

## Vetiver – A Valuable Grass for Erosion Control

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Soil erosion in Hawaii is a serious problem due to intense rain storms, steep slopes and high volumes of runoff. While some level of soil erosion occurs naturally, accelerated soil erosion from development and agricultural activities degrades the landscape and smothers coral reefs.

Reducing soil erosion has long been a priority for Hawaii's farmers and people engaged in conservation. Conventional approaches to curbing soil erosion, often involving land grading to construct earthen berms to detain or direct runoff, are expensive and reduce space available for production on Hawaii's many small farms. Vetiver grass is a relatively low cost erosion and sediment control technology, making it a promising alternative to conventionally constructed berms.

Vetiver grass (*Chrysopogon zizanioides*, formerly known as *Vetiveria zizanioides*) is native to India. It has been used in many tropical countries, and has been shown to be a simple and economical method to conserve soil by slowing the velocity of water and trapping sediment, filtering out nutrients, and stabilizing steep slopes.



*Mature vetiver hedges in Waimānalo reach a height of 6-8 feet. The plants produce a purple-colored inflorescence with non-fertile seeds.*



*'Sunshine' vetiver grass is used with Bermudagrass to stabilize a waterway in Kunia.*

Vetiver is a clumping grass, without stolons or rhizomes. Its non-fertile seeds ensure that plants will not spread beyond where they are planted. In some countries vetiver hedges have been used to define property boundaries, as the hedgerows stay in the location planted and will not invade other areas of the property.

Vetiver's roots are massive, finely structured and grow very fast and deep. Rooting depths have been reported to reach 10 feet in the first year. Engineers compare the vetiver root to a "Living Soil Nail" with an average tensile strength of 1/6 mild steel. This deep root system makes vetiver extremely drought tolerant, difficult to dislodge, and an important

tool for managing water and pollutant movement in soil.

Above the ground, vetiver has stiff and erect stems, which grow tightly in a line that can stand up to water flows or depths of up to one foot. New shoots develop from the underground crown, making vetiver grass resistant to fire, traffic and moderate grazing pressure. New shoots also have the ability to emerge through several inches of sediment, enhancing its performance as a sediment trap. Additionally, vetiver grass is not affected to any significant extent by pests and diseases, nor does it act as a host for pests or diseases that might attack crop or garden plants.

Vetiver grass has been used in Hawaii for more than a decade. The “Sunshine” genotype of vetiver has been tested and is the only variety of vetiver that is endorsed for use in Hawaii. Using the sterile Sunshine variety eliminates any threat of vetiver spreading or becoming a problematic plant in Hawaii’s landscape.

Careful consideration and planning should be used before installing vetiver on your property. Landowners are encouraged to consult with representatives of the Resource Conservation & Development Council, the Natural Resources Conservation Service, or reputable suppliers of vetiver. Additional resources can be found at [www.oahurcd.org/vetiver/](http://www.oahurcd.org/vetiver/).



*Vetiver hedges increase productive area on this Hawaii Kai Farm.*