Global Science Research Journals

Available online at
www.globalscienceresearchjournals.org/

Global Journal of Environmental Science and Technology

Commentary Open Access

Vol. 10 (3), pp. 1-2, December, 2022

Modern soil conservation service and practices for improved soil fertility

P Peiretti*

Department of Environmental Management, Mykolas Romeris University, Vilnius, Lithuania

*Corresponding author. E-mail: pauloperi@gmail.com

Received: 30-Nov-2022, Manuscript no: GJEST-22-82989; **Editor assigned**: 02-Dec-2022, PreQC no: GJEST-22-82989 (PQ); **Reviewed**: 16-Dec-2022, QC no: GJEST-22-82989; **Revised**: 23-Dec-2022, Manuscript no: GJEST-22-82989 (R); **Published**: 30-Dec-2022; DOI: 10.15651/GJEST.22.10.014.

DESCRIPTION

The practitioner of soil conservation must remain committed throughout the ongoing, dynamic process. The first stage is to have a firm grasp of the land resource. Knowing where the land is most susceptible to water erosion due to a combination of slope and soil texture, or where the soil is most porous and vulnerable to groundwater pollution from excessive pesticides. It is difficult to create an effective conservation strategy without this knowledge. A key element of terrestrial ecosystems and a crucial element in maintaining life on earth is soil. The loss of ecosystem services and natural capital assets due to soil degradation; The integrity of terrestrial ecosystems, which is characterized as ecosystem health, is reliant on its constituent parts and the interactions between them (Chen, et al., 2019).

In a healthy ecosystem, the soil plays a crucial role in the production and provision of environmental products and services. In spite of the fact that excessive human use of these ecosystems might occasionally be justified in order to increase gains in other services (a process known as development), The foundation of conventional agricultural methods is tilling and ploughing the ground to create a seed bed. However, it has been demonstrated that these methods severely damage soil, resulting in the degradation of around 24% of the world's agricultural area. Land degradation lowers the soil's capacity for both short-term and long-term production, which is a serious concern given the increased demand for food from a growing world population and the projected tripling of the global GDP by 2050 (Dumanski, et al., 2008).

Soil Conservation Service (SCS) immediately reduces soil erosion, which raises the standard of ecosystems and increases land production and indirectly aids in Sustainable Development Goals (SDG) achievement. Soil erosion rates have outpaced soil formation rates as a result of human pressures and climate change. As a result, land deterioration is accelerated and sustainable development is restricted. In particular, SDG 2 is inhibited by soil erosion (Zero hunger). Every year, soil erosion affects 10 million hectares of arable land in agricultural regions and is 10-100 times more rapid than soil formation. Soil degradation also poses a threat to human life on the ground and efforts to combat climate change. It is predicted that 27 GT of soil organic carbon would be lost between 2010 and 2050. The global carbon cycle and the process of regulating the climate are both impacted by erosion, which also speeds up the lateral movement of soil organic carbon (Eekhout et al., 2018). Additionally, soil erosion will have cascade effects that will affect many regions at once.

Soil conservation practices

- Soil disturbance is essentially eliminated with no-till farming. In order to place the seed in close touch with the soil and encourage germination, just a tiny slot (or a small hole in the case of hand-held planters) is created during the planting process. The remainder of the plant (plant material other than grains) is left on the surface; only the grains are picked. On the soil's surface, an organic mulch gradually forms and finally decomposes into stable soil organic matter. The reduction of soil disturbance, the decrease in oxidation of soil organic materials (stubble), the increase in biomass production from better crop yields, the increase in rotation and cover crops, the increase in biomass production from greater diversity of organic materials, and the decrease in erosion all contribute to the increase in organic matter.
- In the continual process through which carbon atoms move between the atmosphere and Earth, known as the carbon cycle, soil plays a crucial role. For instance, microbes produce nutrients and minerals that nourish plants and crops while also releasing carbon dioxide

into the atmosphere as they decompose organic materials in the soil. A process known as sequestration occurs when carbon from the atmosphere is naturally absorbed by soil. More carbon is absorbed by healthier soil, which lessens greenhouse gas impacts (Gachene, et al., 2020).

- In order to create a water catchment system for crops, terrace farming is a method of agriculture that is frequently used to grow rice. Terrace farming involves building steps or terraces into the sides of hills or mountains. Rainwater transfers flora and nutrients from one terrace to the next, keeping the land fertile. In otherwise idle parcels of land, terrace farming also lowers soil erosion and increases soil productivity.
- The Sustainable Land Management (SLM) concept, which is based on CA (Conservation Agriculture), takes into consideration economics, markets, profitability, and sustainability. Through increased agricultural and animal output as well as production in response to market opportunities, SLM encourages value-added production, food sufficiency, and poverty alleviation. Field crops, agroforestry, speciality crops, and permanent cropping systems may all be managed better to achieve this.

The natural mosaic of land uses on the surface of the earth's crust includes soil, which is an essential feature of both natural and modified ecosystems (such as farmland, pastureland, and woods). In comparison to natural systems, agro-ecosystems and other managed ecosystems are subject to various pressures, energy fluxes, and dynamics; they need to be better understood both in terms of capital return (yield) and as a result of human interventions on natural systems (Crowther, et al., 2019).

REFERENCES

Chen J, Jiang B, Bai Y, Xu X, Alatalo JM (2019). Quantifying ecosystem services supply and demand shortfalls and mismatches for management optimisation. Sci Total Environ. 650:1426-1439.

Crowther TW, Van den Hoogen J, Wan J, Mayes MA, Keiser AD, Mo L, Averill C, et al (2019). The global soil community and its influence on biogeochemistry. Science. 365(6455):eaav0550.

Dumanski J, Peiretti R, Benites JR, McGarry D, Pieri C (2006). The paradigm of conservation agriculture. Proc World Assoc Soil Water Conserv. 1:58-64.

Eekhout JP, Hunink JE, Terink W, de Vente J (2018). Why increased extreme precipitation under climate change negatively affects water security. Hydrol Earth Syst Sci. 22(11):5935-5946.

Gachene CK, Nyawade SO, Karanja NN (2020). Soil and water conservation: An overview. Zero Hunger. 10(3)810-823.