

Introduction

There are several ways of controlling soil erosion, such as reforestation, terracing, multiple cropping, contouring and cover cropping. Combining all these makes up the Sloping Agricultural Land Technology (SALT). It is a package technology of soil conservation and food production, integrating differing soil conservation measures in one setting.

The following are the 10 steps of SALT.

Step 1: MAKE AN A-FRAME

The A-frame is so simple that you can make your own using the materials generally found in your farm. The A-frame is an instrument to locate the contour lines of your field. This is a simple yet effective tool that looks like the letter A, thus its name.

Three sturdy wooden or bamboo poles, a saw or bolo, an ordinary carpenter's level, and string or rope are needed. Cut two pieces of wood at least one meter to serve as the legs of the A-frame. Cut the third piece at least one – half meter long to be used as the cross bar of the frame.

To assemble the A-frame, tie together the upper ends of the longer poles. Let the lower ends of the legs stand on the level ground. Spread the legs about one meter apart to form a perfect angle. Brace horizontally the shorter pole to become a crossbar between the two legs. Tie carpenter's level on the top of the crossbar.

Use the A-frame to find the contour lines of the land. Plowing and planting following the contour lines can prevent soil erosion. The contour line is a level line from one end of the field to the other and is found around the hill or mountain.

Step 2: LOCATE THE CONTOUR LINES

Use your instrument of choice to locate the contour lines in your field. Remove any obstruction so that you can move easily and mark lines. When using the A-frame, two people will make the work much easier and faster. One will operate the A-frame while the other marks the located contour lines with stakes.

Make a study of the area for which contour lines are to be determined. Begin marking contour lines near the highest

point. Let the A-frame stand on the ground. Without moving the rear leg, then put the front leg down on the ground that is on the same level with the rear leg.

The two legs of the A-frame are on the same level when the air space in the carpenter's level stops in the middle. When this happens. It means that you have found the contour line which is a level line between the two legs of the A-frame. Mark with a stick the spot where the rear leg stands.

Length of the Contour Lines

Move the A-frame forward by placing the rear leg on the spot where the front legs stood before. Adjust the front leg again until it levels with the rear leg. For every two to three meters of contour line you find, mark it with a stake. Follow this procedure until you reach the entire length of the contour line, which is the other side of the mountain or hill.



Distance of Contour Lines

Try to locate as many contour lines as possible. Remember, the farther the contour lines are from each other, the more potential erosion occurs. Also, closer contour lines mean more nutrient rich biomass produced and made available to the crops growing in the alley.

Criteria

There are two criteria for determining the distance between contour lines: vertical drop and surface distance. Generally, no more than a one meter vertical drop is desirable for effective erosion control. Therefore, the steeper the slope, the closer the contour hedgerows. Conversely, the flatter the slope, the wider the spacing of hedges. However, on the flatter slopes, it is recommended that contour

hedgerows be spaced no farther apart than 5m in order to maximize the benefits of the nitrogen fixing trees/shrubs on soil fertility management.

In determining a one meter vertical drop, the “eye-hand” method is a simple procedure to use. If using a transit or home-made transit, the one meter vertical drop can be obtained very quickly.

Step 3: PREPARE THE CONTOUR LINES

After you have found and marked the contour lines, prepare them by plowing and harrowing until ready for planting. The width of each area to be prepared should be one meter. The stakes will serve as your guide during plowing

Step 4: PLANT SEEDS OF NITROGEN FIXING TREES AND SHRUBS

Planting Nitrogen Fixing Species

On each prepared contour line make two (2) furrows at a distance of one-half meter apart. Sow the seeds in each furrow to allow for a good, thick stand of seedlings. Cover seeds lightly and firmly with soil.

Importance of Leguminous Hedgerows

The ability of nitrogen fixing trees to grow on poor soils and in areas with long dry seasons makes them good plants for restoring forest cover to watersheds, slopes and other lands that been denuded of trees. Through natural leaf drop they enrich and fertilize the soil. In addition, they compete vigorously with coarse grasses, a common feature of many degraded areas that have been deforested or depleted by excessive agriculture.

Step 5: CULTIVATE ALTERNATE STRIPS

The space of land between the thick rows of nitrogen fixing trees where the crops are planted is called a strip. Other names for the strip are alleyways or avenues.

Cultivating Alternate Strips

If you wish to prepare the soil for planting before the Nitrogen Fixing Trees and Shrubs (NFTS) are fully grown, do it

alternately on strips 2, 4, 6, 8, and so on. Alternate cultivation will prevent erosion because the unplowed strips will hold the soil in place. When the NFTS are fully grown, you can proceed with cultivation on every strip.

Step 6: PLANT PERMANENT CROPS

Plant permanent crops in every third strip. They may be planted at the same time the seeds of nitrogen fixing trees are sown. Only the spots for planting are cleared and dug; later, only ring weeding is employed until the NFTS are large enough to hold the soil so full cultivation can begin.

Durian, lanzones, rambutan, coffee, banana, citrus, cacao, and other of the same height are good examples of permanent crops. Tall crops are planted at the bottom of the hill while the short ones are planted at the top. Shade-tolerant permanent crops can be intercropped with the tall crops.

Step 7: PLANT SHORT AND MEDIUM-TERM CROPS

Plant short and medium-term income producing crops between strips of and among permanent crops. They are your source of food and regular income while waiting for the permanent crops to bear fruit.

Suggested short and medium-term crops are pineapple, ginger, gabi, castorbean, camote, peanut, mung bean, melon, sorghum, corn, upland rice, etc. To avoid shading, short plants are planted away from tall ones.

Step 8: TRIM REGULARLY NITROGEN FIXING TREES/ SHRUBS

Pruning Hedgerows

About once a month, the continuously growing NFTS are cut down to a height of one to one half meter from the ground. Pruned leaves and twigs are always piled at the base of the crops. They serve as a soil cover to minimize the impact of the raindrops on the bare soil. They also act as excellent organic fertilizer for both the permanent and short-term crops. In these way only, a minimal amount of commercial fertilizer (about one-fourth of the total fertilizer requirements) is necessary.

Step 9: PRACTICE CROP ROTATION

A good way of rotating is to plant grains (corn, upland rice, sorghum, etc.), tubers (camote, cassava, gabi, etc.) and other crops (pineapple, castor bean, etc.) on strips where legumes (mung bean, bush sitao, peanut, etc.) were planted previously and vice versa. This practice will help maintain the fertility and good condition of your soil. Other management practices in crop growing like weeding and pest and insect control should be done regularly.

Step 10: BUILD AND MAINTAIN GREEN TERRACES

Apart from providing you with adequate food and sufficient income, another even more important benefit of using SALT is the control of soil erosion. This is done by the double thick rows of nitrogen fixing trees and the natural terraces being formed along the contour lines of the hill. As you go on farming the sloping land, keep gathering and piling up straw, stalks, twigs, branches, leaves, rocks, and stones at the base of the rows of nitrogen fixing trees. By doing this regularly and as the years go by, you can build strong, sustainable, naturally green and beautiful terraces which will reliably anchor your precious soil in its right place.

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THE 10 STEPS OF Sloping Agricultural Land Technology (SALT 1)

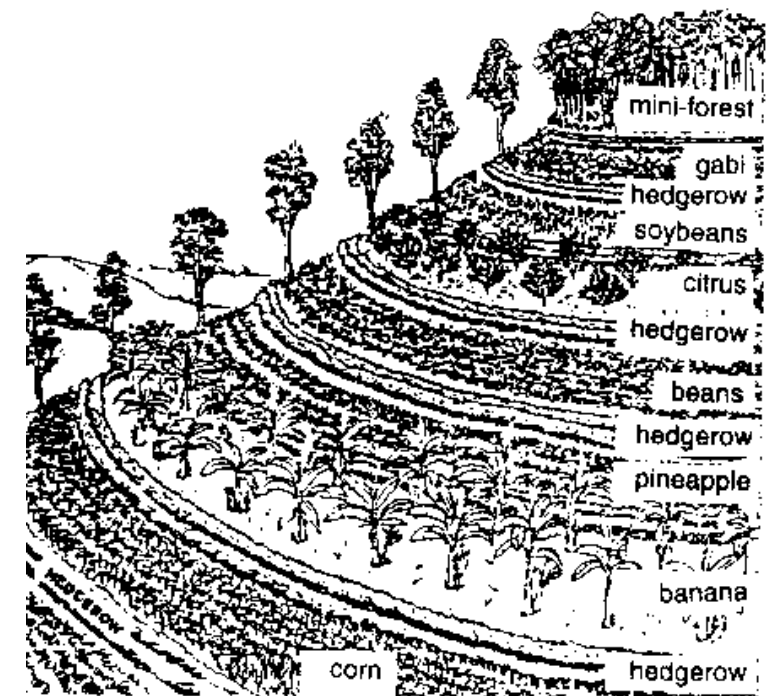


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