Soils improve food security and our resilience to floods and droughts

What is soil moisture?
Soil moisture content is the amount of water in the soil (by weight).

The maximum amount of water that a soil can retain depends on:
- the soil's texture and structure
- organic matter content
- rooting depth

Healthy soils with a high organic matter content can store large amounts of water. This is crucial for maintaining food production while also improving resilience to floods and droughts.

Soil moisture and food security

Water is the "lifeblood" of agriculture — improved soil moisture management is critical for sustainable food production.

Inhibiting a soil's capacity to accept, retain, release and transmit water reduces its productivity.

Efficient use of water, reduced use of pesticides and improvements in soil health can lead to average crop yield increases of 79%.

Soil organic matter can retain about 20 times its weight in water.

Soil moisture and food security

Meeting food security targets requires sustainable agricultural policies that ensure improved soil quality and water retention.

The great challenge for the future will be increasing food production with less water.

As most smallholder farmers in developing countries rely on rain-fed agriculture, improved soil moisture optimization and management is crucial.

Over cultivation, overgrazing and deforestation strain soil and water resources by reducing topsoil and vegetation cover, and lead to dependence on irrigated cropping.

Many sustainable agricultural and land management practices can improve soil moisture retention:
- Residue covers, cover crops and mulching
- Conservation agriculture
- Knowledge-based precision irrigation
- Capture of runoff from adjacent lands
- Zero-tillage
- Rainwater harvesting

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