INCREASING SOIL CARBON PERCENTAGE BY MICROBIAL SYNERGY

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Objectives:

1. To determine the existing soil carbon percent in agriculture field.
2. To enhance percentage of soil carbon in agriculture soil.
3. To enhance the soil moisture content by mulching technique.
4. To enhance the soil carbon percentage by addition of microbial synergy.

Methodology:

1. Initial soil characterization & sampling:

   Sampling to 30cm provides information on changes in the location of organic carbon in soil and helps explain changes under different management practices. For example, the adoption ofminimum tillage has changed the distribution of organic carbon within the soil profile- organic matter is concentrated at the soil surface and decreases at depth. Because of this, sampling to a minimum depth of 30cm better reflects changes in carbon stocks (and is acceptable for national carbon accounts).

2. Time of sampling:

   Soil carbon varies within season, so it is important to take soil samples at the same time each year. Sampling during the non-growing phase (that is, over summer) helps to minimise the influence of plant type and growth stage on soil organic carbon, particularly in soil carbon fractions that turn overrapidly.

3. Mulching of soil sample:

   Mulching is the placement of any organic or inorganic material over the top of a soil surface toprotect it. Some of the benefits include: reduced soil erosion, less compaction, moisture conservation, increased control of soil temperature, and a reduction in weed growth. a protective covering (as of sawdust, compost, or paper) spread or left on the ground to reduce evaporation, maintain even soil temperature, prevent erosion, control weeds, enrich the soil, orkeep fruit (such as strawberries) clean.

4. Addition of microbial synergy:

   Jeevamrutha is a low budget preparation that makes the soil enriches and helps to grow microorganisms and improve mineralization of the soil. Jeevamrutha is prepared from native cow's urine, dung, jaggery, and horse gram. It is the right time to use cow-based products in the agriculture field. The fungal infections and tick burning are effectively kept under controlby Jeevamrutha.

Work Plan:

1. Stop carbon loss – Protect peatlands through enforcement of regulations against burningand drainage.

2. Promote carbon uptake – Identify and promote best practices for storing carbon in wayssuitable to local conditions, including through incorporating crop residues, cover crops, agroforestry, contour farming, terracing, nitrogen-fixing plants, and irrigation.

3. Monitor, report and verify impacts – Track and evaluate interventions with science basedharmonised protocols and standards.

4. Deploy technology – Use high-tech opportunities for faster, cheaper and more accuratemonitoring of soil carbon changes.

5. Test strategies – Determine what works in local conditions by using models and a networkof field sites.

6. Involve communities – Employ citizen science to collect data and create anopen online platform for sharing.

7. Coordinate policies – Integrate soil carbon with national climate commitmentsto the Paris Agreement and other policies on soil and climate.

8. Provide support – Ensure technical assistance, incentives to farmers, monitoring systems and carbon taxes to promote widespread implementation.

Conclusion:

While the agricultural sector has the ability to impact the carbon cycle on a large scale, often through the release of carbon, farmers have a vested interest in retaining and increasing soil organic carbon for individual fields because soil and yield tend to improve when the soil organic. Carbon level increases. Higher soil organic carbon promotes soil structure or tilth meaning there is greater physical stability. This improves soil aeration (oxygen in the soil) and water drainage and retention, and reduces the risk of erosion and nutrient leaching. Soil organic carbon is also important to chemical composition and biological productivity, including fertility and nutrient holding capacity of a field.

As carbon stores in the soil increase, carbon is “sequestered”, and the risk of loss of other nutrients through erosion and leaching is reduced.An increase in soil organic carbon typically results in a more stable carbon cycle and enhanced overall agricultural productivity, while physical disturbances of the soil can lead to a net loss of carbon into the surrounding environment due to formation of carbon dioxide (CO_2). Carbon is the main element present in soil organic matter, on average making up 58% by weight. The carbon present in soil organic matter is referred to as organic carbon. Soil organic carbon is a vital component of productive agriculture.