

Student Scientist Travels to Ecuador to Study Green Science



Sustainable agriculture is a growing area in the field of green science. According to the United States Department of Agriculture, the estimated market size of the sustainable agriculture industry is nearly \$7 billion. This figure includes everything from food networks to bioenergy systems.

Sustainable agriculture involves the development and implementation of crop management practices that ensures the delivery of high nutrient, non-chemically treated food for human consumption. It also involves the smart utilization of natural resources that results in a significant reduction in waste. In this scenario, natural resources are either consumed entirely or the byproducts from agricultural processes are recycled for other uses-e.g. using cow manure to make biogas.

The goal of sustainable agriculture is to conserve and utilize natural resources in a way that does not damage the ecosystem. The concept is not new and is being practiced in many parts of world, especially in countries located in South America. From June 29 to July 21, 2014, Danielle Young, a 10th grader at Choate Rosemary Hall in Wallingford, Connecticut and a student scientist in the Ecotek Lab program, traveled to Ecuador to participate in the Sustainable Summer- Seeds of Change Program. Her experience included learning about organic farming and permaculture in Rio Muchacho. The program included a cohort of 11 students from communities throughout the United States.

To get to the worksite in Ecuador Danielle and her colleagues had to complete a 2 mile hike at high altitudes in the Andes Mountains. Upon arrival she immediately started working with soil specialists to learn the techniques for designing custom compost from a variety of organic feedstock-e.g. manure, plant waste. She also developed her biochemistry skills by assisting in the recycling of a variety of crop seeds.

Danielle has always been interested in environmental stewardship. One of her projects in the lab involved investigating the impact of climate change on cave ecosystems. The work that she did in Ecuador this summer takes her to a whole new level. She plans to use her experience to develop a sustainable agriculture program at Choate's Kohler Environmental Center (KEC).



Ecuadorian worker tilling soil near organic crops



Danielle standing in front of crater as she climbs up the Andes Mountains to work site



Danielle at organic farm in Rio Muchacho participating in permaculture design meeting

About the Ecotek Science Program

Ecotek is a science research lab program for young inventors and researchers in grades 5 thru 12. Student scientists work on projects aligned with the issues being addressed by world leaders at the United Nations. To learn more about Ecotek Lab go to <http://www.ecotek-us.com>