

International Activities Narrative Description

Robert A. Gilbert

Research

Dr. Gilbert has made a significant contribution to the Agronomy discipline through his cropping system research work as a postdoctoral fellow with the Rockefeller Foundation in Malawi and more recently through his sugarcane and biofuels research program in collaboration with EARTH University in Costa Rica. As an agronomic research fellow with The Rockefeller Foundation in Malawi Dr. Gilbert co-authored a discussion paper entitled "Malawi: soil fertility issues and options", which proposed the use of starter packs of hybrid maize, fertilizer, and grain legumes to boost the productivity of the smallholder farmer sector. The Malawian government and the donor community (World Bank, European Commission and DFID) subsequently signed a \$24 million agreement to produce and distribute starter packs to 2.8 million smallholder farmer households.

As the sugarcane agronomist at UF/IFAS EREC in Belle Glade, Dr. Gilbert led a team of UF/IFAS sugarcane researchers to meet with EARTH University in Costa Rica at their LaFlor campus to discuss collaborative sugarcane and biofuel research projects in 2005. Dr. Gilbert then organized a follow-up meeting in Belle Glade with UF/IFAS, USDA and EARTH University scientists in 2006 to finalize grant proposals, which led to a \$984,000 grant from the US Department of Energy in 2008 entitled "Managing sugarcane biomass to optimize ethanol production in sensitive watershed regions". Dr. Gilbert is co-PI on the grant with Dr. B.K. Singh of EARTH University.

The DOE project involves 11 faculty members from two institutions with differing missions and instructional languages and thus has been quite complex to coordinate. However the effort is worthwhile as this award is helping IFAS in several ways. First, it is providing resources to improve our green cane harvest and bioenergy programs at EREC. The grant is funding energy cane variety development and these varieties will be used by the \$300 million Lykes Brothers/Vercipia cellulosic ethanol plant planned for south Florida. Second, the project is enabling us to establish long-term collaborative research sites in Costa Rica which can be used for graduate student training. Third, this project is being used to demonstrate the value of international programs to our Florida clientele. Often when international collaboration is discussed with Florida sugarcane producers they counter with fears of international competition. This international collaboration is providing resources to support our core Florida programs which would NOT have been available to us if we did not partner with EARTH University.

Dr. Gilbert established a green cane research site at Azucerara El Viejo, Costa Rica as part of the DOE project with EARTH University in 2008. Dr. Gilbert won the Denver T. Loupe best presentation award at the American Society of Sugar Cane Technologists 2009 annual meeting for a presentation summarizing his green cane research program entitled "Effect of harvest method on microclimate and sugarcane yield in Florida and Costa Rica."

Teaching

Dr. Gilbert developed a sugarcane production course while on professional development leave at EARTH University. The sugarcane production course was taught (in English) as an elective for 4th-year students in the spring semester from January to May, 2008. The 20 students enrolled for the course came from diverse agricultural backgrounds in Belize, Bolivia, Brazil, Costa Rica, Guatemala, Honduras, Nicaragua, Paraguay and Uganda. My goals for the course were to ensure that students learned basic sugarcane agronomy, botany and physiology, and also were exposed to different career opportunities in sugarcane production and research at UF and elsewhere following graduation. I scheduled many guest lectures during the semester from sugarcane scientists from south Florida. Guest lecturers included Dr. Ron Cherry, Dr. Gregg Nuessly, Dr. Elise Pearlstine, Dr. Rick Raid (EREC), Dr. Kelly Morgan (SWFREC), Dr. Ron Rice (Palm Beach County Extension) and Dr. Jack Comstock (USDA-ARS). In addition to providing the students the opportunity to learn from these experts, my goal was to enable the visiting faculty to learn more about EARTH and our DOE project and form collaborative linkages in Costa Rica. This approach paid dividends when our DOE grant was approved during the semester and we were able to hold a meeting with UF faculty already in Costa Rica.

As of this writing 3 of the EARTH University students from the sugarcane production course are enrolled in MS programs at the University of Florida, and several more have contacted Dr. Gilbert about applying to UF graduate programs. In addition to mentoring the EARTH University students, Dr. Gilbert has hosted 4 short-term scholars (2 from EARTH University, 2 from Zamarana University in Honduras), and he will also be mentoring a USDA Borlaug fellow from Guatemala this fall.

Extension

From 2001-2009, Dr. Gilbert was editor of the EDIS Sugarcane Handbook, a compilation of more than 60 extension articles on sugarcane agronomy, breeding, entomology, pathology, economics and water quality online. Dr. Gilbert has received positive comments on the usefulness of the handbook not only from Florida growers, but also from growers in Malawi, South Africa and Pakistan.

In 2004, Dr. Gilbert recruited Dr. Graham Kingston of BSES, Australia to apply for a visiting professor fellowship at EREC. Dr. Kingston and Dr. Gilbert subsequently initiated a large-scale green cane (harvesting sugarcane without burning) project at EREC. There is world-wide pressure on sugarcane industries towards adoption of the green cane production system. Motivation comes largely from regulatory response to changed community attitudes to smoke and ash from cane fires. Industries in Colombia and Brazil have definite time horizons for cessation of burning. A clear examination of the benefits and challenges of green cane harvest in Florida is necessary for an informed dialogue on this issue. Since the green cane system involves changes in the agroecology of sugarcane production, our project involves EREC faculty members in agronomy, soil science, plant pathology, entomology, and economics. In April, 2005 Dr. Kingston and Dr. Gilbert presented the EREC field site to more than 100 participants at the EREC field day. In addition we have had monthly meetings on green cane research and extension with the IFAS sugarcane focus team, and several stakeholder meetings with USSC,

Florida Crystals and the Sugar Cane Growers Cooperative of Florida. A sandland grower has given 150 acres of his sugarcane land to our team for long-term green cane trials.

Dr. Gilbert coordinates Stage III of the “CP” sugarcane breeding program in Florida. The “CP” sugarcane clones are grown on > 90% of Florida sugarcane acreage and are economically important in many countries including Argentina (25% of total sugarcane acreage), Belize (16%), El Salvador (50%), Guatemala (65%), Honduras (47%), Mexico (15%), Morocco (54%), Nicaragua (75%), Senegal (9%) and Venezuela (9%).

Dr. Gilbert has recently expanded his research and extension program to meet the increased demand for biofuel crops. Dr. Gilbert is developing new energy cane varieties with USDA-ARS which have been exchanged with EARTH University in Costa Rica as part of the DOE grant effort.

Service

Dr. Gilbert has contributed greatly to the internationalization of IFAS. He has served as the EREC liaison to international programs, and hosted a visiting group of students from Malawi on a field tour of EREC in 2009. As a visiting professor at EARTH University in Costa Rica, Dr. Gilbert invited 7 scientists for guest lectures in his sugarcane production course with the goal to promote increased international collaborative opportunities for IFAS faculty. This strategy for increased internationalization helped promote a team approach which led to the joint UF/EARTH University DOE project.

Dr. Gilbert was appointed to the agronomy commission of the International Society of Sugar Cane Technologists (ISSCT) in 2008. In this role he has edited 16 international manuscripts for the ISSCT Proceedings for the March, 2010 meetings in Mexico.