

The Sharing Way Annual Project

Hunger for Change; Environment for Life

Low Cost Investment in Conservation of Soil

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Soil, like water, is an element of vital importance for the lives of humans. The earth's soil sustains life by gently providing food for generations of people, animals and micro organisms. Accordingly it is important to give priority to sustainable practices of soil management and conservation. Surprisingly, this does not require a high level of financial investment. There are simple methods that can be used by farmers in Bolivia. I would like to outline some of these methodologies.

Non-tillage farming: This method of farming leaves the organic remains of the former crop over the surface of the soil. The seeding is done directly into the soil without cultivation. The advantage of this method of seeding is that the water content of the soil is maintained. Cultivation, on the other hand, disturbs the soil and opens it to loss of water through evaporation. By using non-tillage farming the producer can utilize small amounts of water for irrigation in dry periods. In addition, the organic matter provides natural nutrients for the soil that assists in crop production. Non-tillage farming improves reduces erosion and improves the structure and content of soils.

Green fertilizers. We recommend certain plants in Bolivia as green fertilizers. In my country we have two distinct growing seasons, summer and winter. When summer crops are harvested, we recommend that farmer seed their field with a plant like *Crotalaria Juncea*. This plant grows relatively quickly. When it reaches the stage of flowering, the entire field is cut. The plant is then incorporated into the top soil. Two weeks later the farmer can plant the winter crops without depending on chemical fertilizers. This is why we use the term green fertilizers. When soils are seriously depleted, we teach farmers to use green fertilizers for a period of six months to a year to restore nutrients and organic matter required for production. At the end of this period the soil will have recovered its fertility and improved its structure. In the case of compacted soil, the roots of the green fertilizer plants will have broken through the hard surface of the farmers land and thus reclaiming it for production. We may also teach farmers to plant strips of certain green fertilizers within their cultivation. These plants will provide nitrogen for the soil and avoid costs associated with weed control. A preferred plant for this purpose is *Canavalia Ensiformis*.

Organic fertilizers. We often teach farmers to compost manure from their animals with organic matter. This requires at least three months for the composting to be effective. These organic fertilizers add nitrogen, phosphorus and sulphur to the soil.

Crop rotation: Even farmers with small plots of land should have an established plan of crop rotation. This may be as simple as diversifying the planting of summer and winter crops. We teach farmers to rotate the production of legumes and gramíneas crops and to avoid consecutive plantings of one type of production.

Agroforestry: This methodology consists of planting trees as part of the productive use of land. Fruit trees may be used as part of the crops and foods of the small producer farmers. Other trees may be used to prevent erosion and add organic matter to the soil. The planting of an appropriate selection of trees can assist the farmer to increase production while at the same time removing carbon from the atmosphere.

The challenge of community development is to work with small produce farmers to analyze the soil composition and micro climate of their area. We provide technical support in a manner that encourages them to choose the soil management and conservation techniques that are best suited for the needs of their families.