Reducing the Reliance of Hawaii's Farmers on Imported Fertilizers

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The purpose of this experiment was to find out the nitrogen release patterns of organic fertilizer (tankage), in two different soils (Poamoho and Waimanalo) by using four different nitrogen application rates (0, 100, 200, and 400 kg/ha N). A total of 24 pipes were used in this study, 12 for each soil, and of those, three for each application rate. The study started off by adding half pour volume of deionized water to the leachate columns. This same amount was added after each collection time. A beaker was at the bottom of each collection pipe to collect the leachate. The same soil was used throughout the whole study. Each column was tested for pH, Electrical Conductivity, Nitrate and Ammonium at every collection time. Both soils showed similar nitrogen release patterns. There were higher levels of nitrate present during the beginning, but it decreased as the study went on, and then was at a constant rate. The nitrogen release patterns in both soils were similar, and higher amounts of nitrogen inputted resulted in higher nitrate and ammonium amounts being released. This study show that tankage is a good source of nitrogen and since it is also recycle friendly, farmers can use this as a fertilizer instead of organic fertilizer. As well, farmers can benefit from knowing the nitrogen release patterns of tankage to allow for optimum crops without nitrogen pollution. This also allows for higher sustainability in Hawaii, as more and better foods can be produced.

Awards Won: