



COTTON
MADE IN
AFRICA



How to evaluate soil quality without a laboratory?

Hamburg, 2023

Basic Soil Assessment Guidance



This simple soil assessment guide was developed by sustainable AG in cooperation with the consortium partners of the CAR-iSMa project. CAR-iSMa stands for "Climate Adaption and Resilience: a Pan-African Learning and Knowledge Exchange Project on Improved Soil Management". Created at the initiative of the Aid by Trade Foundation, the project is supported by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) with funding from the German Federal Ministry for Economic Cooperation and Development (BMZ) and is being implemented in collaboration with LDC Switzerland and the three CmiA-audited cotton companies: CIDT in Côte d'Ivoire, SAN-JFS in Mozambique and LDC in Zambia.









san





The five points of basic soil evaluation without a lab

- Soil color 
- Soil smell 
- Soil texture 
- Soil structure 
- Soil life  

Soil color evaluation



Soil color evaluation

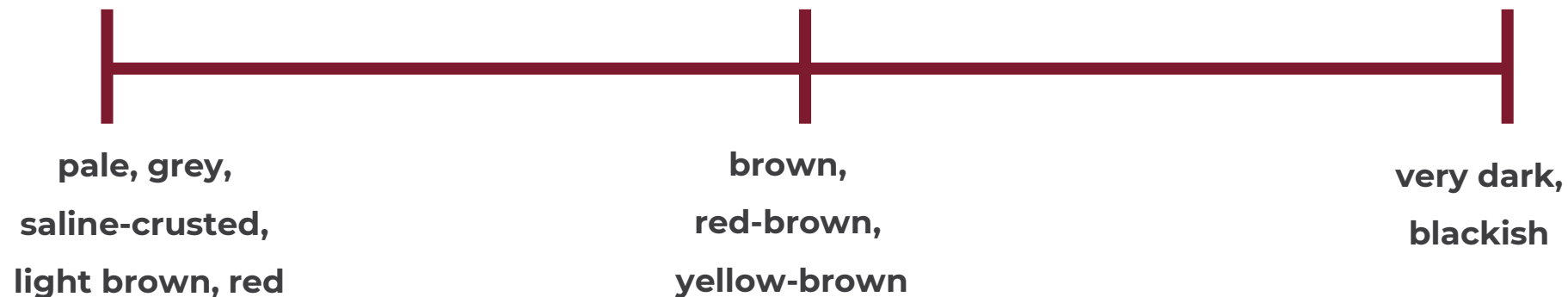


- Look at the soil sample.
- The darker the color, the more organic matter.
- The more organic matter, the better the soil's potential to sustain a good crop growth.

1 point

2 points

3 points



Soil smell evaluation



- Smell the soil sample.
- The better the smell, the more air the soil contains → A fertile soil has a certain air content.
- The worse the smell, the less air is in the soil (after waterlogging) → Crops do not grow in such a soil.

1 point

2 points

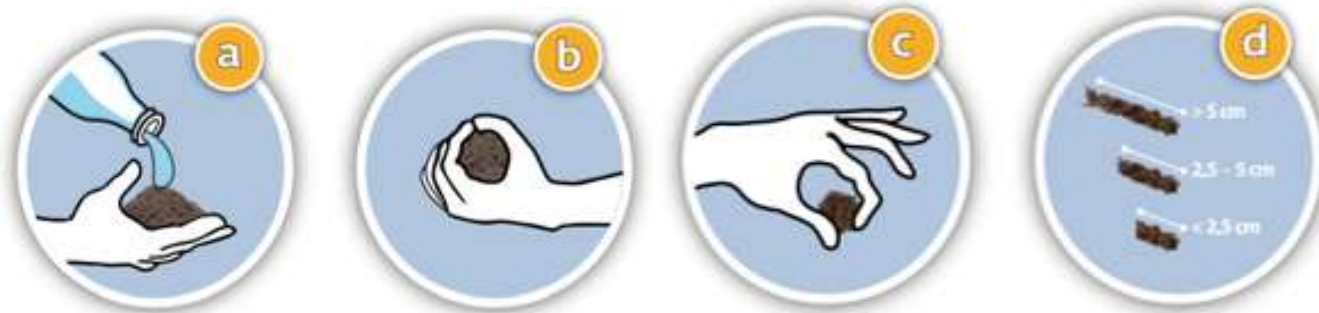
3 points





Soil texture evaluation

- Take a handful of soil, add a small portion of water to it and start mixing the two until the soil feels moldable.
- Try to form a ball with the soil. If you cannot form a ball, it is probably sand.
- Try to form a ribbon by placing the soil between your thumb and index finger and squeezing the soil upwards to form a ribbon. Can the soil form a ribbon? If yes, continue to d. If not, it is probably loamy sand.
- The soil can form ribbons, but how long can they get? If the ribbon breaks at 2.5 centimeters or below, the soil is a type of loam. If the ribbon is between 2.5 and 5 centimeters, it is a type of clay loam, and if it reaches over 5 centimeters, it is a type of clay.



Source: FAO, 2020



Soil texture evaluation (for cotton)



1 point

3 points

2 points



sandy

loamy

clayey or at
least very fine



Soil structure evaluation



- How do the small soil particles behave together?
- The more crumbly the better – a good soil management can improve the structure.
- The better the structure, the more water, nutrients, air and life a soil can host.

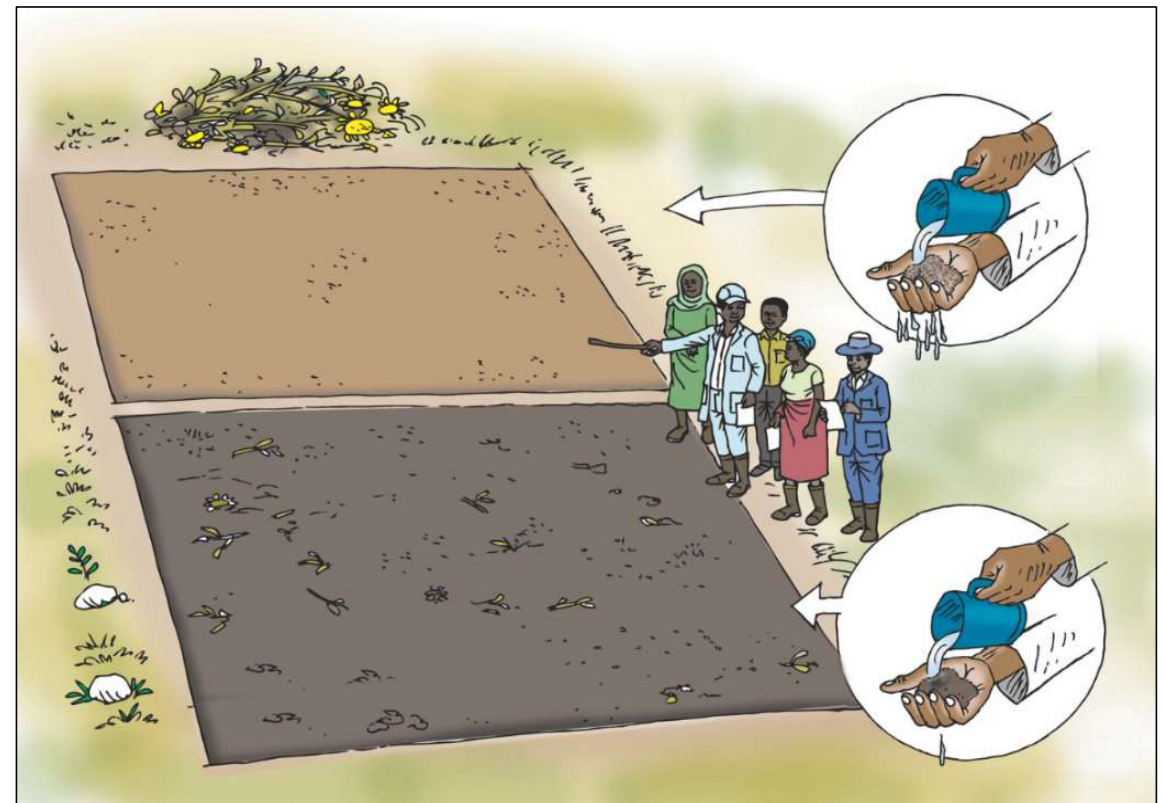


Illustration of the differences between soil with good humus levels (consequence of composting) and degraded sandy soil by James Kazembe

Soil structure evaluation



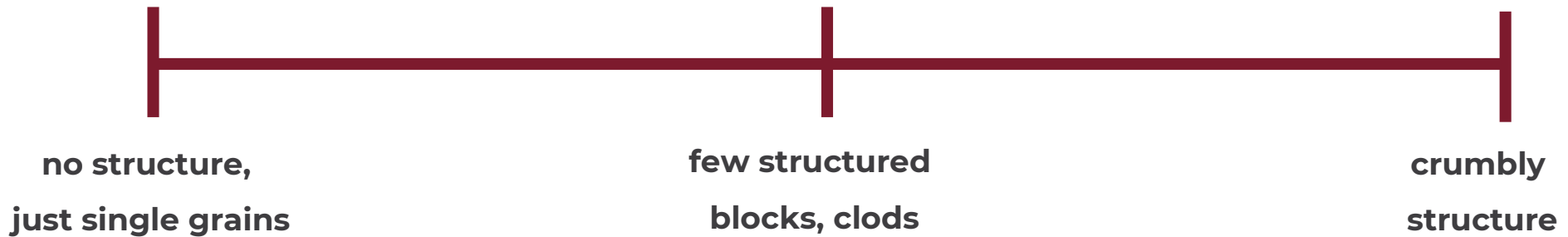
1 point



2 points



3 points



Soil life evaluation

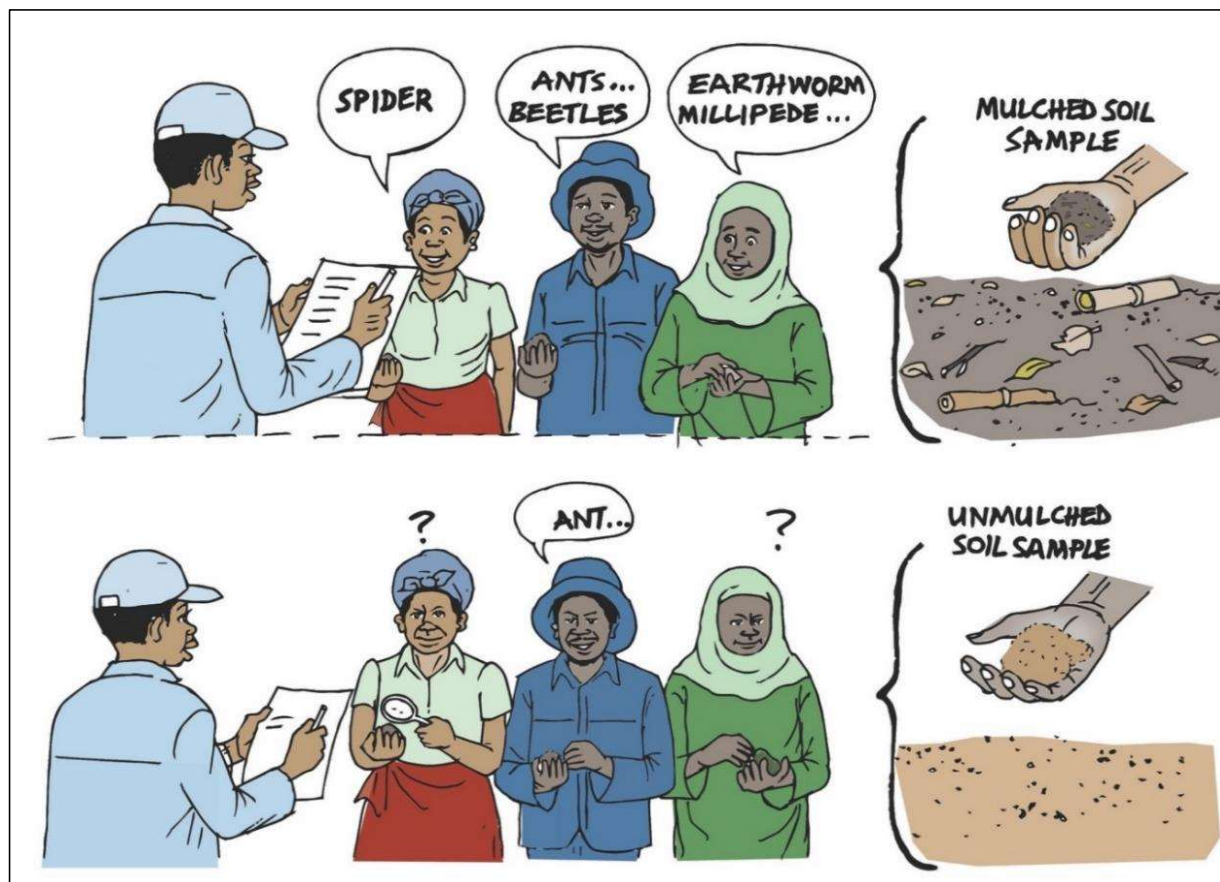


Illustration of soil live evaluation by James Kazembe

Soil life evaluation



- Insects and small microbes live, die and feed together with the plants.
- Look for soil animals and plant roots.
- The more animals and the more roots, the better.



Discussion

How to explain the importance of evaluating soil health to farmers, so that they will understand and remember?



Illustration by James Kazembe



AID BY TRADE FOUNDATION

The Aid by Trade Foundation (AbTF) is an internationally active and recognized non-profit organization for sustainable raw materials that makes a decisive and measurable contribution to improving the living conditions of people, animals and protecting the environment. We provide the funds required for this through our marketing company ATAKORA GmbH by activating market forces and achieve this mainly through the granting of licenses and the valorization of services. Innovations are an important component for the further development of our organization. The foundation was founded in 2005 by the Hamburg-based entrepreneur Prof. Dr Michael Otto.

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