Food and Agriculture Organization of the United Nations

4th Workshop of the International Network of Black Soils

30 March 2023

What is it?

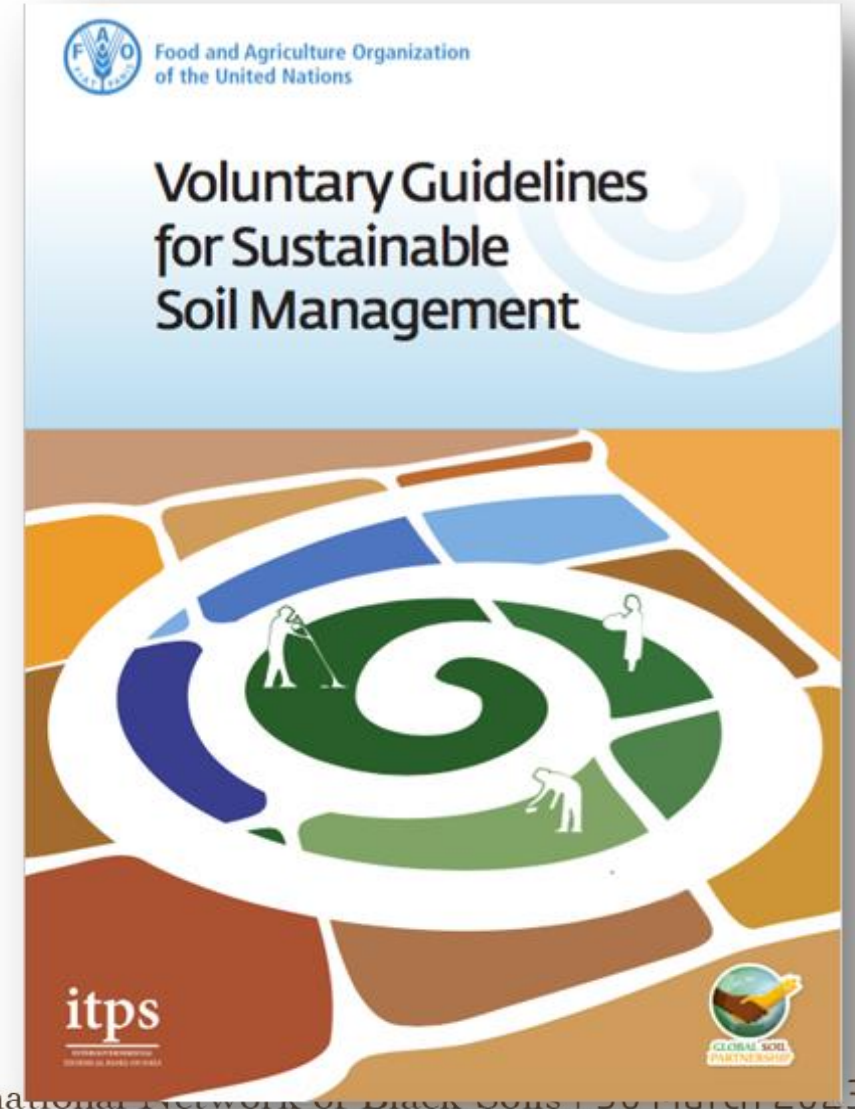
- Farmer-to-farmer training programme

Aim

- Building the capacity of farmers on soils and sustainable soil management;

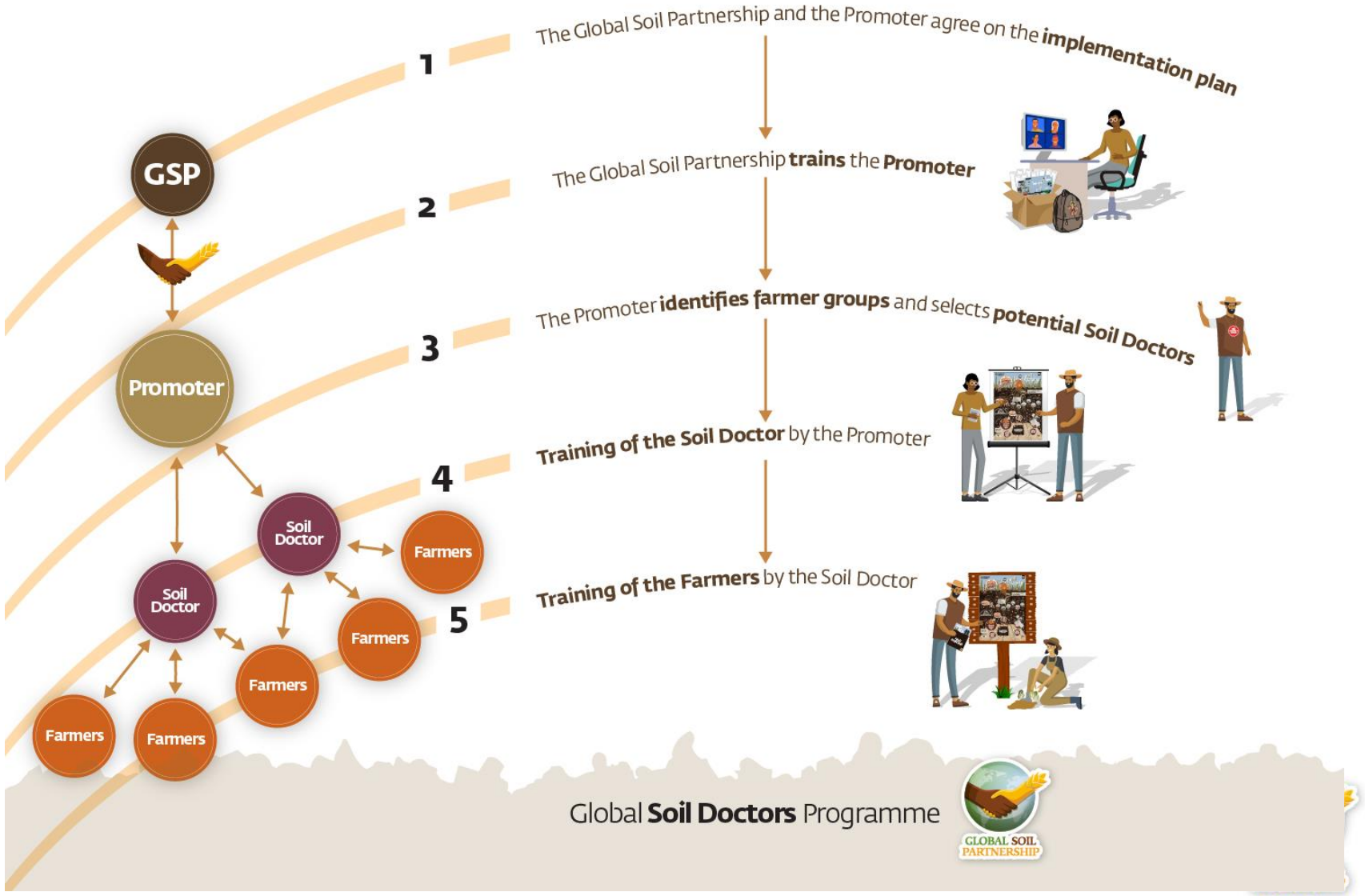
Perspectives

- To support a self-sufficient system that will promote good practices on sustainable soil management and optimize available national resources



Roadmap

Actors



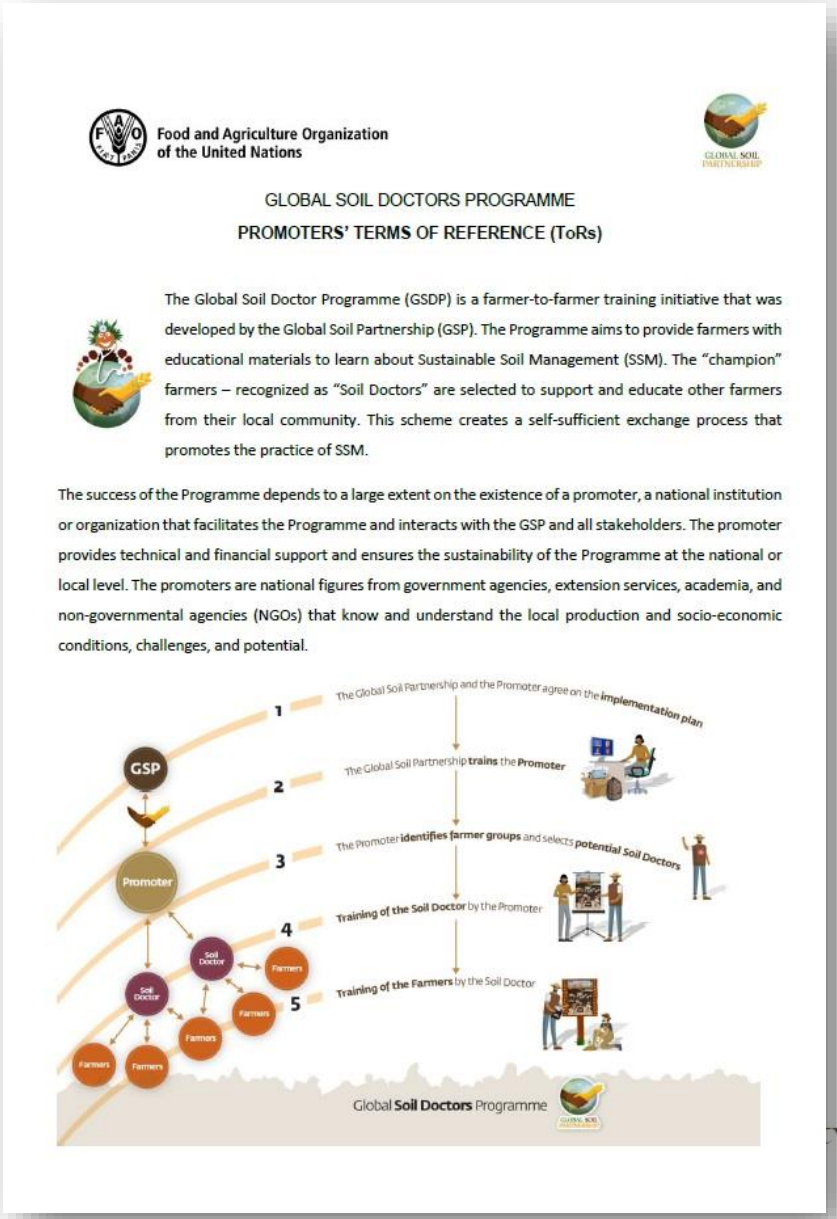
The role of the promoting institution

- **Terms of reference**

  List of criteria for the promoter selection, roles and benefits

- **Registration form**

  Formalization of the voluntary collaboration between GSP and the promoter



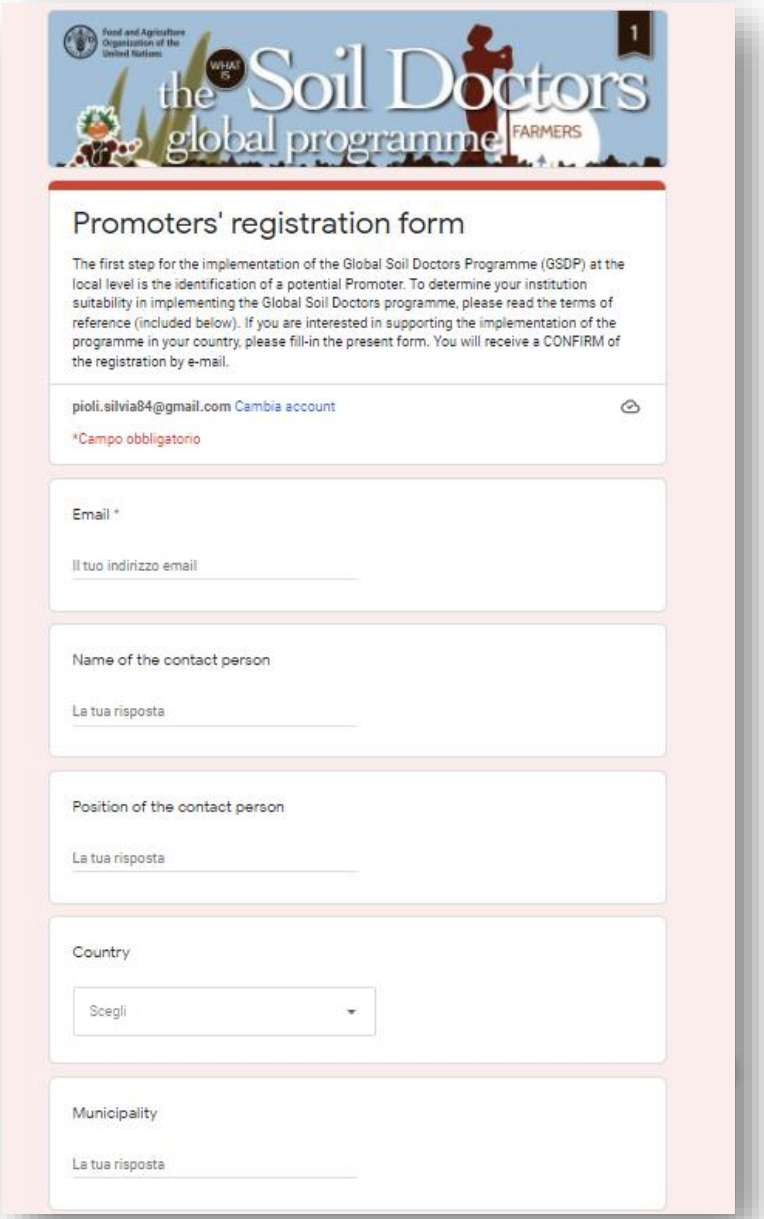
Food and Agriculture Organization of the United Nations

GLOBAL SOIL DOCTORS PROGRAMME

PROMOTERS' TERMS OF REFERENCE (ToRs)

The Global Soil Doctor Programme (GSDP) is a farmer-to-farmer training initiative that was developed by the Global Soil Partnership (GSP). The Programme aims to provide farmers with educational materials to learn about Sustainable Soil Management (SSM). The "champion" farmers – recognized as "Soil Doctors" are selected to support and educate other farmers from their local community. This scheme creates a self-sufficient exchange process that promotes the practice of SSM.

The success of the Programme depends to a large extent on the existence of a promoter, a national institution or organization that facilitates the Programme and interacts with the GSP and all stakeholders. The promoter provides technical and financial support and ensures the sustainability of the Programme at the national or local level. The promoters are national figures from government agencies, extension services, academia, and non-governmental agencies (NGOs) that know and understand the local production and socio-economic conditions, challenges, and potential.



the Soil Doctors global programme FARMERS

Promoters' registration form

The first step for the implementation of the Global Soil Doctors Programme (GSDP) at the local level is the identification of a potential Promoter. To determine your institution suitability in implementing the Global Soil Doctors programme, please read the terms of reference (included below). If you are interested in supporting the implementation of the programme in your country, please fill-in the present form. You will receive a CONFIRM of the registration by e-mail.

pioli.silvia84@gmail.com Cambia account

*Campo obbligatorio

Email *

Il tuo indirizzo email

Name of the contact person

La tua risposta

Position of the contact person

La tua risposta

Country

Scegli

Municipality

La tua risposta

The Terms of Reference

- Promoter
- Independent Actor
- Promoters' Trainers
- Soil Doctors

The criteria for selecting promoters, as well as the promoters' role and benefits are listed below. For a more comprehensive overview of the Programme and its implementation, please refer to the Soil Doctor website.

The promoter should meet the following criteria:

1) Belong to a governmental agency, extension service, soil science society, local/regional association, NGO, the private sector or any other recognized institution actively working on SSM in the country or be a soil academic;
2) Demonstrate interest in SSM topics (see the Voluntary Guidelines for Sustainable Soil management), and possess a solid general knowledge of agriculture, land management or natural resources management;
3) Be able and interested in sustaining the Programme over a long-term period;
4) Have existing links and connections with the farming community (the promoter must be trusted by farmers) and have access to farmers' network of contacts;
5) Have access to financial resources to sponsor the trainers and/or the costs of running the Programme;
6) Ideally, the promoter at national level should have the possibility to coordinate and collaborate with other promoters at the local level.

Roles of the promoter:

1) Facilitate the participation of trainers in the GSP training sessions;
2) Identify farmer groups who will participate in the Programme and disseminate information to encourage them to take part;
3) Select the trainers to be trained by the GSP according to the criteria listed in Annex 1;
4) Identify and select the potential Soil Doctors, according to the criteria listed in Annex 2;
5) Train the Soil Doctors on the use of the educational materials developed by the GSP;
6) Provide Soil Doctors with the educational material needed for the implementation of the Programme;
7) Support the Soil Doctors training of other farmers;
8) Be available to support the GSP with the translation of the educational materials into local languages;
9) Integrate the GSP educational materials with related resources and initiatives already present at the country level;
10) Enable the exchange of information between the GSP Secretariat and the Soil Doctors (ensure a regular flow of feedback);
11) Share feedback from the implementation (e.g. field experiences and local knowledge) with the GSP and provide suggestions on how to improve the Programme.

Benefits for the promoter

1) The promoter will receive high quality and up-to-date training materials for the trainers and for the Soil Doctors (posters, soil kits, visual identity elements) according to their availability in the GSP or FAO national offices;
2) The promoter will strengthen interactions with farmers and rural communities, which will facilitate the monitoring of activities and enhance the sharing of local knowledge and experience;
3) The promoter will strengthen its linkages and working relationships with FAO offices and the GSP;
4) The promoter will have the opportunity to exchange and collaborate with other GSP partners within and outside the country, scaling up cross-regional technical and scientific collaboration;
5) The promoter will gain visibility and recognition through the GSP web resources such as maps, implemented educational materials, sharing of local initiatives, videos and photographs.

How to become a promoter

To support the Programme and become a promoter, fill-in the registration form available here or contact the GSDP at soil-doctor@fao.org

Reference documents:

Soil doctors' posters

Voluntary guidelines for sustainable soil management

ANNEX 1 - Criteria for the selection of the Promoter's trainers

a) Have a formal education such as a certificate, diploma or university degree in soil science, agriculture, agronomy, or related fields with a good understanding of sustainable soil management principles;
b) Be employed by, or available to support the promoter in the long term to train and support Soil Doctors in the country or on a selected sub-national level;
c) Be able to speak the relevant local language(s) in the given country or in the specific sub-national regions in order to train and communicate with local farmers;
d) For the training-of-trainers provided by the GSP Secretariat, at least one Soil Doctor trainer per country (preferably two) should be fluent in one of the six UN languages (Arabic, Chinese, English, French, Russian, Spanish);
e) Possess, or be able to build strong relations with the farming community and Soil Doctors (the trainers should be trusted by farmers);
f) Have the ability to train the Soil Doctors using the available training materials;
g) Provide support to Soil Doctors in building the capacities of farmers in their communities;
h) Be able to contribute to the selection and adaptation of Soil Doctor training materials (posters, soil testing methods, soil testing kits, etc.) and adapt them for use in a local context (language, relevance information, etc.);
i) Be available and willing to undergo training; and
j) Be willing to undergo the required evaluation to become a certified Soil Doctor trainer.

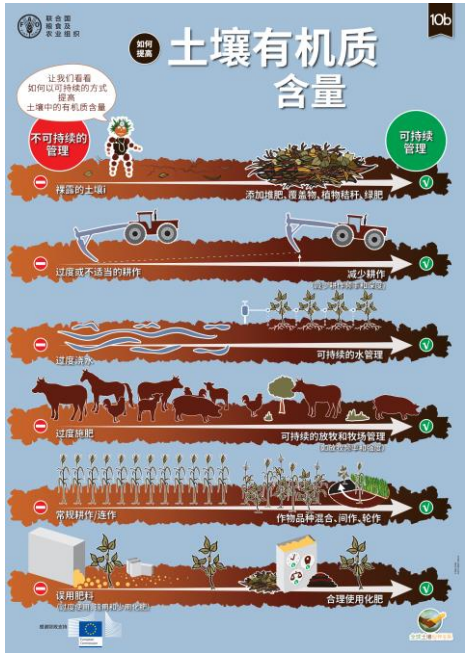
ANNEX 2 - Criteria for the selection (by the promoter) of Soil Doctors

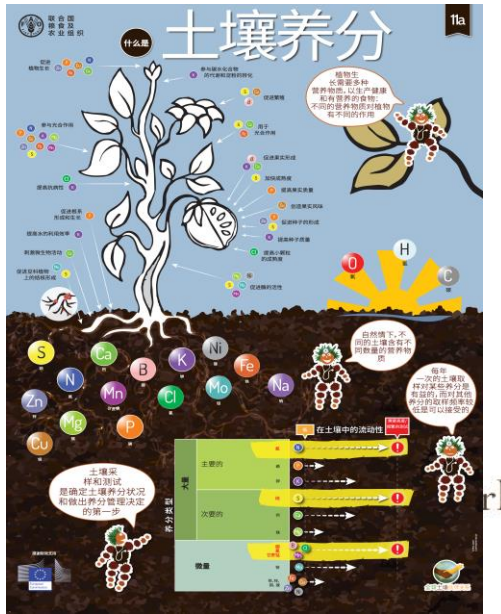
a) Represent a range of geographical areas, ensuring gender and ethnic diversity;
b) Be willing to coordinate or host demonstration plots;
c) Show availability and willingness to undergo specific training to become a certified Soil Doctor;
d) Be able and eager to share knowledge with fellow farmers by conducting training sessions offered to farmers at community level and even in other communities;
e) Lead by example innovative thinking and experimentation from their own farming practices;
f) Be able and willing to assist farmers in conducting basic assessments of their soils using the methods they received training for; and
g) Be willing to share their local knowledge and experience with the promoters who will tl with the GSP to improve the GSDP.

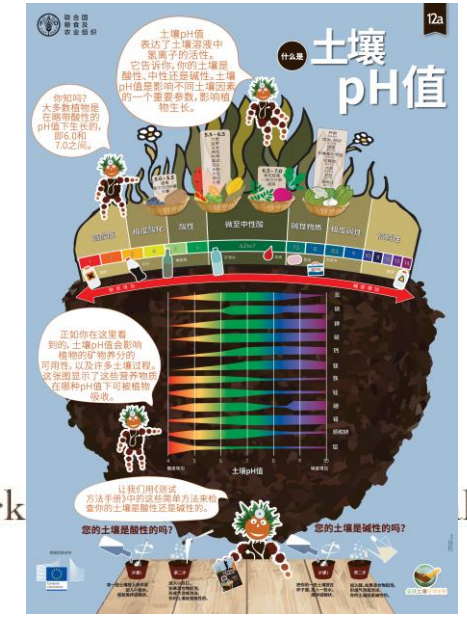
Soil Doctors

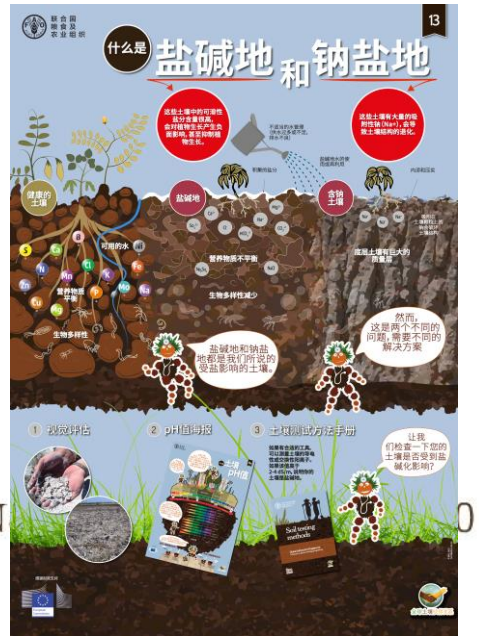
Educational Materials: Posters' overview

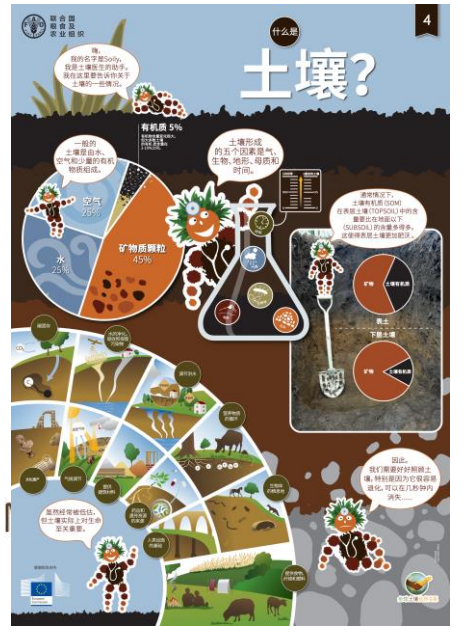
Poster translations











Soil educational kits

Soil Kit - Standard version (qualitative assessment)	
Type	**Feature**
Physical properties	Texture
	Organic matter*
	Soil structure
	Aggregate stability
Chemical properties	Soil pH
	Carbonates
Biological properties	Litter decomposition
	Invertebrates
	Roots status*

*the assessment of this parameter does not need any specific tool, just a visual evaluation

Soil educational kits

GLOBAL SOIL PARTNERSHIP

Field Exercises

Field activity 2 – soil colour

Food and Agriculture Organization of the United Nations

Global Soil Doctors Programme

Physical soil properties – Excercise P02

ORGANIC MATTER: COLOUR OBSERVATION

Reference posters n.10a-10b

RELEVANCE	Soil colour is a very useful indicator of soil quality because it can provide an indirect measure of other more useful soil properties that are not as easily and accurately assessed, such as organic matter (OM). Soil OM plays an important role in regulating most of the biological, chemical and physical processes in soil, which together determine the health of the soil. For this exercise[1] we need to simply assess the topsoil colour, if there is a good amount of organic matter, the surface horizon will be darker and clearly defined. A change in soil colour can give a general indication of a change in organic matter under a certain land use or soil management.
MATERIALS	 Trowel
PROCEDURE	1) Using the trowel, collect at least two soil samples: one from the field, the second one from under the nearest fence or similar protected/undisturbed area  © S. Pioli
	2) Compare the relative difference in colour of the soil samples. Use the three photographs of the evaluation example below to identify relative change in soil colour that has occurred.  © S. Pioli
ADVANTAGES OF THE METHOD	Easy to implement, no specific tool required. It is possible to compare soils with different management
LIMITATIONS OF THE METHOD	Colour is subjective, this method should always be carried on in comparison to a reference soil, which is sometimes not easy to find. Colour is not always directly or exclusively related to OM and not all soils show marked colour changes with changing OM content.
QUESTIONS TO BE ADDRESSED	Are there evident differences in soil colour between the sites? If there are differences, which soil appears darker? Which soil do you think has more organic matter content? What are the differences between the two sites in terms of soil disturbance and vegetation cover? What do you think is the main source of organic matter at the different sampling sites? Which practices do you think would improve OM?

EVALUATION EXAMPLES[2]

POOR	MODERATE	GOOD
The colour of the soil is much paler than that under the protected/undisturbed area (fence). It is not possible to distinguish the surface horizon from the sub-surface horizon	The color of the topsoil is paler than that under the fence line, but the color difference is not striking. The colour of the surface horizon is pale and differs little from the lower horizon.	The topsoil is dark and markedly different from the lower horizon. The color of the topsoil is similar to that of the protected/undisturbed area (fence).
 © FAO 2008	 © FAO 2008	 © FAO 2008

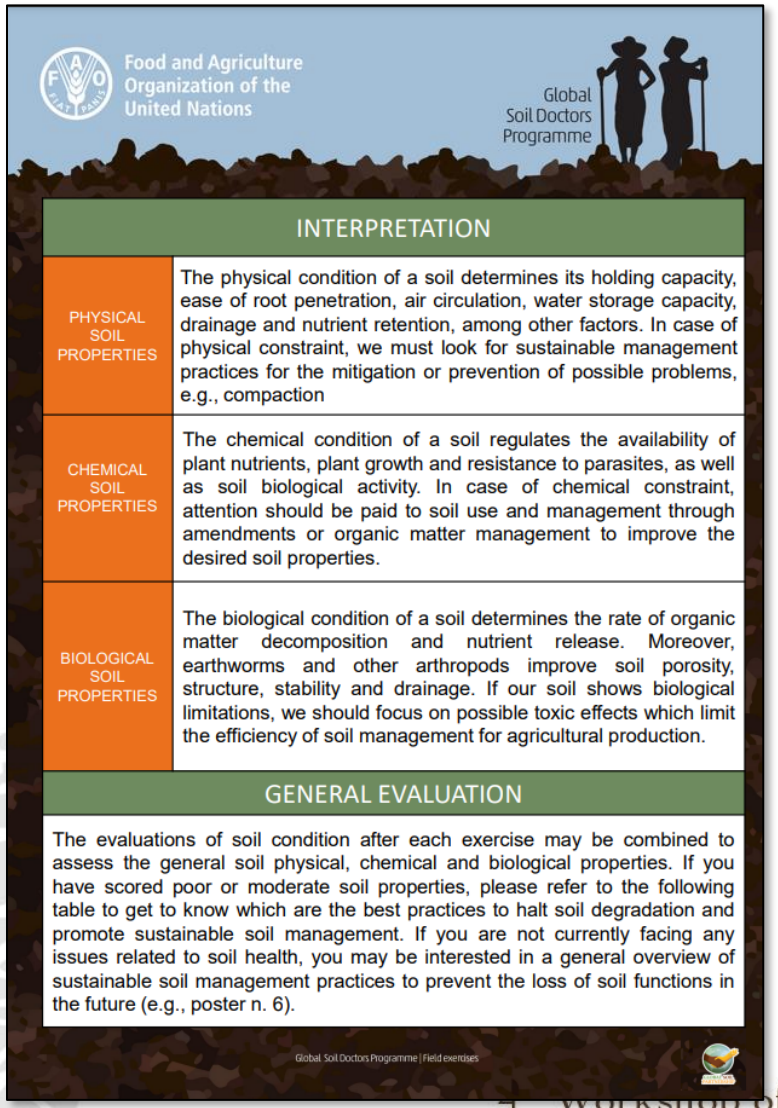
[1] https://www.fao.org/3/i0007e/i0007e00.pdf

[2] As the colour of the topsoil can vary significantly between soil types, the photographs illustrate the degree of colour change rather than the absolute colour of the soil.

Global Soil Doctors Programme | Field exercises

GLOBAL SOIL PARTNERSHIP

Evaluation of soil conditions and recommendations



Food and Agriculture Organization of the United Nations

Global Soil Doctors Programme

INTERPRETATION

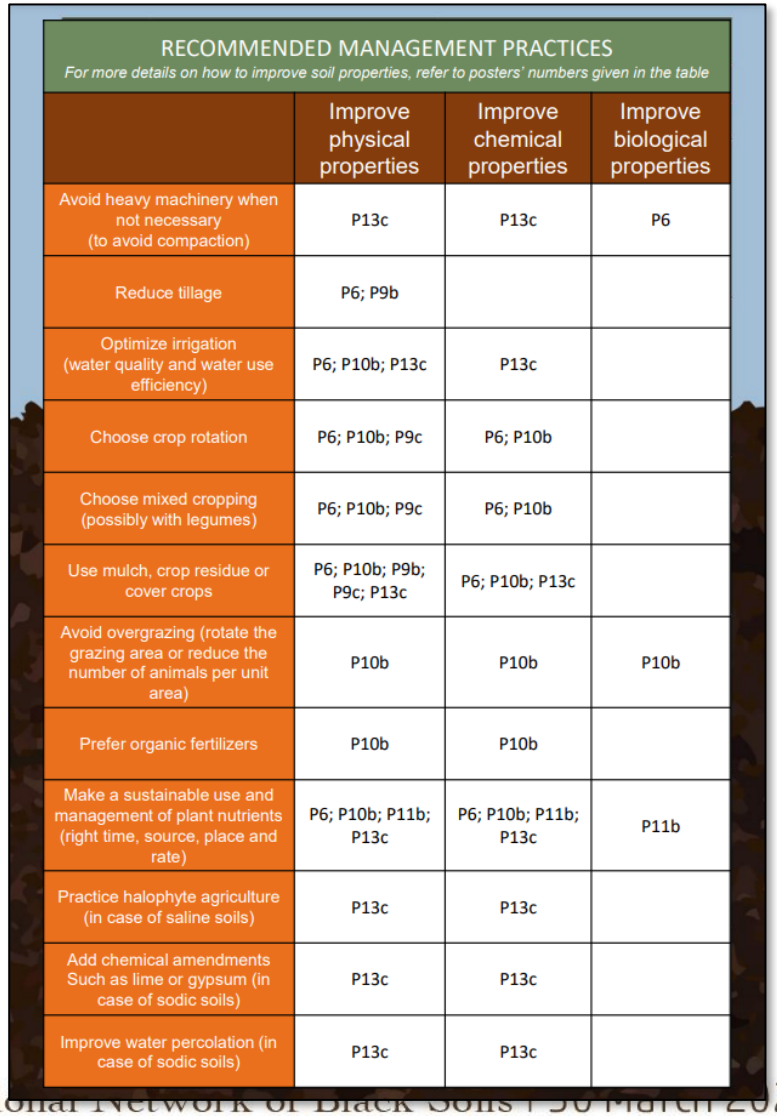
PHYSICAL SOIL PROPERTIES	The physical condition of a soil determines its holding capacity, ease of root penetration, air circulation, water storage capacity, drainage and nutrient retention, among other factors. In case of physical constraint, we must look for sustainable management practices for the mitigation or prevention of possible problems, e.g., compaction
CHEMICAL SOIL PROPERTIES	The chemical condition of a soil regulates the availability of plant nutrients, plant growth and resistance to parasites, as well as soil biological activity. In case of chemical constraint, attention should be paid to soil use and management through amendments or organic matter management to improve the desired soil properties.
BIOLOGICAL SOIL PROPERTIES	The biological condition of a soil determines the rate of organic matter decomposition and nutrient release. Moreover, earthworms and other arthropods improve soil porosity, structure, stability and drainage. If our soil shows biological limitations, we should focus on possible toxic effects which limit the efficiency of soil management for agricultural production.

GENERAL EVALUATION

The evaluations of soil condition after each exercise may be combined to assess the general soil physical, chemical and biological properties. If you have scored poor or moderate soil properties, please refer to the following table to get to know which are the best practices to halt soil degradation and promote sustainable soil management. If you are not currently facing any issues related to soil health, you may be interested in a general overview of sustainable soil management practices to prevent the loss of soil functions in the future (e.g., poster n. 6).

Global Soil Doctors Programme | Field exercises

Front



RECOMMENDED MANAGEMENT PRACTICES

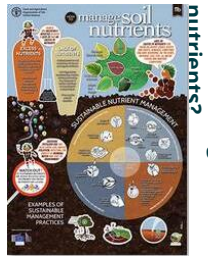
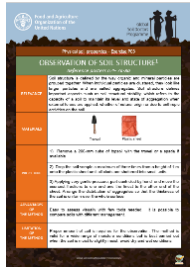
For more details on how to improve soil properties, refer to posters' numbers given in the table

	Improve physical properties	Improve chemical properties	Improve biological properties
Avoid heavy machinery when not necessary (to avoid compaction)	P13c	P13c	P6
Reduce tillage	P6; P9b		
Optimize irrigation (water quality and water use efficiency)	P6; P10b; P13c	P13c	
Choose crop rotation	P6; P10b; P9c	P6; P10b	
Choose mixed cropping (possibly with legumes)	P6; P10b; P9c	P6; P10b	
Use mulch, crop residue or cover crops	P6; P10b; P9b; P9c; P13c	P6; P10b; P13c	
Avoid overgrazing (rotate the grazing area or reduce the number of animals per unit area)	P10b	P10b	P10b
Prefer organic fertilizers	P10b	P10b	
Make a sustainable use and management of plant nutrients (right time, source, place and rate)	P6; P10b; P11b; P13c	P6; P10b; P11b; P13c	P11b
Practice halophyte agriculture (in case of saline soils)	P13c	P13c	
Add chemical amendments Such as lime or gypsum (in case of sodic soils)	P13c	P13c	
Improve water percolation (in case of sodic soils)	P13c	P13c	

Back

GLOBAL SOIL PARTNERSHIP

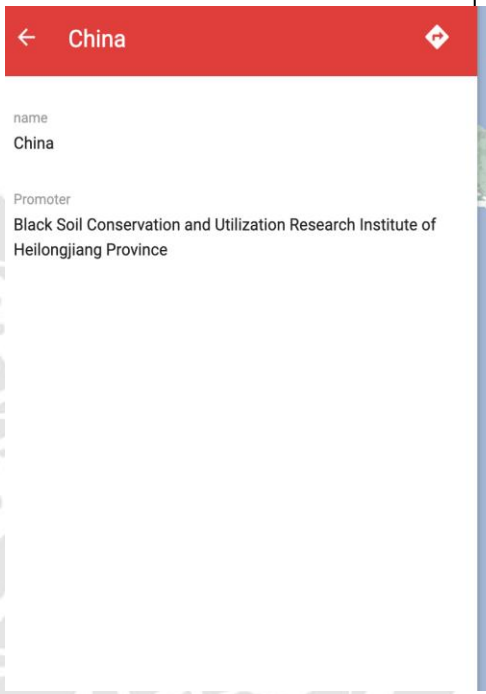
Module 1 – SSM of Black Soils (Overview)

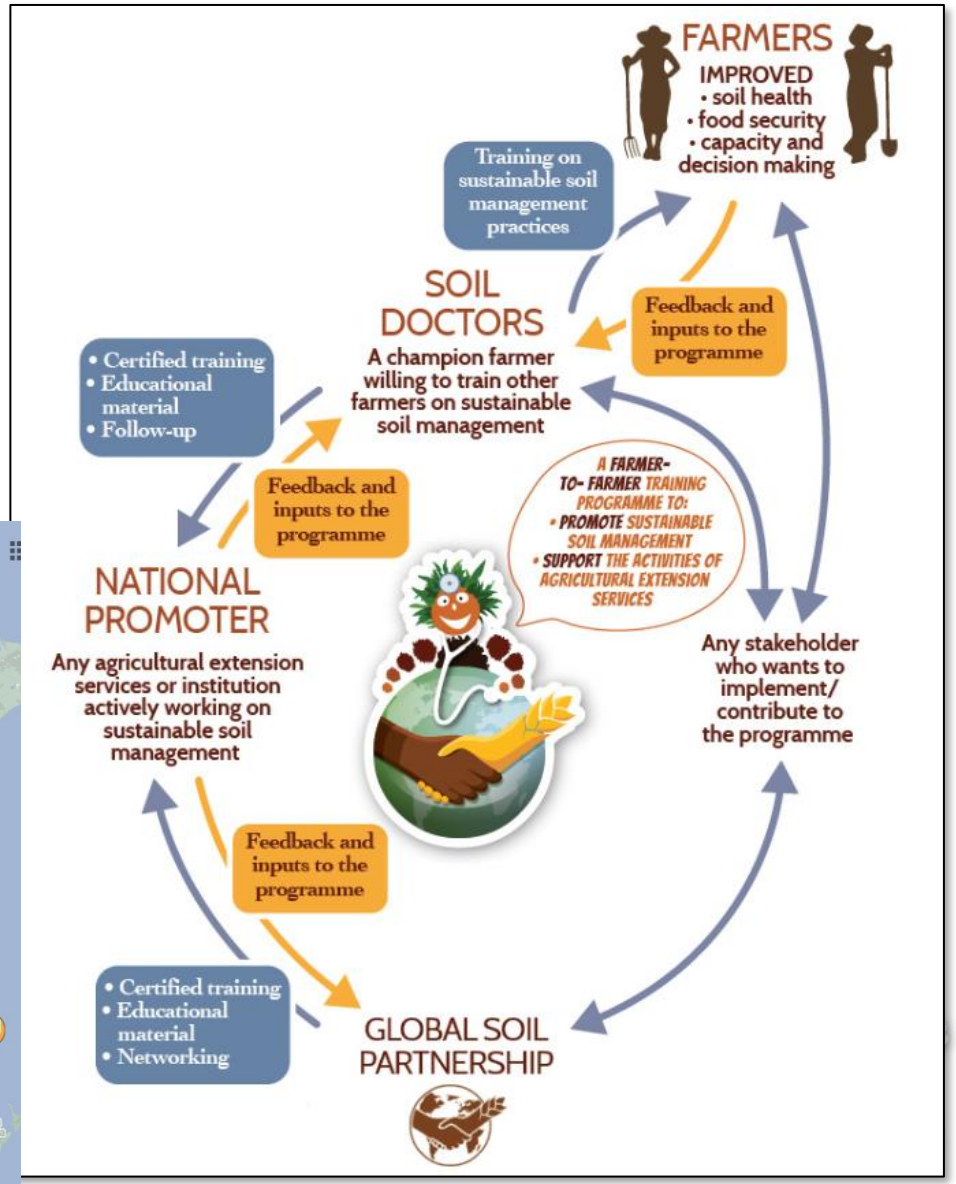
Topic	SSM of Black soils
Objective	To scale up measures for sustainable management of black soils with focus on soil organic carbon (SOC) and soil fertility by (a) preventing future losses of SOC and increasing soil fertility in black soils; (b) improve farmers income; and (c) contribute to food security.
Soil kit	Basic soil kit
Posters	 What is soil? +  What is soil organic matter?  How to enhance soil organic matter content? +  How to manage soil nutrients?
Field exercises	 Texture  Observation of soil structure  Roots  Organic matter: Colour Observation  Soil pH  Nutrient availibility
Evaluation and Recommended practices	 

Visual identity

Communication and visibility

- New website





Communication and visibility

- Highlights published regularly

- Media gallery updated regularly

Positioning the Soil Doctors Programme as a mechanism that matters

As the Soil Doctors Programme enters its second year, it has successfully scaled-up farmer-to-farmer training initiatives in Bangladesh, Malawi and Mexico. The Programme will continue to strike up robust partnerships for the benefit of smallholders, empowering them to scale-up cost-effective, sustainable soil management (SSM) practices.

27/01/2022 Empowering farmers to safeguard sustainable soils

The Global Soil Do
initiative that was
Global Soil Partne
Programme is to
principles by prov
preserve and rest
contributes to rai

These pilot schemes have illustrated the importance of establishing a
the national promoter and the "champion" farmer – also known as a
other farmers in the local community.

Promoters are an essential component of the Programme and it is vi
country so that they can offer solutions from knowledge, experience
resources to extend them to their local communities. Promoters are
agencies, national extension services, soil science societies, universiti
organizations (NGOs) or farmers' associations.

Thailand's testing kits empower farmers to monitor the state of their soils

Getting the balance right: regulating soil pH values to improve agricultural production

23/02/2022 The Global Soil Partnership's (GSP) Soil Doctors Programme is upgrading the soil testing kits that are part of the Programme's educational materials thanks to a donation from the government of Thailand.

Earlier this month, Thailand donated 1,000 soil pH testing kits to the GSP to be distributed to farmers who are participating in the Programme, which currently spans Bangladesh, Bolivia, Burkina Faso, Colombia, the Gambia, and Mexico.

Other countries will be selected to engage over the course of 2022 so that the Programme can enhance its' capacities and extend the reach of sustainable soil management (SSM) to different regions around the world.

GSP. The Thai
soil health

ntist, and the

Celebrating the first 20 soil doctors' trainers in Burkina Faso

The first phase of the Global Soil Doctors programme has successfully been implemented in Burkina Faso. This was made possible thanks to the close collaboration and pivotal role of the national promoter, BUNASOLS (Bureau National des Sols). Twenty technicians from BUNASOLS and from the extension service of the Ministry of Agriculture, Animal Resources and Fisheries completed the online training of the FAO's Global Soil Partnership (GSP) for becoming national trainers of the Global Soil Doctors programme. The training lasted three half-days and focused on the key role
ls for human nutrition and food security. A series of posters and field exercises were developed to cover

24/11/2022 After the online training, the trainers had to put the acquired knowledge into practice and present the program's educational tools to farmers in nearby villages. All the trainers proved excellent training capacities and a strong willingness to share the concepts and practices of sustainable soil management with farmers, complementing the face-to-face capacity building with practical examples and local knowledge. As a result, the twenty trainers were certified as official Global Soil Doctors Trainers at an official ceremony held on November 4, 2022 in Ouagadougou. The ceremony brought
onal representatives and stakeholders to recognize the success of this first phase of the implementation.
is event proved to be an important venue for advancing further the cause of sustainable soil
, increasing the participation of national partners and ultimately ensuring the upscaling of the
at the national level.

Collaborations

Food and Agriculture Organization of the United Nations

4th Workshop of the International Network of Black Soils

Thank you!

30 March 2023