



Soil Transformation of European Catchments (SoilTrEC) Project Fact Sheet (www.soiltec.ec)

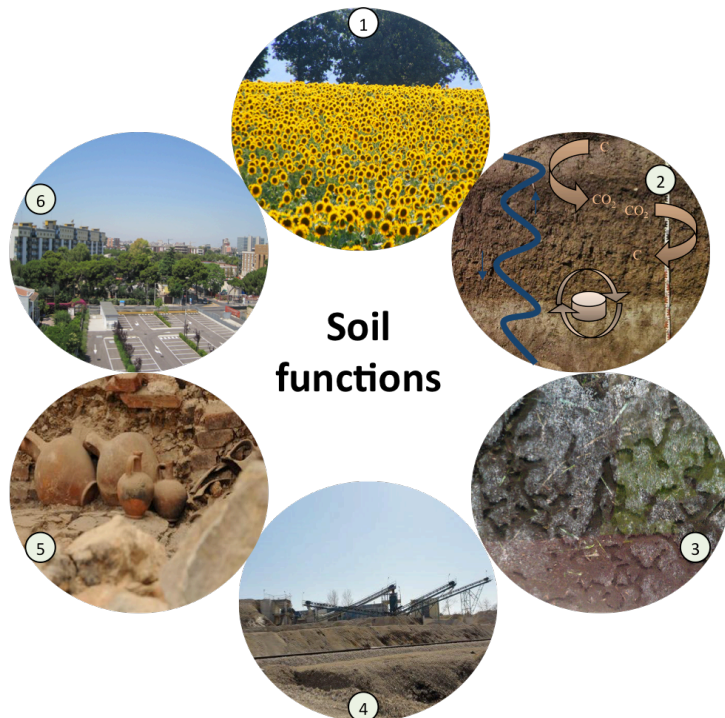
Soil and Climate Change (topics discussed with Bulgarian young farmers)

What does “soil” mean for you?

Land? Dirt? Mud? Means of production?

Soil is one of the main components of environment, which together with air and water makes the planet Earth as we know it. The soil forms a thin layer on the ground, with a thickness of several centimetres in mountainous and cold arctic regions, about one meter in the temperate climate zone, and a few meters in the tropics. Its average thickness of about 1 meter is a six-millionth part, or 0.00000017, of the radius of the Earth (6000 km). Soils, which are suitable for agriculture, occupy only 1/9 of the Earth's surface.

Soil has multiple functions



1, 4, 6 – **economic**: food and fiber production, source of raw materials, construction base

2,3 – **environmental**: storage, filtration and transformation of matter and energy, habitat of (micro)organisms

5 – **cultural and historical** archive

Soil is a resource under risk because of the growing Earth's population and the soil threats – soil erosion, decline of organic matter, loss of biodiversity, compaction, salinity, hydro-geological risks, contamination, land-take.

Climate Change

Climate change is fluctuation of climatic variables between two or more averages, while the transition from one to the other takes place in regular or irregular intervals. According to the Fourth Report of the Intergovernmental Panel on Climate Change, published in early 2007 it can be stated with "very high confidence" that human activity since 1750 has led to an increase in global temperature causing "greenhouse effect." The major contributors to this greenhouse effect are water vapour, carbon dioxide, nitrous oxide, methane, ozone and other gases (so called greenhouse gases) and clouds.

Soil and Climate Change

Being a component of the environment, the soil is at the same time affected by climate change and contributes to it.

Potential changes in the factors of soil formation, directly arising from climate change, are leading to:

- Changed temperature, water and air regimes of soil;
- Accelerated process of humification of organic residues;
- Increased evapotranspiration;
- Increased vulnerability to land degradation in the form of erosion – water and wind, compaction, salinization, acidification, loss of biodiversity and decline of soil organic matter content.

Mitigation of climate change can be achieved through a proper land management resulting to reduction of greenhouse gas emission from agricultural land.

Agricultural Techniques for Climate Change Mitigation

These are simple agricultural techniques leading to reduced greenhouse gas emissions, depending on the land use:

- **Field crops:** winter cover crops, reduced tillage, plant residue management, optimal fertilization, more legumes in crop rotations, permanent grass, agro-forestry;
- **Vineyards and orchards:** inter-row grass cover;
- **Pasture land:** optimal grazing, vegetation cover recovery, optimal manure application

The topics above have been discussed with young farmers in Bulgaria in meetings, aiming at rising their awareness to soil issues. These meetings were organized jointly with the non-governmental organizations "Za Zemiata" and "EcoObshtnost."

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For more information visit SoilTrEc website: www.soiltrec.eu

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