

Hillside Ditches for Erosion Control in American Samoa

by Colin Barnard
Soil Conservationist
USDA-NRCS

Soil erosion on the steeply sloped farms of American Samoa can often be severe. Soil from areas cleared for agriculture is frequently moved off fields by water flowing down the slope during heavy rains. This soil ends up in the streams and finally the ocean causing damage to the coral reefs and fish populations off our coast. You can see evidence of soil in our streams by the brown cloudy appearance of the water during and after heavy rains.

Lost soil from a farmer's field also means a loss of soil productivity. Most of the nutrients available to plants are stored in the top 3 to 5 inches of soil. If you lose this topsoil, crop quantity and quality will decrease. Here's an example of how quickly a farmer's field can be depleted of topsoil: a field planted to taro on a 30% slope without any erosion control measures can lose approximately 70 tons of soil per acre per year. That's equivalent to about ½ inch of soil per acre per year or 64 cubic yards per acre. That's more than a dump truck load of soil per year!

As you can see soil erosion is a severe problem for farmers and landowners in American Samoa. What can be done to slow the devastating effects of erosion on our lands and waters?

The USDA Natural Resources Conservation Service (NRCS), formerly known as the Soil Conservation Service, is currently helping farmers in American Samoa implement conservation practices that work to minimize erosion. One method currently being used is the Hillside Ditch. This practice consists of a series of ditches that run across the slope



(along the contour) of a field. These ditches are spaced a certain distance, depending on the slope, up and down the length of a field. Crops are planted between the ditches. When it rains, water is collected in the ditches before it has time to pick up speed and flow down the slope. The ditches are angled just slightly (i.e. 1% grade) to allow water within the ditch to be moved off to the side of the field at a very slow rate. This slow lateral movement of water limits

the amount of soil that can be transported. The ditch also allows time for the water to soak into the soil, increasing the water storage within the field. Any excess water that is not absorbed into the soil flows slowly to a stable outlet such as a stream or waterway. The water is clear and relatively free of sediment.

Hillside Ditches are inexpensive to construct and can be dug using an ordinary shovel. A triangular ditch approximately 1 ½ feet wide at the top and 9 inches deep is more than sufficient for most situations in American Samoa. Spacing, grade and length of ditches are critical design factors and should be determined for each site.



NRCS has qualified personnel to help design a Hillside Ditch system if it is the best option to control soil erosion on your land. For more information on Hillside Ditches or other soil erosion concerns on your land please call USDA-NRCS at 633-1031 and we will send a qualified technician for a site visit. You can also stop by our office in Pago Plaza, Suite 212, Monday through Friday, 7:30 a.m. to 4:00 p.m.