

What is Soil Conservation?

Soil Conservation is the name given to a handful of techniques aimed at preserving the soil. Soil loss and loss of soil fertility can be traced back to a number of causes including over-use, erosion, salinization and chemical contamination. Unsustainable subsistence farming and the slash and burn clearing methods used in some less developed regions, can often cause deforestation, loss of soil nutrients, erosion on a massive scale and sometimes even complete desertification. Soil erosion removes the top soil that is necessary for organic matter, nutrients, micro-organisms that are requires for plants to grow and shine. Soil conservation is one such step that protects the soil from being washed away.



The soil then ends up in aquatic resources bringing in pesticides and fertilizers used on agricultural land. Healthy soil is important for plants to grow and flourish. Taking necessary steps to conserve the soil is part of environmentally friendly lifestyle. There are several ways to conserve soil that can be done through agricultural practices or measures you take at home.

Wikipedia defines soil conservation as, “*Soil conservation is the prevention of soil loss from erosion or reduced fertility caused by over usage, acidification, salinization or other chemical soil contamination. Slash-and-burn and other unsustainable methods of subsistence farming are practiced in some lesser developed areas. A sequel to the deforestation is typically large scale erosion, loss of soil nutrients and sometimes total desertification.*”

Methods and Techniques of Soil Conservation in watershed areas

Many different techniques have been invented throughout the years with the aim of preserving the nutrient level of the soil and preventing erosion.

1. Contour Plowing – Originating in ancient Phoenicia, Contour Plowing involves plowing grooves into the desired farmland, then planting the crop furrows in the grooves and following the contours. It a very effective way for farmland on slopes to prevent run off improve crop yields.
2. Terrace Farming – Terracing is a method of carving multiple, flat leveled areas into hills. Steps are formed by the terraces which are surrounded by a mud wall to prevent run off and hold the soil nutrients in the beds. More commonly found in lesser developed nations due to the difficulty of using mechanized farming equipment in the terraces. Very popular in Asia for planting rice.
3. Keyline Design – A more enhanced version of Contour Plowing, maximum water retention is achieved by taking into account all the watershed properties when making the contour lines. The

Keyline refers to topographic feature linked to water flow. This allows the water run off to run directly into an existing water channel, and prevent soil erosion caused by the water.

4. Perimeter Runoff Control – This is the practice of planting trees, shrubs and ground cover around the perimeter of your farmland which impedes surface flows and keeps nutrients in the farmed soil. Using the grass way is a specialized way of handling perimeter runoff that uses surface friction to channel and dissipate runoff.

5. Windbreaks – Rows of tall trees are used in dense patterns around the farmland and prevents wind erosion. Evergreen trees can provide year round protection but deciduous trees can be adequate as long as foliage is apparent during the seasons when the soil is bare.

6. Cover Crops/ Crop Rotation – Cover crops such as turnips and radishes are rotated with cash crops in order to blanket the soil all year- round and produces green manure the replenishes nitrogen and other critical nutrients. Using cover crops can also suppress weeds.

7. Soil Conservation Farming – A mixture of farming methods intending the mimic the biology of virgin land. These practices can be used to prevent erosion and even restore damaged soil and encourage plant growth. Eliminating the use of nitrogen fertilizer and fungicides can increase yields and protect crops from drought and flooding.

8. Agrostological Measures – Planting grass in heavily eroded areas is called an agrostological measure. Ley farming practices cultivating grass in rotation with regular crops to increase the nutrient level in the soils. When the grass is harvested it can be used as fodder for cattle. For heavily eroded soil it is recommended to grown grass for many years to let the soils naturally repair themselves.

9. No till farming – This is the method of growing crops year round without changing the topography of the soil by tilling or contouring. This technique increases the amount of water that penetrates the soil and can increase organic matter of the soil which leads to larger yields.

10. Green Manures – Green manures are a few different crops that can be grown, not for produce or food usage, but grown in order to fertilize the farm land on which it grows. This method can improve the soil structure and suppresses the growth of weeds.

11. Salinity Management – When water evaporates from the soil, it leaves behind its salt. This can lead to damage of the soil and nutrient loss. Using humic acids can prevent this or growing crops like saltbush can rejuvenate the soils and replace lost nutrients. High levels of salt in the soil can often be caused by changes made to the water table by damming and other causes.

12. Stream Bank Protection – During floods, stream banks can often cave in. Preventing this by constructing walls along the banks or plant useful tree species will prevent this in the future and prevent soil loss down the stream.

13. Earthworms – Earthworms provide great benefits of farm land due to the way they burrow under the ground and provide more air for water to rest after it has infiltrated the soil. When these worms excrete egesta, this sits in the soils and gives the crops many nutrients which are absorbed via the roots of the plants. Earthworm casts contain a vast amount more nutrients than any natural soil in the world, and for that reason should be invited into the soils of farmland to help prevent erosion and will lead to larger crop yields.

14. Mineralization – To help crops reach higher yields or full potential, sometimes crushed rock or chemical supplements are added to the farmland, this helps combat mineral depletion. Normally used after flooding, it brings substantial amounts of sediment which can damage the nutrient level of the soil.



15. Korean Natural Farming – This method takes advantage of natural and indigenous microorganisms to produce fertile soils that yield high output and gets rid of the need to use herbicides or pesticides. An improvement in soil health and output is what keeps this method used in the respective areas.

16. Reduction Of Impervious Surfaces – Driveways patios and paved pathways allow precipitation to flow freely off them. As the water flows it picks up momentum and in turn erodes any soil in which it flows over after leaving the impervious surfaces, reducing the amount of these around your farmland will prevent erosion.

17. Dry Farming – In areas with a very low amount of rainfall, crops which require very little water should be grown, this will lead to the preservation of the natural levels of moisture and nutrients in the soil.

18. Rain Gardens – A rain garden is a shallow depression in the land which holds and collects running water from impervious surfaces and prevents erosion while saving the nutrients that inevitably get washed away. This also gives you a good bed to grow wetland plants.

19. Re-establish Forest Cover – A dense amount of trees in a forest leads to a vast network of deep roots that offer a long term solution to soil erosion, another benefit is the windbreak that these trees can provide.

20. Maintaining PH levels of soil – Contamination of soils due to acid rains and other pollutants can lead to loss of soil fertility. Use a Ph indicator monthly to check the levels of acids in the soil and treat the soils with eco-friendly chemicals to prevent a loss of crops and low yields.

21. Indigenous Crops – The growth of indigenous crops is a good way to conserve soil, as the plants have a natural need for the nutrients in the soil in your area, they help to prevent soil erosion. If you grow non indigenous crops a recommended tip is to plant indigenous crops around them, in order to prevent soil erosion.

22. Prevent Overgrazing – Try not to let overgrazing happen by moving herds around often. If overgrazing occurs, plant hardier and more nutritious species of forage in order to rebuild the soil. You can also harvest these crops and feed them to the grazers during the winter season.

23. The Sharing of Knowledge – More developed countries can and should share their farming knowledge gained throughout the years with the lesser developed nations of the world. This will lead to a better quality of soil worldwide and can help to prevent famine and solves the food crisis in some areas of the world.

24 . Afforestation

25 Constructing Dams

27. Live spurse. Creating some resistance in the flowing water with the help of plants.