GUATEMALA

Principal Investigator: Dr. Rolando Cifuentes

Internship Title: Training on Biogas Production, Cover Crops, and Carbon Decomposition in Vegetable and Organic-Amended Soils

Time Period: Summer 2025

Project Background

This internship is part of a broader initiative to strengthen sustainable agricultural practices in Guatemala through applied research and farmer-focused training. The project integrates two critical areas: (1) renewable energy generation through biogas production and (2) soil health management using cover crops and carbon sequestration strategies. Biogas production training emphasized the conversion of organic waste into renewable energy, with sessions on feedstock selection, anaerobic digestion, methane yield optimization, and safety considerations. Cover crop training focused on biomass production, decomposition rates, nutrient cycling, and the role of legumes and grasses in improving soil organic matter. Collectively, these activities contribute to advancing climate-smart practices that enhance both food security and environmental sustainability.

Research Question(s) or Specific Areas to be Addressed	**Acceptable Disciplines and Skills**	**Deliverables**
How can biogas production be optimized using locally available organic materials? What cover crop species are most suitable for different altitudes and climates in Guatemala? How do cover crops and decomposition processes contribute to soil carbon sequestration and long-term fertility?	Agronomy Environmental Science Renewable Energy / Bioenergy Soil Science Related disciplines **Areas of Expertise** Laboratory and field experimentation Data analysis and documentation Research communication (Spanish/English) Safety protocols in renewable energy systems	Technical training modules and presentations (biogas, cover crops, carbon decomposition).