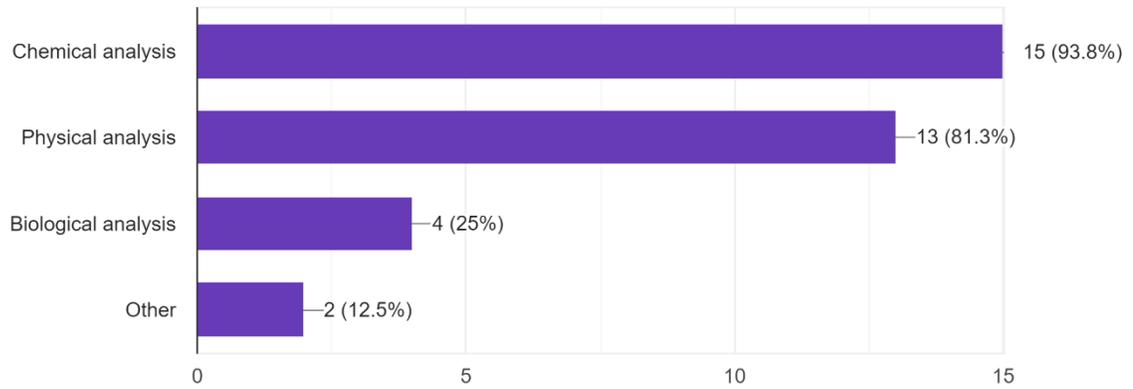
- Vendor trained/certified by instrument manufacturer; Vendor is able to set up the instrument and ensure training of personnel; possibilities to react on warranty requirements in defined time range;
- The brand and make of the equipment, cost and after sale service ie training, and maintenance availability of spare parts electricity/power conformity
- Maintenance, reliable delivery, recurrence
- Technical maintenance
- It depends on the products: price, past experience, performance/price
- The availability of service, number of service personnel, response time

## Annex V. Survey on health and safety – English version

This survey was completed by participants from English speaking countries. A total of 16 responses were received.

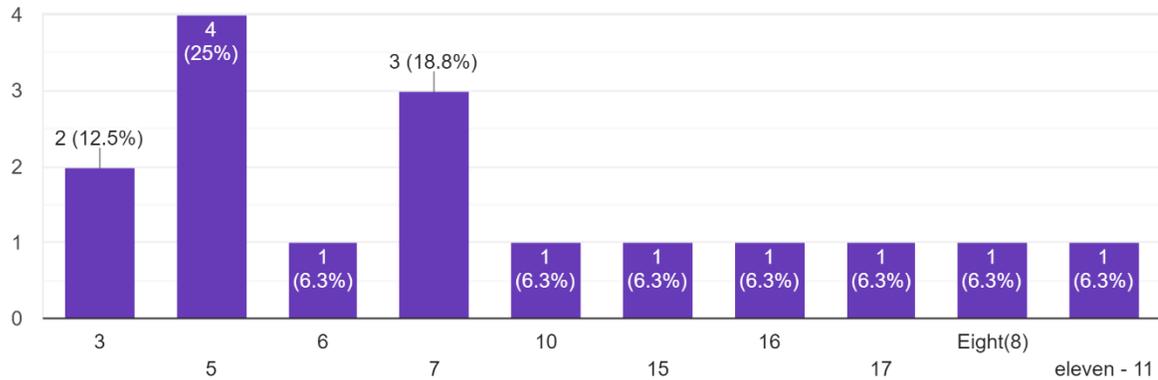
What soil analysis are performed in your laboratory?

16 responses



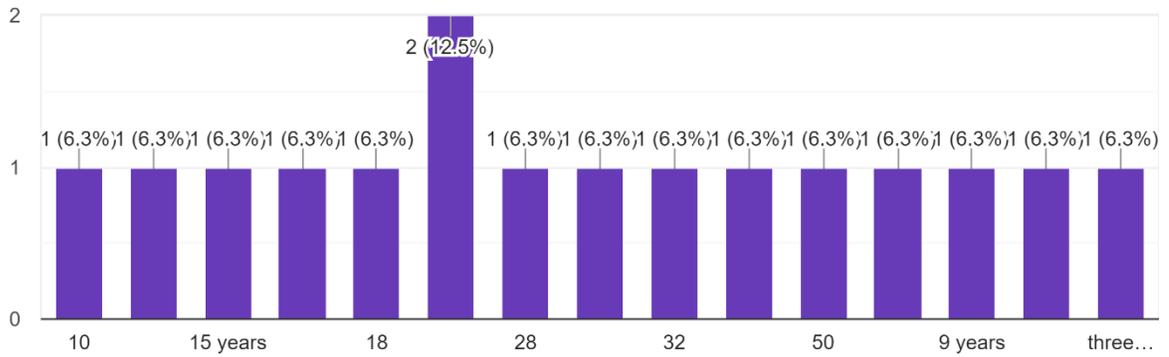
Please indicate the number of laboratory staff members

16 responses



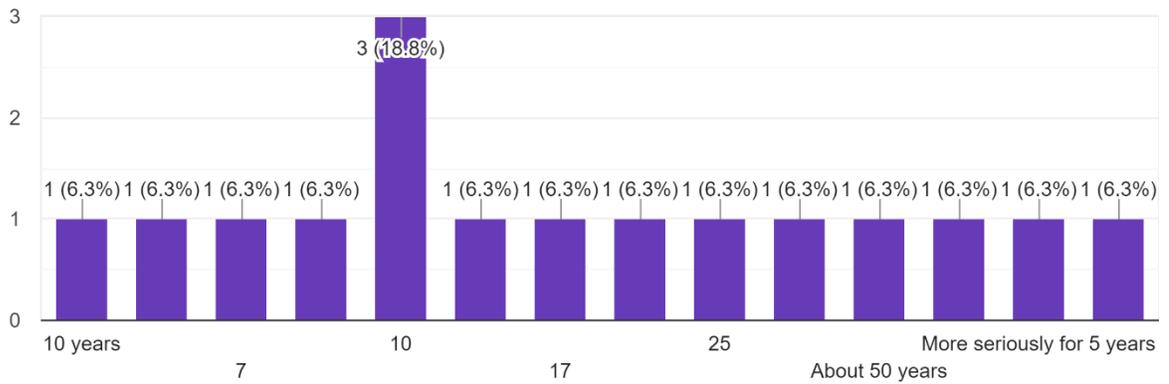
For how many years have you been doing soil analysis?

16 responses



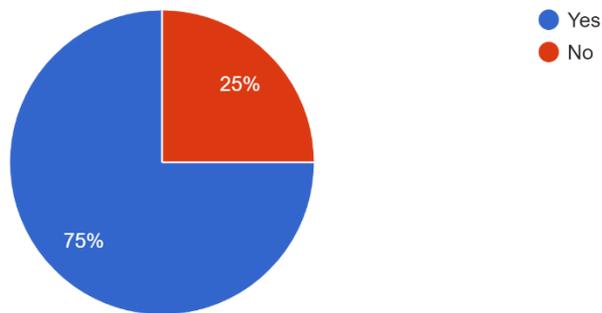
For how many years have you started to implement Health and Safety procedures in your soil analysis laboratory?

16 responses



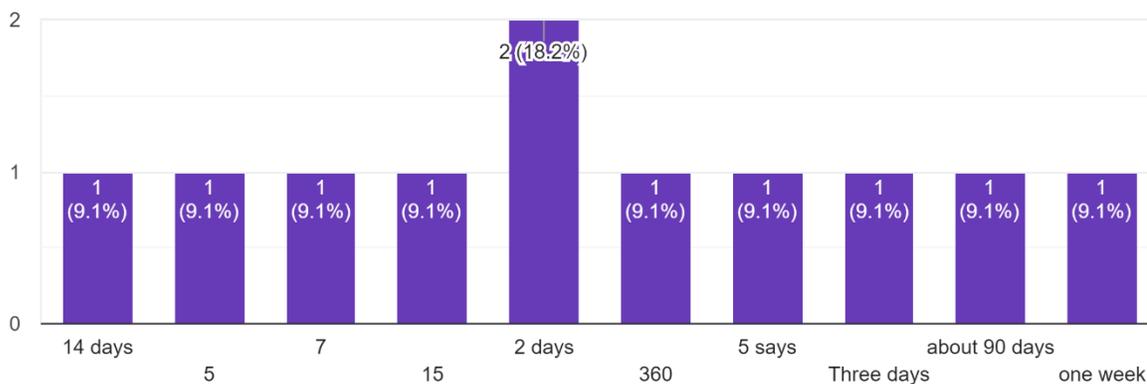
Have you been trained about Health and safety in the context of a laboratory?

16 responses



If you have been trained in Health and Safety in your laboratory, what was the total duration of your training (in days)?

11 responses



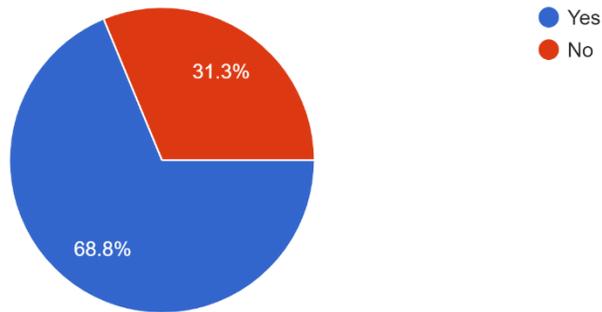
Do you receive in your laboratory:

16 responses



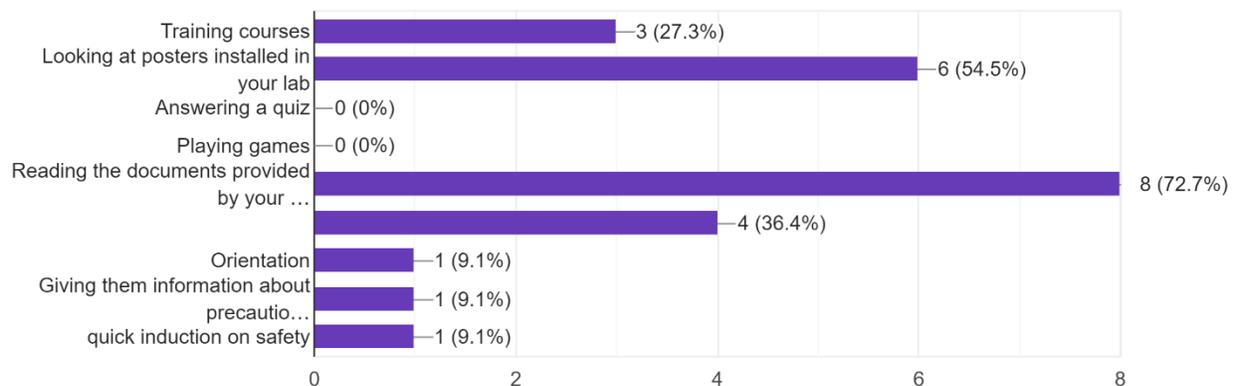
At the arrival of new staff members or people that are not members of your regular staff (see previous question), are they informed or trained about Health and Safety ?

16 responses



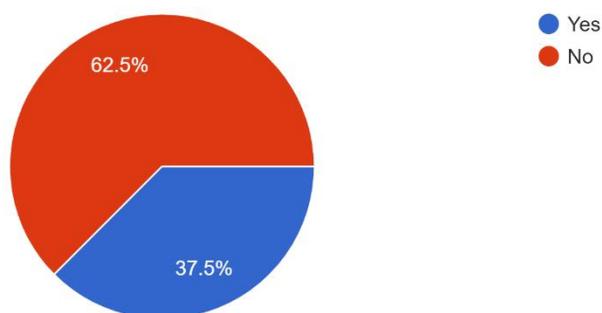
How is the information or training performed to the new staff members (which are not regular staff)?

11 responses



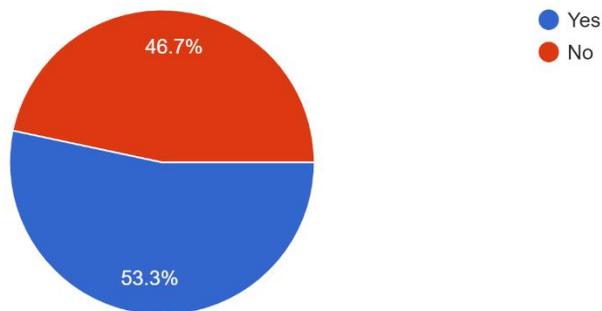
Do you have a Laboratory Safety Manual?

16 responses



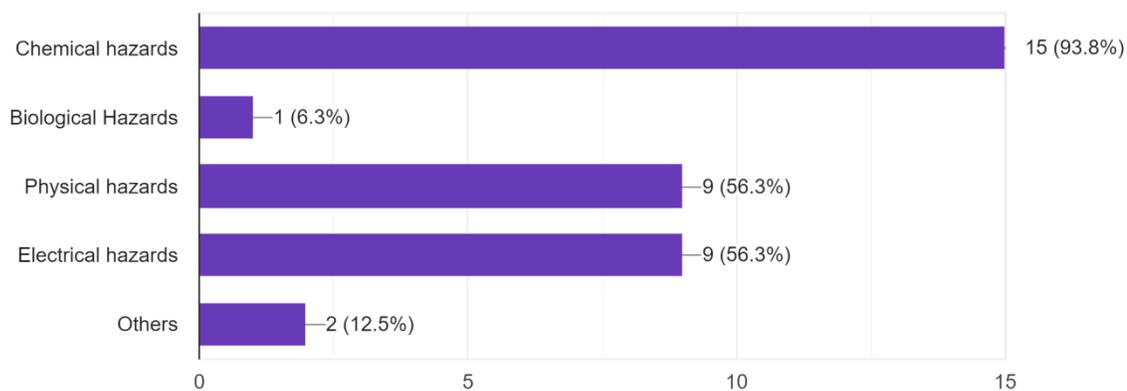
Do you have posters on the wall of the lab concerning Health and Safety?

15 responses



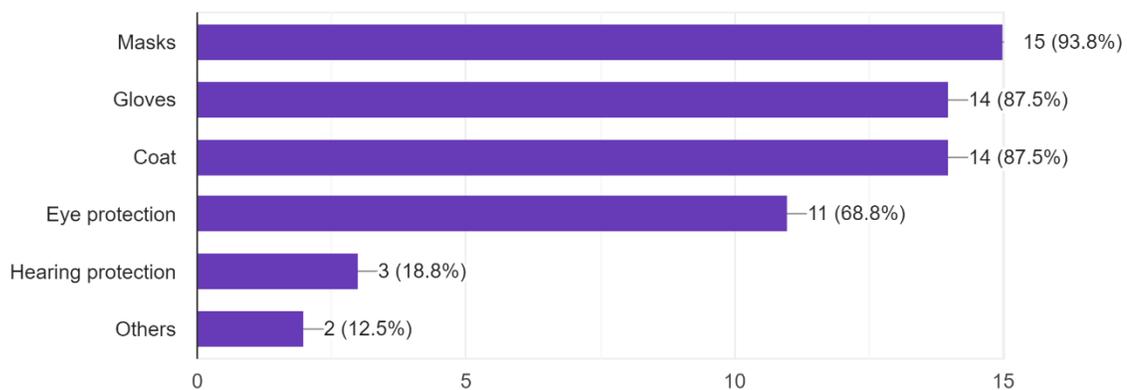
For which of the following hazards associated to your instruments or your laboratory you have indications about?

16 responses



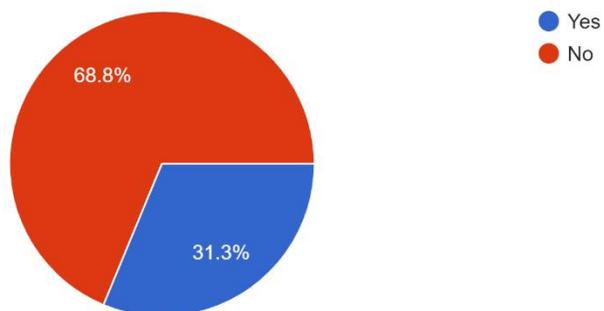
### Do you use the Personal Protective Equipment (PPE)?

16 responses



### Do you have a budget for Lab Safety Equipment?

16 responses

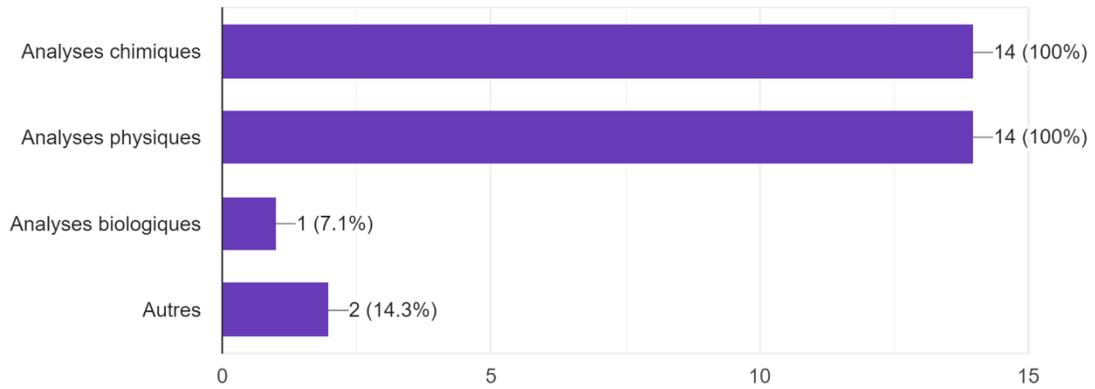


## Annex VI. Survey on health and safety – French version

This survey was completed by participants from French speaking countries. A total of 14 responses were received.

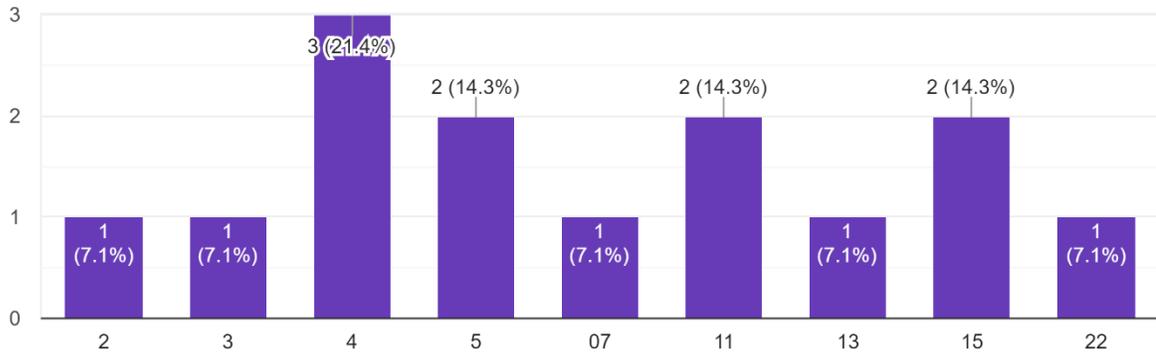
Quel type d'analyse est-il réalisé dans votre laboratoire?

14 responses



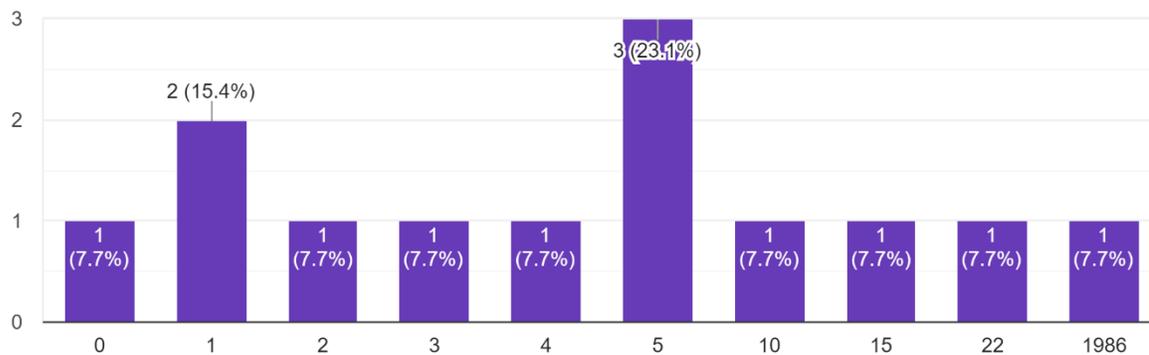
Veillez indiquer le nombre de membres du personnel du laboratoire

14 responses



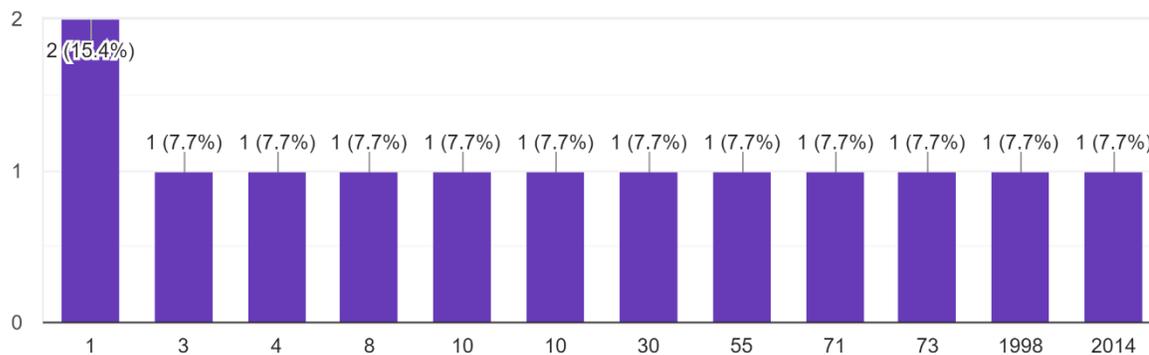
Depuis combien d'années avez-vous commencé à appliquer les procédures d'hygiène et sécurité dans votre laboratoire?

13 responses



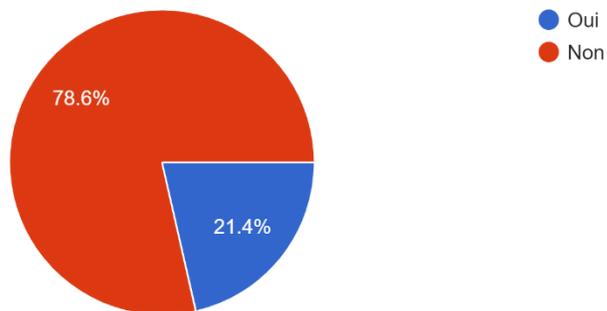
Depuis combien d'années le laboratoire effectue des analyses de sol ?

13 responses



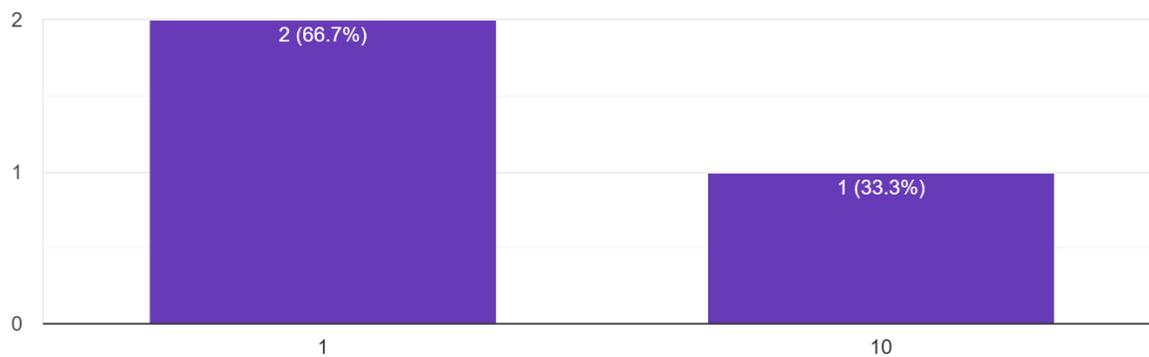
Avez-vous eu une formation en hygiène et sécurité dans le cadre de votre laboratoire?

14 responses



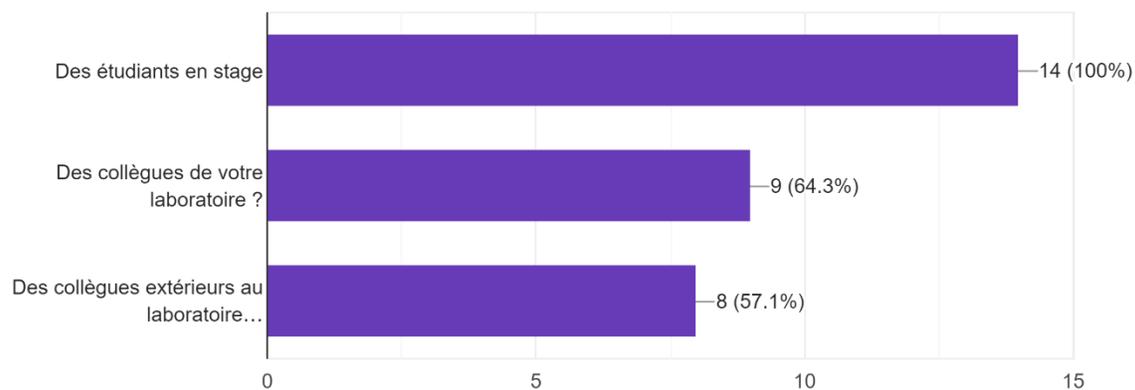
Si oui, quelle a été la durée totale (en jours) de votre formation en hygiène et sécurité dans le cadre de votre laboratoire ?

3 responses



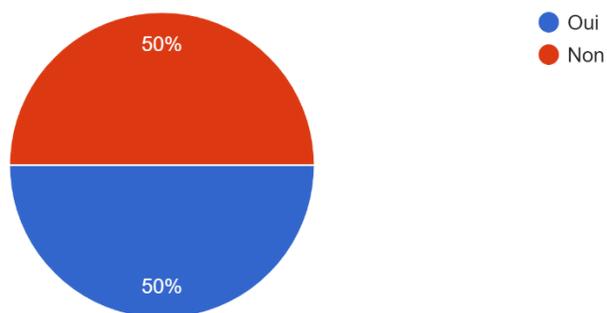
Recevez-vous dans votre laboratoire:

14 réponses



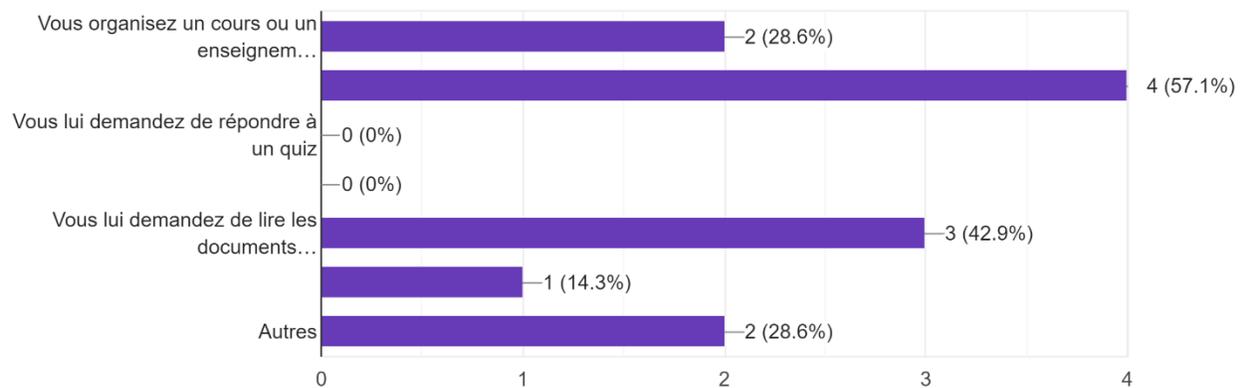
À l'arrivée d'une nouvelle personne (permanente ou non permanente) dans votre équipe ou votre laboratoire, est-ce que vous lui donnez une formation aux procédures d'hygiène et sécurité ?

14 réponses



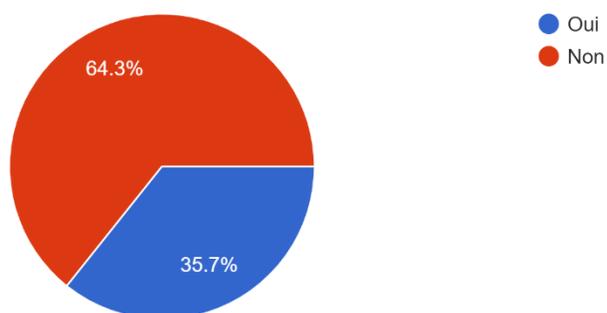
Quelle méthode utilisez-vous pour la formation des personnes qui arrive dans votre équipe ou votre laboratoire ?

7 responses



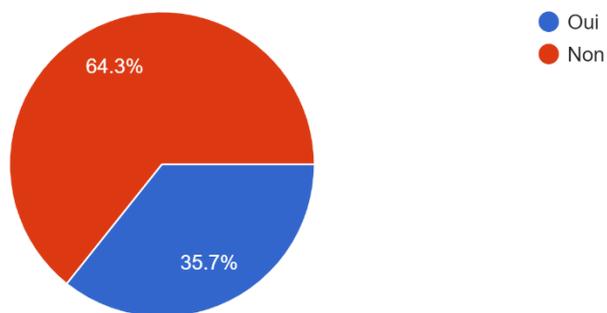
Avez-vous votre propre manuel d'hygiène et sécurité?

14 responses



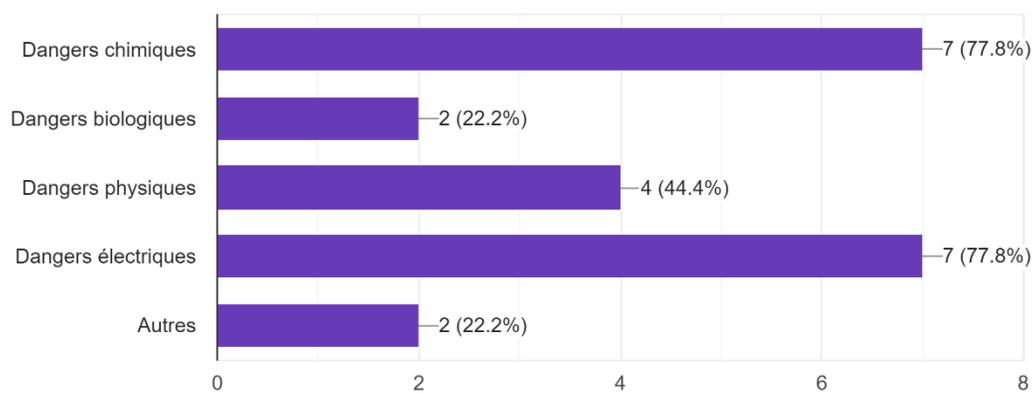
Avez-vous des affiches H&S collées au mur de votre laboratoire?

14 responses



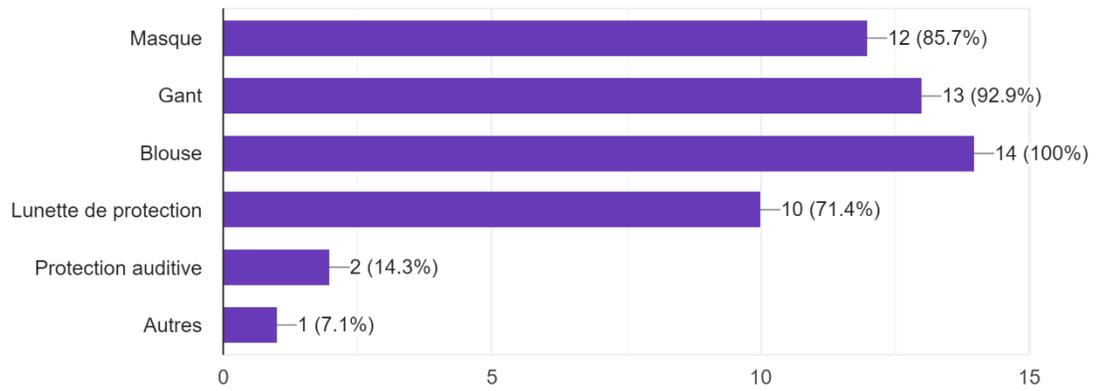
Pour lequel des dangers suivants avez- vous des indications affichées au mur ?

9 responses



### Quels Équipements de Protection Personnel (EPP) sont utilisés dans votre laboratoire ?

14 responses



### Avez-vous un budget pour les équipements d'hygiène et sécurité?

14 responses

