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WORLD DAY TO COMBAT DESERTIFICATION



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17 JUNE 2015
WORLD DAY TO COMBAT
DESERTIFICATION

**No such thing as a free lunch.
 Invest in healthy soils.**

The World Day to Combat Desertification is observed worldwide on 17 June every year. The focus in 2015 was the attainment of food security for all through sustainable food systems. This theme brought together two sustainable development goals, namely to end hunger and achieve food security (goal 2) and to protect terrestrial ecosystems (goal 15), which are very relevant for the Arab region; a dryland region facing mounting challenges, including food insecurity and the degradation of the natural resource base, notably soils.

Meeting food needs and safeguarding the environment by:



Promoting sustainable land management



Accessing and promoting the right technology and investment



Learning from best practices



Recognizing the impact of resource degradation on peace, security and stability



**No such thing as a free lunch
 Invest in healthy soils**
 كل شيء، نعم، لنستثمر في التربة السليمة.

IMPORTANCE OF MAINTAINING HEALTHY SOILS

As populations grow, more food is needed. Although it is unlikely that Arab countries will become food self-sufficient, a great number of people continue to rely on the land as a source of livelihood, thus emphasizing the need to maintain healthy soils!

HEALTHY SOILS

- Lead to increased food and agricultural productivity
- Allow for the reduction of fertilizers and other chemical inputs, thus maintaining or enhancing soil fertility
- Reduce water consumption by enhancing soil water-holding capacity
- Lead to improved water quality in aquifers, rivers and other water bodies
- Improve air quality and enrich biodiversity



WHY HEALTHY SOILS?

Soil health, also referred to as soil quality, determines the continued capacity of the land to provide vital services and benefits to sustain life in its various forms: human, animal and plant. Life is generally associated with above-ground organisms although most living organisms are actually below ground. It is often said that there are more organisms in one gramme of soil than there are human beings on earth. These microorganisms include billions of bacteria, fungi and microbes that help recycle, free up and fix soil nutrients, which are then absorbed by plant rooting systems. These below-ground organisms require basic necessities to function properly, including water, nutrients and air, without which they cannot help produce the food and fibre that above-ground organisms need to thrive. In other words, what grows above ground depends on what is below ground. Water, nutrients and air are only available to plants living in soils with good structure, texture and quality, which are determined by the quantity and health of the organisms in those soils. Soil is therefore a living ecosystem that must be maintained and nurtured so it can continue feeding current and future generations.

“What grows above-ground depends on what is below ground”

RELATION TO FOOD

People are concerned about food quantity and quality, both of which are determined by the characteristics of soils used to grow food. Food quantity is highly correlated to the available nutrients and water in soil, among other things. Food quality is determined by the quality of the soil, either in terms of the type of crops grown, e.g., cereals, vegetables, trees, etc., or the nutrient content of the harvested product.

Soils in the Arab region have been exploited over millenia, rendering them fragile owing to various forms of mismanagement, including excessive exploitation, the introduction of invasive species and inappropriate practices. This has resulted in land degradation from water and wind erosion, salinization, acidification, compaction, overgrazing and loss of organic matter and soil nutrients. The deterioration in soil quality has led to an increased use of agricultural implements such as fertilizers and pesticides, which are feeding a vicious cycle of degradation and over-exploitation.

TOWARDS A HOLISTIC MANAGEMENT OF SOIL ECOSYSTEMS

Soil health is achieved through a holistic management of its ecosystem, focusing on improving resource sustainability. This entails the sustainable use of land, while enhancing biodiversity, improving productivity, strengthening livelihoods and ultimately improving the quality of life of current and future generations. The holistic management of soil entails the following:

Reducing soil disturbance, for example, through the adoption of a no-till system, given that physical, biological and chemical activities disrupt and destroy soil organisms and its structure and natural fertility;

Making use of organic fertilizer, for example, through the use of composted plant or animal by-product to enhance the structure and texture of soils and their nutrient- and water-retention capacity;

Keeping soils covered, for example, through mulching using crop residues on fields, given that uncovered soils erode faster resulting in top-soil loss and reduced nutrient content;

Protecting soil biodiversity, for example, through crop rotation, given that single cropping pattern leads to soil quality deterioration by favouring certain soil organisms at the expense of others;

Maintaining a living-root system for most of the year, for example, through intercropping or the use of cover crops, given that a living-root system helps mobilize soil nutrients and microorganisms.

A shift towards holistic soil management practices has already begun in the Arab region, as highlighted in the success stories overleaf.

LOOKING FORWARD

As part of its commitment to promoting sustainable development, ESCWA supports its member States in protecting and conserving their biodiversity and land and water resources, through the implementation of relevant internationally agreed development goals and other programmes and strategies. ESCWA advocates combating land degradation and desertification, which are impediments to sustainable development given the desert climate and harsh environments in the region. It assists countries in formulating, implementing and monitoring related policies and strategies, including maintaining healthy soils.



No till in Lebanon

The American University of Beirut advocates direct sowing without tillage to safeguard soils while increasing productivity, which proved lucrative for Lebanese farmers. The project, initiated in 2007, aimed to restore land fertility and reduce water consumption while increasing yields. Farmers were encouraged not to use deep tillage equipment, given that they compact the soil and limit the development of microorganisms vital for soil fertility. It was also recommended to leave a layer of crop residue or vetch on the ground to reduce evaporation and the use of herbicides. Over four years, the project led to yield increases of up to 15 per cent while production costs fell by as much as 20-30 per cent, including savings on fuel use. The main obstacle was overcoming the reticence of farmers, as the technique required them to depart significantly from the way they had always managed their land. However, many farmers adopted the technique, with the area devoted to no-till farming rising from 40 to 500 hectares during the project life and reaching 1,100 hectares after the completion of the project. Following this success, the Lebanese Ministry of Agriculture has become increasingly committed to supporting no-till farming.

Source: <http://magazine.expo2015.org/cs/Exponet/en/innovation/five-questions-for-the-american-university-of-beirut--excellent-results-extend-to-other-arable-land>.

Conservation agriculture in Tunisia

Abdelaziz bin Hammoud says: “Too often we forget that the land is alive”. That is because he has seen how tilling has damaged his land, resulting in lower yields. Now, he has adopted conservation agriculture and relies on less intrusive tilling techniques, maintaining permanent organic soil cover to reduce erosion and diversifying crops, either in sequence or association, to manage soil nutrients and pests. Since then, he has recorded better results and improved his yields. Like him, many Tunisian farmers have adopted these techniques; it is estimated that up to 5,000 hectares of farmland have been converted to this method of production. This initiative was supported by the Government of Tunisia with development support from France.

Source: www.tunisia-live.net/2012/03/16/tunisian-farmers-call-for-renewed-support-of-conservation-agriculture/.

Crop rotation in Egypt

Potatoes are the second most important vegetable crop after tomatoes in Egypt, placing Egypt among the largest producers and exporters in the world. Commercial production is concentrated in the Nile Delta and Middle Egypt. In recent years, however, potato crops have been affected by diseases, including brown rot, black stem, Rhizoctonia, soft rot and nematodes. To reduce the impact of these diseases, potatoes are now planted every 3 to 4 years in a given field. They are usually rotated with wheat, alfalfa, soybeans, peas, clover, cotton or maize, depending on local conditions and farmer preferences. This has allowed Egypt to maintain, and even improve, production while avoiding lengthy quarantine periods before export.

Source:

www.egypt.cropscience.bayer.com/en/Crops/Potato.aspx?print=true.