

The Association Liaison Office for University Cooperation in Development
Promoting Global Development through Higher Education



U.S.-Mexico
Training, Internships, Exchanges & Scholarships
Progress Report¹
Due October 31, 2005



Partnership Title: Decision Support of Ruminant Livestock Systems in the Gulf Region of Mexico

Development Area: Rural development: Economic growth and competitiveness through animal agriculture

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Period Covered by this Report: October 1, 2004 through September 30, 2005

¹ Revised September 2005

PARTNERSHIP PROFILE (Executive Summary)

This partnership seeks improvement of productivity, profitability and rural incomes in the Gulf region through a systems-oriented program of training and decision support to the ruminant livestock industry. A primary goal is to increase the ability of decision-makers to respond to changes in technologies, markets, or trade policies. Focusing on UADY graduate programs, our efforts integrate learning and knowledge-generating activities from problem definition to producer decision support. In addition to the first short course held in September 2004, four more courses involving all university partners, farmers and government organizations were conducted in this fiscal year, one more than originally planned. These courses facilitated team-building and identification of research priorities and enhanced skills. Concurrently, there has been joint planning of TIES teaching platforms; the needs for increased flexibility identified to assist UADY's transition to a new curriculum have been identified. Rapid appraisals of constraints and opportunities involving more than 120 sheep-owning and beef cattle-owning households in Yucatán have been conducted. These activities yielded valuable data to better frame research priorities and to design student research projects at both universities. Two students from Yucatan and Veracruz were admitted to the Cornell University Graduate School in August 2005. Other outreach activities included a field day in Veracruz involving about one thousand farmers, researchers and others. Two student-produced video-documentaries about farmer needs and our TIES project resulted from novel collaboration between UADY's Schools of Anthropology and Veterinary Medicine and Animal Science. A major training activity involving two professors and two doctoral students from UADY, one UV professor, and one INIFAP research scientist was conducted at Cornell. A Web site, <http://tiesmexico.cals.cornell.edu>, that also serves as an information clearinghouse for our project was developed to support collaboration among the partners and to inform interested parties. Expected project impacts include greater capacity of partner institutions to address relevant development issues for ruminant livestock systems, a skilled cadre of systems-oriented researchers and extensionists, and broad dissemination of information to the livestock sector.

QUALITATIVE ANALYSIS

1.	State the overall objective of this higher education partnership and intended development results. This partnership seeks improvement of productivity, profitability and rural incomes in the Gulf region through a systems-oriented program of training and decision support to the ruminant livestock industry. A primary goal is to increase the ability of decision-makers to respond to changes in technologies, markets, or trade policies.
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2. What activities have the partner institutions undertaken during this reporting period to achieve the stated partnership objectives and development outcomes? (**chronologically**)

Project activities were focused on consensus-building for the development of research and joint teaching platforms in support of the ruminant livestock industry in the Gulf region. Main activities and accomplishments included (chronologically):

- *October 11-15.* Short course #2, *Uso de un Modelo Computacional para el Manejo Nutricional de Bovinos y Ovinos* (Use of a Computational Model to Manage Nutrition of Cattle and Sheep). Principal instructors: Luis O. Tedeschi with Francisco I. Juarez and Bertha L. Rueda. This event served 21 male and 6 female participants (UADY graduate students, UADY and Veracruz faculty, undergraduates, and representatives of governmental and regional cattle producers organizations) and was videotaped. Participants received a booklet and CD-ROM of supporting literature (9 articles, 8 in Spanish).
- *October-December.* Planned and conducted a rapid appraisal of 60 beef production systems in eastern and southern Yucatán (Tizimín, Panabá and Peto). This effort complements our previous inquiry of sheep producers and was coordinated by Guillermo Ríos and R. Blake and conducted by Claudia López and Andrés Calderón.
- *October-February.* Five UADY Steering Committee meetings were convened by co-director Guillermo Ríos to discuss implementation of the joint teaching and research platform. Through this process, including the short course series, UADY graduate students were identified as TIES platform contributors. Doctoral students included Valentín Cárdenas, Fernando Duarte (also an INIFAP scientist) and Raciél Estrada; Master's students included Miguel Huchín, Timoteo Bautista, Ildfonso Aranda, Gonzalo Martínez, Gabriela González and Carlos Medina (latter two are currently finishing undergraduate degree programs).
- *November 6.* Guillermo Ríos, Juan Magaña and R. Blake participated in the **Día del Ganadero 2004** (field day) at the INIFAP-La Posta Experiment Station in Veracruz. The primary objective was to evaluate how a similar event could serve producers and other livestock industry players in Yucatán. A follow-up report and recommendations were submitted by Drs. Magaña and Ríos to Dr. Fernando Herrera, Director of UADY's School of Veterinary and Animal Sciences (FMVZ).
- *November 11.* Invited workshop speakers (A. Ayala, R. W. Blake, J. Ku). **Como estructurar una propuesta para obtener financiamiento. Taller—Preparación de Propuestas Científicas para Solicitar Financiamiento.** (How to Structure a Grant Proposal. Workshop on the Preparation of Science Proposals for Funding.) Universidad Autónoma de Yucatán, Dirección General de Desarrollo Académico, Coordinación General de Investigación y Relaciones Interinstitucionales.
- *November 15-19.* Short course #3, *Análisis Bio-económico de Alternativas Tecnológicas y la Dinámica de Sistemas Agropecuarios* (Bioeconomic Analisis of Technological Alternatives and the Dynamics of Agricultural Systems). Principal instructors: C. F. Nicholson with R. Blake, Bertha Rueda and Eduardo Canudas. This event served 19 male and 8 female participants (graduate students from UADY and Germany, faculty from

2. What activities ? (*continued*)

UADY and Universidad Veracruzana, UADY undergraduates, and representatives of governmental and regional cattle producers organizations) and was videotaped. Participants received a booklet and CD-ROM of supporting literature (17 articles, 13 in Spanish).

- *November 24-26.* Invited symposium speaker (R. Blake). **Perspectivas de la Investigación Pecuaria en el Mundo Tropical: El caso de la respuesta en leche en ambientes difíciles.** Pages 108-127 in *Simposium Situación Actual y Perspectivas de la Investigación Pecuaria en el Mundo.* XL Reunión Nacional de Investigación Pecuaria Yucatán 2004, Mérida.
- *December 9.* Invited speaker (R. Blake). **Ecological impacts of land use for livestock production in the tropics.** Workshop entitled, “Function of Tropical Ecosystems”, (Funcionamiento de Ecosistemas Tropicales. University of Göttingen-Autonomous University of Yucatán (UADY; Germany-Mexico). In Spanish.
- *December.* Planned and obtained funding for an additional TIES course on the dynamics of agricultural systems with livestock. (This activity substituted for teaching a Yucatán version of Cornell’s Livestock in Tropical Farming Systems for UADY students.) The resulting **short course #5, *Aplicación de la Dinámica de Sistemas al Entorno Agropecuario en la Región del Golfo de México*** (Application of System Dynamics to Agricultural Systems of the Gulf Region of Mexico) and held April 8-13 at the Universidad Veracruzana, came in response to demand from participants in short course #3 (see attached newspaper article from *El Dictámen*). It was jointly financed by all TIES partners and an external donor (Mr. Allen Boorstein, a Cornell alumnus who supports educational efforts in System Dynamics).
- *December.* Initiated arrangements for a 20-day short term training visit at Cornell by UADY Professor Armín Ayala on April 18-May 6.
- *December.* **“Yucatán” Bienestar del hombre en el campo** (Rural Human Welfare (“Yucatan”), a 9-min video-documentary, was a student project in the UADY School of Anthropology course, *Media Analysis and Production*. Subjects were four families (and their communities) who participated in our rapid appraisal of farming systems with sheep. Four undergraduate women wrote the script and produced this video based on their eye-opening, first-ever, rural experiences through our TIES project. This product came from novel collaboration between UADY’s Schools of Anthropology and Veterinary Medicine and Animal Science.
- *December-March.* Data from two rapid appraisals of constraints and opportunities in Yucatán farming systems with sheep and beef cattle were coded by Claudia López and Andrés Calderón (supervised by R. Blake and C. Nicholson). These data will be available to Cornell and UADY student research projects. Two Cornell students (David Parsons, Australian, and Kotaro Baba, Japanese) will utilize them in contributions to the TIES research platform. These students subsequently conducted further research activities in Yucatán in summer 2005.

2. What activities ? (*continued*)

- *February 16-18.* Short course #4 (workshop format), *Evaluación del Potencial para Progreso Genético en Poblaciones de Ganado Rumiante en la Región del Golfo.* (Evaluation of the Potencial for Genetic Progress in Ruminant Livestock Populations in the Gulf Region)
 1. *Estructuras de las bases de datos y estrategias analíticas.* (Database structures and analytical strategies)
 2. *La Aplicación de Esquemas Nucleares para el Mejoramiento Genético* (Application of Nuclear Schemes for Genetic Improvement)

This event was organized by the TIES lead institutions and the Colegio de Posgraduados, Campus Cárdenas, Tabasco. Workshop leaders were J. Magaña, R. Blake and M. Osorio. Thirty-three participants (29 male, 4 female) received a booklet of supporting literature (6 articles, 4 in Spanish).

Following is a participation summary for the entire TIES program of five short courses:

- Total participants in four originally-planned short courses: 109 (87 ♂, 22 ♀)
 - Total participants in five actual TIES short courses: 142 (116 ♂, 26 ♀)
 - Total classroom hours delivered: 175
- *February-March.* In collaboration with Veracruz partners (Universidad Veracruzana and INIFAP) and other institutions, a watershed management framework was developed for a TIES phase II project. Unfortunately, the potential partners were unable to garner sufficient resources to satisfy the scholarship requirement. A contingency plan of activities was developed with watershed management elements integrated into the Veracruz component of one of the field courses in our TIES joint teaching platform. Intended focus of the new project was community-based micro-watershed management in the cattle lands (pastures) that dominate the coastal plain of Veracruz. **Research themes included:**
 - 1) Water capture and retention
 - Improved soil infiltration and water capture by pasturelands (e.g., management of adapted species to improve land cover, soil pores and organic matter, forage quality and yield to increase net income from livestock).
 - Greater protection of brooks and streams in pasturelands to enhance the capture and retention of water (e.g., implement stream bed buffer areas of trees and shrubs to also produce firewood, forage, habitat services, timber, fruit and other products).
 - 2) Geographic systems to integrate watershed management practices and monitor land use changes and ecosystem services
 - 3) Economic returns from livestock in agrosilvopastoral systems
 - Improved availability and quality of forages from greater water capture by pasturelands.
 - Healthful foods of animal origin from pasturelands (nutritional composition and nutraceutical content [conjugated linoleic acid, an anticarcinogen]).
 - Greater profitability from animal agriculture use of watershed farmlands.
 - 4) Conceptual and empirical system dynamics models to evaluate nutrient cycling, farm and microwatershed technologies and policy options at multiple levels of sociopolitical and physical aggregation.

2. What activities ? (*continued*)

- *March 10.* Invited speaker (R. Blake). **Perspectivas de la Investigación Pecuaria en el Mundo Tropical: El caso de la respuesta en leche en ambientes difíciles.** 6^a Reunión de Servidores Públicos Federales y Estatales de Ganadería, Mérida, Yucatán, 9 al 11 de marzo. (6th Congress of Federal and State Public Servants in Livestock Production).
- *March.* Two students from Yucatan (Luis Nabté) and Veracruz (Victor Absalón) were admitted to Cornell's Graduate School to commence Master of Science programs in August 2005. Original plans to admit three students in 2005 were precluded by late announcement of scholarships. Consequently, our announcement for 2006-08 will be for two TIES scholarships (instead of one).
- *Research funding proposals.* Three proposals with total value of \$15.5 million pesos were submitted by UADY in late 2004 and early 2005 in support of the TIES research platform. (see details on pp. 22)
- *April 8-13.* Short course #5, *Aplicación de la Dinámica de Sistemas al Entorno Agropecuario en la Región del Golfo de México* (Application of System Dynamics to Agricultural Systems of the Gulf Region of Mexico) was graciously hosted by the Universidad Veracruzana and taught by Dr. Charles Nicholson. This course arose from demand from participants in previous courses, especially short course #3, *Bioeconomic Analysis of Technological Alternatives and the Dynamics of Agricultural Systems*. It was jointly financed by all TIES partners and an external donor (Mr. Allen Boorstein, a Cornell alumnus who supports educational efforts in System Dynamics). There were 27 participants (4 female, 23 male) representing all the TIES partner institutions plus the Universidad Nacional Autónoma de México. (This activity substituted for teaching a Yucatán version of Cornell's Livestock in Tropical Farming Systems for UADY students.)
- *April 15 TIES project visit by US Ambassador Antonio O. Garza, Jr.* Special efforts were made by UADY and other TIES partners to receive and interact with Ambassador Garza and his team. Representatives from all partner institutions were in attendance—UADY, UV, INIFAP and Cornell. This provided an important opportunity for information sharing and positive feedbacks to Mexican colleagues. It also permitted significant media coverage (see attached press articles in *Notas periodísticas visita Embajador Garza.pdf*). A team of UADY undergraduate students prepared a video description about the rural development focus and ruminant livestock dimensions of our project. The video contains images from formal and informal parts of this event, including Ambassador Garza's chat with Mr. Leonardo Cocóm, a local farmer who owns sheep and goats.
- *April 18-May 6.* UADY Professor Armin Ayala B. visited Cornell University and completed short-term training and consultation on ruminant nutrition issues for our TIES research platform. Main activities were in the Departments of Animal Science, Applied Economics and Management and International Programs. Professor Ayala (whose trip report is on our TIES project website, learned more about Cornell University and about future research collaborations between our institutions.

2. What activities ? (*continued*)

- *May. Enlaces*, a 15-min video-description of our TIES project, was the second video produced by students in the UADY course, *Media Analysis and Production*. Like its documentary predecessor (“**Yucatan**” **Bienestar del hombre en el campo**), this one was also the result of novel collaboration between UADY’s Schools of Anthropology and Veterinary Medicine and Animal Science.
- *May 31*. On Jennifer Sisane’s recommendation, R. Blake wrote to CONACyT’s Dr. Luis Gil Cisneros about the potential for allying CONACyT financial support of graduate programs of qualified Mexican applicants in funding proposals for future TIES projects.
 - Thanks to the assistance of Nora Pinzón, brief personal contact was made with Dr. Gil on July 1 at the *US-Mexico University Partnerships for Prosperity* conference in Guadalajara. Unfortunately we never received the expected written reply from Dr. Gil. We put on the table for consideration (in writing and oral mention to Dr. Gil and in the Facilitated Discussion 8 at the Guadalajara conference with CONACyT’s Dr. Guillermo Aguirre Esponda) a synergistic and programmatic strategy for improving returns on CONACyT’s human capital investments allying them with TIES projects aimed at priority development issues and themes.
- *June*. Announcement of our TIES Master degree program for 2006-08 and a call for applications by qualified Mexicans was circulated nationally. A *pending task* for UADY was to make our announcement accessible by the general public via websites at CONACyT and other key institutions. Two more candidates (totaling four) are sought to begin Cornell MS programs in August 2006.
- *June-July*. Two Cornell graduate students, Kotaro Baba (Japanese MS student) and David Parsons (Australian doctoral student) conducted field research in Yucatán in collaboration with UADY graduate students and faculty and farmers owning sheep or cattle. (Specific information on these projects is provided below.)
- *June 29-July 1*. Guillermo Ríos, Juan Ku and Robert Blake teamed to present a progress report about our TIES project at the *US-Mexico University Partnerships for Prosperity* conference in Guadalajara, Jalisco. This presentation resulted in queries by leaders of two projects in Mexico with information and technical needs about ruminant livestock and livestock systems.
 - TIES project members at the Universidad Autónoma de Chihuahua requested contact information for future communication and information about livestock systems in that state, where reduced water availability has severely affected animal agriculture. Besides providing E-mail addresses, we informed that our website will contain potentially useful literature and Powerpoint materials also for their use.
 - Gerald Schmaedick, Director of the IPRC/Mexico project under the USAID Rural Prosperity Program requested technical support from our team for cattle owners and other professionals in the coastal region of Chiapas. Discussions with Drs. Ríos

2. What activities ? (*continued*)

and Blake rendered two suggestions. First, a UADY-led team comprising one or two professors (Drs. Guillermo Ríos and Juan Magaña), one or two UADY graduate students, and a Yucatecan cattle producer could visit cattle producer groups in the IPRC program, also giving seminars and offering suggestions. The second activity was for Chiapas' farmers to visit farmer technology transfer groups in the State of Veracruz, which could be coordinated by our INIFAP and Universidad Veracruzana partners. The Veracruz validation and technology transfer working groups, known as GGAVATTs (Grupo Ganadero de Validación y Transferencia de Tecnología), are important community-based organizations that have emerged from technology validation innovations in the State of Veracruz. These groups are now spreading throughout other regions of Mexico. (The GGAVATTs are among the study elements included in our field laboratory components of joint courses for the 2005-06 academic year.)

- *July 13, 2005.* The US partnership director, Robert W. Blake, concluded a 12-mo sabbatical leave and TIES project assignment at the UADY.
- *August 11.* Luis Nabté and Victor Absalón initiated Master of Science degree programs in Animal Science at Cornell University. Cornell chairpersons are Professors Michael Van Amburgh (Nabté) and Robert Blake (Absalón). Universidad Veracruzana professors Francisco Juárez and Eduardo Canudas are *ex officio* members of the graduate advisory committee of V. Absalón. His research will focus on pasture-based cattle systems in Veracruz.
- *August 20-October 15.* Short-term training was conducted at Cornell University for a team of six Mexican scientists and graduate students. This team comprised two UADY professors (G. Ríos and J. Magaña), two UADY doctoral students (V. Cárdenas and F. Duarte who were independently funded with PIFOP-CONACyT resources), one UV professor (E. Canudas who was funded by UV), and one INIFAP scientist based in Xalapa (Gabriel Díaz Padilla, ends November 20 and funded by INIFAP). Principal activities included:
 - 1) full participation in Prof. Nicholson's course, *Introduction to System Dynamics Modeling* (ends December 2005, which means that all participants will complete the course via special arrangement through Cornell Transnational Learning, <http://transnationallearning.cornell.edu/secureaccess/courses/aem494/index.htm> ,
 - 2) participation in two core courses on the joint teaching platform for the fall semester,
 - 3) discuss and plan collaborative research activities (including thesis projects),
 - 4) finalize planning of field trips and core courses for the spring semester, and
 - 5) meet with various faculty members to learn about their research and Cornell academic programs.
- *August-to-December.* We launched our program of joint courses with Internet and videoconferencing, finalized logistical and operational details of the IARD 602 "living laboratory" field course (*Agriculture in Developing Nations II—Gulf Region of Mexico Edition*), partly planned the field laboratory component (March 2006) and content for the joint course entitled *Livestock in Tropical Farming Systems*.

2. What activities ? (*continued*)

- *Web site created.* A TIES partnership web site was designed and constructed (<http://tiesmexico.cals.cornell.edu/>).
- *Video-Powerpoint presentations.* A UADY team is currently working on the production of these presentations from video-taped conferences of the first three short courses. These presentations will make this information more accessible to other students, faculty and farmers.
- *Throughout calendar year 2005.* Efforts were concentrated on organizing course content, logistics, teleconferencing, and key operational plans to conduct the four core courses (with two field trips) constituting the 2005-06 joint teaching platform. Besides Cornell, UADY and UV our teaching platform also involves INIFAP-Veracruz and the Colegio de Posgraduados, Campus Cárdenas.
- *TIES research platform* (see <http://tiesmexico.cals.cornell.edu/research/>). Substantial progress was achieved in recruiting graduate students to our research platform. A naturally linked mechanism with the teaching platform, it helps integrate efforts among three groups of student collaborators (and their mentors): UADY students, Mexican graduate students at Cornell University funded through our project, and other Cornell graduate students.

To date, eleven student projects—seven from UADY and four from Cornell—contribute to the TIES research platform. All UADY students are graduates from our program of short courses. This is evidence for substantial student interest in addressing practical problems through applied research to better inform management decisions by livestock farmers (and recommendations by their advisors) and to better support educational programs in sustainable animal agriculture. Students and their projects are identified below (excludes two MS students beginning Cornell programs in August).

UADY doctoral students:

- Valentín Cárdenas M. Research topic: Estimated Energetic Efficiency of Brahman, Brown Swiss, Charolais and Simmental Cattle in Production Systems in Southeastern Mexico.
- Fernando Duarte V. Research topic: Application of Prediction Models to Estimate Energy and Protein Requirements and Bioeconomic Efficiency of Intensive Feeding Systems with Pelibuey Sheep.
- Raciél Estrada L. Research topic: Genetic Evaluation of Brahman Cattle in Yucatan, Mexico.

2.	<p>What activities ? (<i>continued</i>)</p> <p>UADY MS students:</p> <ul style="list-style-type: none"> ○ Miguel Huchín. Research topic: Evaluation of Reproductive and Production Performance of Hair Sheep in Central Yucatán. ○ Carlos Medina N. Research topic: Estimation of Additive Genetic and Heterosis Effects for Beef Production in the Mexican Tropics. ○ Timoteo Mejía. Research topic: Estimation of Direct, Maternal and Heterosis Effects on Productivity of Cow-calf Systems in Eastern Yucatan. <p>UADY undergraduate student:</p> <ul style="list-style-type: none"> ○ Gabriela González M. Research topic: Validation of the Cornell Net Carbohydrate and Protein System to Predict Maintenance and Growth Requirements of Hair Sheep. <p>Cornell graduate students (excluding V. Absalón and L. Nabté who started programs in August 2005):</p> <ul style="list-style-type: none"> ○ Kotaro Baba (Japanese MS student), assisted by Cornell undergraduate and Torreón native Antonio García, worked with a team of UADY graduate students and faculty and other professionals in June-July 2005 to evaluate nutritional constraints and potentials of beef cattle systems. This is the theme of his MS thesis research (see Powerpoint presentation and script at http://tiesmexico.cals.cornell.edu/teaching/ansc640.cfm). ○ David Parsons (Australian doctoral student) worked with UADY faculty in June-July 2005 and returns to Yucatán in December 2005 to collect data for a doctoral research project entitled, <i>Enhancing the Sustainability of Smallholder Crop-livestock Systems in the Yucatán Peninsula</i> (access this research proposal at our Web site via http://tiesmexico.cals.cornell.edu/research/doctoral_students.cfm).
3.	<p>How have these activities strengthened (or will they ultimately strengthen) the capacity of the lead Mexican higher education institution(s) and/or the local Mexican community?</p> <p>All project activities clearly helped to better define and understand problems affecting farmers. The expectation is that livestock owners, their communities, and other professionals will benefit from a functional partnership focusing on decision support of the systems they manage. These activities have challenged the partners to consider needed adjustments—some structural in nature, others operational—to better implement and capitalize on this and future international partnerships.</p>

4.	<p>How have these activities benefited (or will ultimately benefit) the lead U.S. institution(s) and/or the local U.S. community?</p> <p>Personal interactions and communication with interested faculty members and research scientists have been strengthened. This enhances the potentials for achievement on both sides. Through this process, including our program of TIES short courses, short-term training, and research and joint course planning activities, Cornell is better prepared to focus on relevant issues with scientists at partner institutions.</p>
5.	<p>Describe the extent and nature of engagement of other collaborating U.S. and Mexican institutions in partnership activities.</p> <p>List these institutions (include NGOs, community-based organizations, government agencies, the private sector, other higher education institutions, etc.) and fully describe their involvement:</p> <p><i>Universidad Veracruzana (UV).</i> Partnership colleagues Francisco Juárez and Eduardo Canudas made key contributions to the first three TIES short courses (see #2). Each course yielded discussion and collaborative research planning involving faculty from all partner institutions. These gains were further exploited with key inputs and assistance from Dr. Carlos Lamothe, Director of the Faculty of Veterinary Medicine and Animal Science (FMVZ) 1) to identify research themes and activities aimed at the TIES Phase II competition and 2) to host our 5th TIES short course on system dynamics applications to agricultural systems with livestock.</p> <p><i>Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias (INIFAP).</i> Partnership colleagues Bertha Rueda and F. Juárez (joint employee with UV) were intimately involved in short course planning. Dr. Rueda also co-taught short courses #2 (with Dr. Juárez) and #3 and was responsible for planning the <i>Día del Ganadero 2004</i> (field day), a joint TIES event held November 6 at the La Posta experiment station. Like the UV case, gains from these activities were further exploited with key inputs and assistance from Dr. Heriberto Román Ponce, former Regional Director of INIFAP in Veracruz: 1) TIES Phase II planning activities and 2) key publication support (copies of supporting literature in printed booklets and electronic media) for our 5th TIES short course. In addition, Fernando Duarte, an INIFAP scientist in Yucatán, is developing a dissertation contribution to the TIES research platform as part of his UADY doctoral program.</p> <p><i>Fundación PRODUCE Yucatán and Secretaría de Desarrollo Rural y Pesca.</i> Preliminary discussions were held between UADY, TIES Steering Committee, and these institutions about an eventual Yucatán Día del Ganadero.</p> <p><i>University at Albany, State University of New York, Department of Public Administration and Policy.</i> Collaboration with Dr. Ignacio Martínez (a Mexican national at the Center for Policy Research) in the development of a policy analysis model of the Yucatán sheep sector based on information collected in surveys conducted under this project.</p>

6.	<p>Is your partnership working with Mexico's Consejo Nacional de Ciencia y Tecnología (CONACyT)? If yes, please fully describe involvement and provide complete information regarding CONACyT scholarship(s) awarded, if applicable.</p> <p>No. However, we sought CONACyT scholarship support with the Universidad Veracruzana to prepare the previously mentioned community-based watershed management proposal for TIES Phase II. In February we met with CONACyT's Subdirector for the Gulf region (based in Xalapa), Dr. Roberto de la Garza Montelongo. We also contacted CONACyT Dr. Luis Gil Cisneros to further pursue the potential for CONACyT scholarship support for current or future TIES work. Also, UADY utilized PIFOP-CONACyT funds to support graduate student participation in short course #5 and in short-term training at Cornell in August-October 2005.</p>
7.	<p>How has your partnership contributed to Mexico's competitiveness?</p> <p>It is premature to claim, or to have made, any significant measurable contribution. Our goal is to improve understanding of decision support tools and to effectively and appropriately apply them, especially through problem-solving research. Ultimately, partnership contributions are aimed at assisting farmers through the professionals trained to advise them to achieve productivity and profitability objectives.</p>
8.	<p>How have these activities developed new programs that relate to the U.S.-Mexico Common Development Agenda (CDA)?</p> <p>Our activities have not developed new programs. However, they undergird the CDA through a fundamental emphasis on systems-oriented management of the ruminant livestock industry in the Gulf region.</p>

9. What have been your partnership's greatest *successes* during this reporting period? Has your partnership also experienced any unanticipated successes? **Yes.**

- Completion of a 60-household survey of beef cattle producers in Tizimín, Panabá and Peto. In addition to fundamental information about constraints and opportunities, this activity serendipitously fostered unanticipated feedbacks from producers about how the UADY may better help them. Farmers said they needed a portfolio of effective technologies, information on how to use them, and tailored short courses in their own communities—a clear role for UADY. Priority technical issues included the management of costs of production, alleviation of productivity constraints, marketing, and credit.
 - Such good fortune from frank talk by producers led to a UADY document summarizing these initial sentiments (to be complemented by the survey analysis itself). This document, *Problemática y Retroalimentación Planteadas por Productores Bovinos del Oriente del Estado de Yucatán*, prepared by Drs. Juan Magaña and Guillermo Ríos, was circulated to producer associations for feedback to guide future research and outreach. View it by clicking on “Farmers said” at <http://tiesmexico.cals.cornell.edu/research/>. Thus, our TIES program identified information needs that can serve as the basis for better relationships between UADY and its producer clientele.
- Our original TIES training series of four short courses was so well received that participants emphatically requested a fifth course. Consequently, an independently financed course on the dynamics and effective modeling of agricultural systems with livestock was given April 8-13 at the Universidad Veracruzana. Additional benefits came from active discussions about teaching needs, teaching platforms and research planning, including potential thesis issues for a TIES student entering Cornell University in August (Victor Absalón) and two UADY doctoral students (Valentín Cárdenas and Fernando Duarte). Furthermore, Director Lamothe financed the training of one UV faculty member in system dynamics methods at Cornell in fall 2005 so that UV can offer a course in this subject to its students, probably in 2006.

Rural Human Welfare “Yucatan” (“Yucatan” Bienestar del hombre en el campo), a 9-min video-documentary, was one of the student projects in Dr. Elvira Sánchez’ course, *Media Analysis and Production*. Subjects were four families (and their communities) who participated in our rapid appraisal of farming systems with sheep. Four undergraduate women wrote the script and produced the video based on their eye-opening, first-ever, rural experiences in September and October 2004. This documentary resulted from novel collaboration between UADY’s Schools of Anthropology and Veterinary Medicine and Animal Science (FMVZ), which was catalyzed by our TIES project.

“This video made me feel proud to be Yucatecan.”—Dr. Juan Magaña, UADY professor

10.	<p>Have there been any <i>synergies, serendipities, or human-interest stories</i> for the partnership during this reporting period?</p> <p>The April 15 visit by US Ambassador Antonio O. Garza, Jr. to the sheep and goat farm owned by Don Leonardo Cocóm was, perhaps, a first for them both. Their chat about animals, utilization of native plant species to feed them, and rural development resulted in a special interpersonal <i>click</i> that was apparent to all who attended or read the newspapers.</p>
11.	<p>Has your partnership encountered any <i>challenges</i> during this reporting period? Yes.</p> <p>The partnership has faced serious challenges in determination of decision-making authority and UADY administrative and logistical support. Despite agreement to remedy chronically slow action with more efficient and timely execution of project tasks, change has been slow. Project activities need to be carried out in a more efficient and timely manner in order to fully realize, and not jeopardize, the expected benefits for all partners, especially UADY students and faculty. The UADY Rector, Dr. Raúl Godoy Montañez, has agreed to facilitate the needed adjustments.</p> <p>Another challenge has been to identify mechanisms for greater participation by partners in Veracruz. Although we were unable to submit a community-based watershed management project for the TIES Phase II competition, our planning was invaluable in identifying research themes for future opportunities and to distill priorities for our existing project. This effort and short course #5 (system dynamics applications to agricultural systems with livestock) led to Dr. Lamothe's decision to further train Dr. Eduardo Canudas at Cornell in August-October so that a system dynamics course can be incorporated into the UV-FMVZ curriculum.</p>
12.	<p>Has your partnership adapted <i>curricula</i> or introduced methods of instruction relevant to Mexico's development needs during this reporting period?</p> <p>Alternative approaches and methods of instruction and learning have been demonstrated through our short course series, short-term training, and joint courses (find details at our Web site, http://tiesmexico.cals.cornell.edu/). These activities and interactions facilitated discussions at UADY and UV about coursework focus and content (e.g., principal drivers and feedbacks affecting performance of livestock and farming systems). The UADY is still challenged, and in transition, in implementing a more flexible and diverse curriculum of instruction, including pedagogical methods. Elements of the current Cornell curriculum (to which UADY and UV faculty were exposed, especially during short-term training at Cornell) constitute part of a menu of options for consideration. In this regard, and others, our project is an opportunity to experiment and to test alternatives for each institution's future portfolio.</p>

13.	<p>Has your partnership conducted collaborative <i>research</i> to address a development problem in Mexico? Yes.</p> <p>With leadership from Dr. Charles Nicholson, a system dynamics model of Yucatán sheep production and marketing was developed using information from our rapid appraisal of these farming systems (see the September 14 TIES Seminar presentation at http://tiesmexico.cals.cornell.edu/teaching/ansc640.cfm). The initial conceptual model was a presented and discussed in short course #3. Simulation with a more developed version was a capstone exercise in short course #5 to evaluate Yucatán sheep system behaviors and impacts from alternative technology interventions. It also served as a research planning (and <u>thinking</u>) tool for these course participants and those in the TIES Seminar component of our platform of joint courses. A research publication is in preparation. Dr. Ignacio Martínez (a Mexican national) of the Department of Public Administration and Policy, University at Albany, State University of NY, is collaborating in preparation of a research publication.</p> <p>As described in #2, a rapid appraisal of constraints and opportunities was conducted on more than 60 beef cattle-owning households in three Yucatán locations. This appraisal was carried out by a Cornell-UADY research team including two UADY students, Claudia López and Andrés Calderón. Information from this survey is a basic input to the evaluation of beef cattle system potentials for Yucatecan farmers and for graduate student research proposals.</p>
14.	<p>Has your partnership undertaken activities to prepare individuals for participation in Mexico's <i>workforce</i>?</p> <p>Yes, in the sense that our project focus is to help develop a better skilled cadre of systems-oriented researchers and extensionists. Students (and faculty members) come from a wide range of socioeconomic strata.</p>
15.	<p>Has your partnership been involved in <i>community outreach</i> activities in Mexico during this reporting period?</p> <p>No, except in the ways described in #9 (above).</p>
16.	<p>Has your partnership been involved in building Mexico's <i>trade capacity</i> during this reporting period? No.</p>
17.	<p>Has your partnership informed <i>policy</i> at the institutional, community or national levels through policy relevant research consultations, analysis, advice and/or direct assistance (e.g. helped increase the enrollment or participation of underserved students, adopted a policy of service to the community etc.)?</p> <p>Yes. The system dynamics-based model of the Gulf region's sheep sector has provided insights about appropriate research policy (e.g., through examination of impacts of productivity increases on the well-being of small- and large-scale sheep producers) and development policy (e.g., the impacts of subsidies provided to support additional investment in sheep production). The initial audience for these policy-related exercises has been faculty, students and staff at the participating institutions, but upon further refinement these insights can be communicated to state-level and regional decision makers.</p>

18. How has information about your partnership been disseminated during this reporting period?

- *November 19.* Press conference with F. Herrera, R. Blake, G. Ríos and C. Nicholson about our TIES project and activities. A newspaper article and a television news report resulted from this conference:
 - Page 12, Sección Imagen, *Diario de Yucatan*. 20 November 2004. **Convenio de colaboración para investigación conjunta. Acuerdo entre instituciones de México y EE.UU.** (See article in attached file: Diario de Yucatán 20 noviembre de 2004.pdf)
 - Other press releases in the UADY archive:
<http://www.uady.mx/sitios/prensa/boletines/nov-04/19-nov-04.html>
<http://www.uady.mx/sitios/prensa/boletines/oct-04/19-oct-04.html>
<http://www.uady.mx/sitios/prensa/boletines/sep-04/20-sep-04.html>
<http://www.uady.mx/sitios/prensa/boletines/sep-04/17-sep-04.html>
<http://www.uady.mx/sitios/prensa/boletines/sep-04/02-sep-04.html>
- *November 20.* One-hour interview (R. Blake with G. Ríos and C. F. Nicholson) about our TIES project on the weekly radio program, *Revista Universitaria*. Broadcast 8:00-10:00am, Mérida. A recording of this interview may be downloaded from **Cornell Transnational Learning** by clicking on Mexico Radio Show Download at <http://transnationallearning.cornell.edu/secureaccess/courses/iard402602/index.htm>
- *April 13.* **Estudian abaratar costos a productores**, brief article on the final day of our 5th TIES short course appearing in the Veracruz newspaper, *El Dictámen* (See article in attached file: El Dictámen.pdf)
- *September.* Creation of our TIES website, <http://tiesmexico.cals.cornell.edu/>
- *October.* Although it falls slightly outside the reporting period, an article based on interviews of short-term training participants from UADY, UV and INIFAP was published in the *Cornell Chronicle* on October 27. Entitled “Cross-border team to help Mexican farmers better manage their livestock”, this article may be accessed at *ChronicleOnline* (http://www.news.cornell.edu/stories/Oct05/Mexican_Scholars.kr.html) and in the *Cornell Chronicle* archive at www.news.cornell.edu. A copy of the October 27 edition of the *Cornell Chronicle* is attached to this report (Cornell Chronicle 10-27-05 edition.pdf).

19. Outline your partnership's planned activities for the next six months, paying particular attention to achieving stated objectives.
- Train at Cornell two Mexican MS students (Victor Absalón and Luis Nabté) involved in our TIES research and joint teaching platforms.
 - Conduct the four joint core courses (and two field trip laboratories) constituting the 2005-06 teaching platform with the UADY and UV.
 - IARD 402, Agriculture in Developing Nations I. See the Web site for this course at <http://ip.cals.cornell.edu/courses/iard402/2005fall/mexsection.cfm>.
 - IARD 602, Agriculture in Developing Nations II. This Web site is currently under construction.
 - An Sc 400, Livestock in Tropical Farming Systems. See the Web site for this course at <http://www.ansci.cornell.edu/courses/as400/> .
 - An Sc 640, TIES Seminar, Decision Support of Ruminant Livestock Systems in the Gulf Region of Mexico. This site is integrated into our project Web site at <http://tiesmexico.cals.cornell.edu/teaching/ansc640.cfm> .
 - Two Cornell graduate students will conduct thesis research projects focusing on Yucatan sheep systems and cattle systems. Both projects involve close collaboration with a team of UADY graduate students and faculty and others.

ENVIRONMENTAL MITIGATION ASSESSMENT

Please answer the following questions if the partnership conducted or trained others to conduct activities that have the potential to result in negative impacts on the environment.

1.	<p>If you conducted capacity building activities that have the potential to negatively impact the environment, what environmental mitigation and impact assessment trainings for Mexican participants have been included in the activities?</p> <p>Although we are not yet focusing directly on assessing potential negative environment effects of agriculture or their mitigation our project activities (short courses, joint courses and research) acknowledge the need to for specific consideration and actions to ameliorate unfavorable impacts and to regenerate stocks of agroecosystem resources. For example, attention is devoted to strategies for managing and utilizing native plant species, especially multi-use species and habitat that provide ecosystem services as well as livestock feed and fuel for rural households. One doctoral dissertation research project is focused on the dynamics of nutrient stocks, flows and feedbacks in Yucatan farming systems with sheep with the goal of understanding how these systems can be made both more productive and sustainable (see David Parsons’ project doctoral research proposal, <i>Enhancing the Sustainability of Smallholder Crop-livestock Systems in the Yucatan Peninsula</i>; http://tiesmexico.cals.cornell.edu/research/doctoral_students.cfm). Our systems-oriented approach, implemented in previous short courses and for the MS students at Cornell, has broadened the research agenda and will result in greater ability to assess how interventions can minimize the “unintended consequences” (negative side effects) including various forms of environmental degradation.</p>
2.	<p>If you implemented activities last year, what specific activities had a potential environmental impact, either positively or negatively?</p> <p>We did not have any implementations carrying direct environmental impact (except via farmers’ practice of animal agriculture itself). However, expected impacts would be negative if livestock management ignored ecosystem considerations like those outlined in #1, which is among project considerations. They would be positive, or at least less unfavorable, if management strategies effectively consider ecosystem dynamics, amelioration of unwanted environmental impacts, and regeneration of natural resources (e.g., biodiversity in flora and fauna).</p>

3.	<p>What research and evaluation was conducted to mitigate any potential negative environmental impact of these activities?</p> <p>Activity of this kind was not conducted in year 1. Although direct implementations are an acknowledged need, our plans include options to ameliorate undesirable impacts. This approach, and its complexity due to multiple goals, is discussed in an invited book chapter annexed to this report (Blake-Nicholson final chapter with citation.pdf). [The reference citation is Blake, R. W., and C. F. Nicholson. 2004. Livestock, land use change, and environmental outcomes in the developing world. Pages 133-153 (Chapter 9) <i>in</i> Responding to the Livestock Revolution—the role of globalization and implications for poverty alleviation. (Owen et al., eds.). Nottingham University Press, UK.].</p>
4.	<p>What specific techniques or processes were established to mitigate <u>and</u> monitor the environmental impact of these activities? Please include who has been involved in the process and when this has taken place.</p> <p>Our project planning incorporated the ecosystem principles presented in the reference cited in #3. Although environmental mitigation and monitoring are not focal project undertakings, we may have students who would incorporate them into their thesis studies. This process will be fostered by issues included in our platform of joint courses, especially the courses with field laboratories.</p>
5.	<p>Are mitigation techniques working? If yes, how is it being verified? If not, how will the mitigation plan be modified?</p> <p>As indicated above, we have not undertaken any direct implementations. However, one project objective is to limit or minimize unfavorable environmental effects, especially negative impacts of farming system management options on biodiversity of flora and fauna.</p>

QUANTITATIVE ANALYSIS

		For the period <i>October 1, 2004- September 30, 2005</i>	Since the beginning of ALO funding
1.	How many scholarships for Mexicans of two or more semesters does this partnership support?	Male graduate: 2 (started 8-11-05)	Male graduate: 2
	Estimated total cost: ~\$65,000 for 2005-06 academic year		
2.	How many other scholarships for Mexicans of fewer than two semesters does this partnership support?	None this period	None
	Fully describe the nature and duration of the scholarship(s)		
3.	How many <i>disadvantaged Mexicans</i> have benefited from TIES scholarships?	None this period	None
4.	How many exchanges for Mexicans does this partnership support?	None this period	None
	Fully describe the nature and duration of the exchange(s):		
5.	How many internships for Mexicans does this partnership support?	None this period	None
	Fully describe the internship(s) and give location(s):		
6.	Approximately how many Mexicans have received short-term training? Number of participants, short courses:	Males: 98 Females: 22 Total: 120	Males: 116 Females: 26 Total: 142
	Total classroom hours delivered in short courses:	140	175
	Number of participants, short-term training at Cornell:	Males: 7	Males: 7

		For the period <i>October 1, 2004- September 30, 2005</i>	Since the beginning of ALO funding
	<p>Fully describe the nature, location, and duration of the training for each:</p> <ul style="list-style-type: none"> • Rapid appraisal of input use and constraints affecting rural households owning beef cattle in three Yucatán locations, October-December, and computer coding of survey data for statistical analysis, December-March at UADY, by one male and one female undergraduate student (see #2 in Qualitative Analysis) • Short courses #2, #3, #4, each of one-week duration, at UADY in October, November and February. Course themes were computer model applications for nutrition management, bio-economic methods to evaluate technology options, and potentials for genetic gain in ruminant livestock in the Gulf region. • Short course #5 of one-week duration in April at the Universidad Veracruzana focusing on system dynamics applications to agricultural systems with livestock in the Gulf region. • Short-term trainings at Cornell in May and August-October of three UADY professors, two UADY doctoral students, one UV professor, and one INIFAP scientist. 		
7.	How many Mexicans are participating in degree programs? Indicate by institution(s). Give the type of degree (e.g., AAs, BAs, MAs, MSs) and field of study.	2 (MS degrees at Cornell University in Animal Science)	2 (MS degrees at Cornell University in Animal Science)
8.	Has your partnership contributed or leveraged contributions other than cost share, beyond what was originally proposed, to strengthen the capacity of Mexican higher education institutions? Yes	Estimated total dollar amount: 22,250.	Estimated total dollar amount: 38,850.
	List separately and estimate dollar amounts		
	Finance short course #5: UADY-FMVZ (\$1600), UADY/PIFI (\$2150), UV (\$1000), INIFAP (\$1000), and Cornell donor for C. Nicholson travel (\$3000)	8,750.	8,750.
	Communications and office supplies [research planning and sheep appraisal (D. Parsons)] and transportation for Cornell Partnership Director (at UADY)	1,500.	15,200.
	Airfare, food, lodging, and textbooks and computer software for August-October short-term training at Cornell of two UADY doctoral students (UADY/PIFOP funds), one UV professor, and one INIFAP scientist.	12,000.	12,000.
	Fiscal year 2004	...	13,700.

		For the period <i>October 1, 2004- September 30, 2005</i>	Since the beginning of ALO funding
9.	How many times has your partnership consulted/collaborated with a Mexican government entity/organization?	None this period, except INIFAP.	None, except INIFAP.
	List and describe the nature of these consultations/collaborations: INIFAP is one of our TIES partner institutions.		
10.	How many times has your partnership participated in a Mexican government-sponsored panel or other initiative to inform policy?	None this period	None
	List and describe the nature of participation in the panels and/or initiative:		

Additional information:

Research funding proposals. The following proposals submitted by UADY derived from TIES project activity.

- **Chemical-kinetic Forage Parameters Controlling the Productivity and Profitability of Ruminant Livestock in the Gulf Region** (Estimación de Parámetros Químico-cinéticos de Forrajes que Controlan la Productividad y Rentabilidad de Ganado Rumiante en la Región del Golfo). Funding program: CONACyT Ciencia Básica. Amount requested: \$15 million pesos. Collaborating institutions: UADY, UV, INIFAP, Cornell University. PI: Drs. Juan Ku and Armin Ayala.
- **Strategies for Genetic and Nutritional Management for Improved Efficiency and Profit from Weanling Calves in Eastern Yucatán** (Evaluación de estrategias de manejo genético y nutricional para mejorar la eficiencia y rentabilidad de la producción de destetes en el oriente del estado de Yucatán). Funding program: CONACYT and the State Government of Yucatán. Amount requested: \$375,000.00 pesos. PI: Dr. Juan Magaña.
- **Nutritional and Genetic Management Strategies for Fattening and Finishing Sheep in Traditional and Elevated Stall Systems** (Estrategias de manejo de alimentación y genético para la engorda y finalización de ovinos en sistemas tradicional y jaula elevada en el estado de Yucatán). Funding program: Fundación PRODUCE Yucatán A. C. Amount requested: \$176,000 pesos. PI: Dr. Juan Magaña.