

Best management practices for converting former pineapple and sugarcane lands to pasture will help ranchers take advantage of new opportunities.

From Fallow to Forage

Like Hawai'i's sugarcane and pineapple industries, the state's long history of cattle ranching dates back to the nineteenth century. Today, acreage that once produced sugarcane and pineapple represents an opportunity for Hawai'i ranchers. A lack of suitable grazing lands has long limited the growth of the Hawaiian livestock industry, and many ranchers are now leasing or purchasing former sugarcane and pineapple fields on the islands of Kaua'i, Maui, and Hawai'i.

To support grazing cattle, soil must contain adequate levels of mineral nutrients for plant growth. Soil pH is also an important factor because it can strongly influence the availability of soil nutrients. Years of high-intensity agriculture have left much of the sugarcane and pineapple lands now available to ranchers acidic and depleted, unable to produce sufficient forage for cattle, and vulnerable to invasive weeds that can out-compete forage plants on poor soils. Current recommendations for restoring the fertility of these lands are suited for returning them to

crop-based agriculture but are too input-intensive and expensive for sustainable forage production.

To help ranchers use their new lands to best advantage, CTAHR extension faculty are developing best management practices for converting sugarcane and pineapple lands to pasture. With the help of cooperating ranchers on the Big Island, Kaua'i, and Maui, Drs. Mark Thorne, Linda Cox, Harold Keyser, and Jonathan Deenik are assessing the effectiveness, efficiency, and sustainability of various soil treatments, including application of fertilizer and lime, sowing of legumes that add nitrogen to the soil, and rotation of grazing animals. The ongoing study will determine how the treatments interact to influence soil fertility, forage growth, animal production, and changes in the pasture ecosystem over time.

Early results suggest that forage production on former sugarcane land can be doubled by adding nitrogen, indicating that the cost of applying fertilizer could be offset by increases in pasture productivity. The research will aid future efforts to help bring fallow fields back to productive agricultural use.

Photos: Mark Thorne



Research technician Matthew Stevenson stands in thigh-high grass on land that didn't receive nitrogen fertilizer (left); on a nitrogen-treated plot, the grass reaches his chin (right). This difference in pasture productivity may offset the cost of applying fertilizer.

Photo: Glen Fukumoto

