

ABSTRACT**Integrated Waste Management with Energy Production for Increased Competitiveness of the Livestock Industry in Northeast Mexico**

Program and funding agency: Training, Internship, Exchanges and Scholarship (TIES) U.S.-Mexico University Partnership; US Agency for International Development, Higher Education for Development Office.

Partners: The University of Georgia, Athens GA, USA;
Universidad Autónoma de Coahuila, Torreon, Mexico;
Universidad Autónoma de Nuevo León, Monterrey, Mexico;
Universidad Autónoma Agraria Antonio Narro, Saltillo, Mexico; and
Ecogenics Ctr. for Study of Alternative Solutions, Sevierville TN, USA.

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Livestock production worldwide is growing rapidly because of increased demand for meat in developing countries. This growth in livestock industry brings with it both opportunities for rural economic development and potential threats of environmental degradation which influences public perception of animal agriculture. In order to ensure sustainable growth of the industry and bring long-term benefits to rural communities, both policy and technology have to be available to the industry. Mexico's livestock agriculture is focusing increasingly on its impacts on water and air quality. It is recognized that the industry will have to address environmental issues in a way which promotes stewardship of the environment while maintaining its competitive business advantage and sustaining growth. Mexico's current and future agricultural professionals need skills to analyze and support sustainable and profitable management of resources at the interface of agricultural and the environment. To achieve this requires educational programs based on applied research and training that better inform management decision makers in livestock industry and policy makers in government.

The University of Georgia in partnership with the Universidad Autónoma de Coahuila (UAC), Universidad Autónoma de Nuevo León (UANL), and Universidad Autónoma Agraria Antonio Narro (UAAAN) propose a demand-driven, integrated and interdisciplinary program of training and technical support to the livestock industry in the Laguna region of Mexico. This program will target technology and business policy relating to integrated waste management that is cost-effective and will provide additional income through co-product generation from waste

treatment. This is expected to increase industry investment in environmental protection technologies thus ensuring regulatory outcomes like clean water and air while maintaining the competitive business advantage of the industry. This partnership addresses the challenges and opportunities arising from a rapidly growing livestock industry, namely to identify and support agricultural and environmental practices that enhance Mexico's competitiveness while protecting its environment.

This TIES program's overall goal is accomplished by the following subtasks:

Objective 1: Provide six (6) Master's degree scholarships for Mexican students to study at UGA in the following areas:

- Public policy (environmental policy or agricultural business administration) focusing on national competitiveness and economic development, particularly the microeconomic foundations of competition and enabling regulatory regimes that improve productivity of the livestock industry.
- Integrated animal waste management with production of bioenergy and biofuels that reduce total cost of waste treatment and provide additional income to the farms.

Objective 2: Implementing applied-research to strengthen Mexican students' analytical skills and outreach training in their home country.

Objective 3: Providing training opportunities for Mexican undergraduate and graduate students and faculty in applied research, participation in animal waste management-related international symposia, and structured internships in businesses, government and/or research organizations.

Objective 4: Conducting joint training programs and workshops organized by UGA-Mexican partner universities for students, faculty, Mexican government officials, regulatory board officials and livestock industry personnel on animal waste treatment with production of bioenergy and biofuels. In addition, this program effort will develop and analyze public policy leading to regulatory regimes that improve productivity and competitiveness of the livestock sector. Other outcomes of this project include curriculum development, training of Mexican faculty in the US and collaborative and applied research on animal waste management.

Through this TIES program partner universities in Mexico will implement improvements in [1] their outreach programs to the livestock industry, [2] its agricultural curriculum and [3] the expertise of its faculty. UGA and partner universities in Mexico will have jointly trained a cadre of promising students with the right technical expertise to benefit the Mexican Livestock industry. Most importantly, the partner universities in Mexico will have developed the sustained capacity to strengthen the sustainability of Mexico's livestock industry. The long-term outcomes of this program will be [1] Strengthened international competitiveness of northeast Mexico's livestock industry, [2] Increased standard of living for Mexican rural agricultural communities by creating new economic opportunities, [3] Increased socio-economic status of rural based livestock farms, and [4] An understanding of proactive regulatory regimes and public policies that stimulate investments, improve productivity and maintain competitive business advantage of livestock industry.

The overall budget of this program is \$483,626 (of which 93.8% is cost-shared by the universities). We are requesting \$249,410 from HED and will use it to provide scholarships and train 18 students from Mexico and have faculty exchanges of 12 Mexican faculty visiting the US and 10 UGA faculty visiting Mexico over a two year period.