February 2012

INTSORMIL

Sorghum, Millet and Other Grains
Collaborative Research Support Program

Inside the Grain

Growing solutions to global hunger

Dr. John Yohe, INTSORMIL Program Director

CENTA Presents Award to INTSORMIL

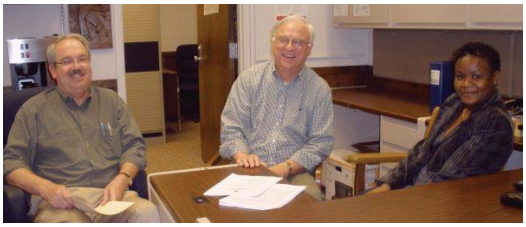
The INTSORMIL Collaborative Research Support Program (INTSORMIL CRSP), funded by the United States Agency for International Development (USAID) and managed by the University of Nebraska-Lincoln, was recently honored by an award presented by CENTA, the El Salvadoran national agricultural research agency. CENTA, the National Center for Agricultural and Forestry Technology presented the award to Dr. John Yohe, INTSORMIL Program Director during a CENTA/INTSORMIL/USAID El Salvador sponsored symposium on the impact of climate change on the sorghum industry in El Salvador. The symposium was held at the Hotel Presidente Sheraton, San Salvador, El Salvador. The award was presented to INTSORMIL "for their valuable scientific and financial support for sorghum research and activities at CENTA during more than 25 years, which has significantly benefitted the El Salvadoran sorghum producers and consumers, and contributed to the food security and nutritional well-being of El Salvador citizens." The award plaque was "Signed, 7th of December, 2011, San Salvador, El Salvador by:

Dr.Mario Parada Jaco, CENTA Director of Research
Dr. Rene Rivera Magaña, CENTA Executive Director and
Ingineiro Miguel Martinez, CENTA Director of Extension

Ohio State University 2011 Outstanding Thesis Award

Each year the Department of Agricultural, Environmental and Development Economics at Ohio State University (OSU) reviews completed M.S. theses and presents one with an Outstanding Thesis Award.

For 2011 the committee chose Bernadette Chewe Chimai from Zambia as the recipient. Ms. Chimai is an INTSORMIL student studying with Drs. Larson and Erbaugh at OSU. Her award winning thesis is titled "Determinants of Technical Efficiency in Smallholder Sorghum Farming in Zambia" and will be submitted to the AAEA competition for Outstanding Thesis Award.



Drs. Mark Erbaugh, Don Larson and Bernadette Chimai

USAID FROM THE AMERICAN PEOPLE

CENTA Workshop
Forage Sorghum and Climate Change

December 7, 2011 a symposium was held at the Hotel Presidente, San Salvador, El Salvador. The symposium covered two important topics affecting agriculture in El Salvador: Climate change and forage sorghum. The symposium was sponsored by Centro Nacional de Tecnololgia Agropecuaria y Forestale (CENTA), Ministerio de Agricultura y Ganaderia (MAG), Agricultura Familiar, USAID and INTSORMIL. Vilma Calderon, CENTA Food Processing Scientist, served as moderator for the workshop and Mario Parada Jaco, CENTA Research Director, presented a lecture on the importance of sorghum for food security in El Salvador. Sorghum producers and dairy farmers actively participated in the symposium as the lecture topics presented were of vital interest to them. Prof. Vara Prasad, Kansas State University Agronomist presented a lecture entitled "Climate Change and Climate Variability: El Salvador – Impacts on Productivity of Grain Crops and Opportunities for Management and Improvement."

Vilma Calderon

His conclusions:

- High temperature and drought stress decrease yields of sorghum, bean and maize.
- Reproductive processes of grain sorghum, maize and dry beans are sensitive to high temperature or drought stress.
- Models predict increases in maximum and minimum temperatures and more dry spells for El Salvador.
- Crop simulation models predict that in future climates sorghum and maize yields can decrease up to 20%; and dry bean yields up to 50%.
- There are opportunities to combat yield losses by adjusting planting dates, selection of genotypes and improving genetics and other management practices.

Dr. Mario Parada Jaco

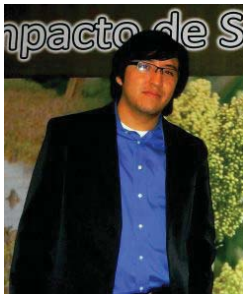
Prof. Vara Prasad

Prasad's PowerPoint presentation can be seen on the INTSORMIL website at: http://intsormil.org/smscientificpresents/Prasad-PVV-Climate-Change-El-Salvador-Final-Dec2011.pdf

Alexis Villacis, a graduate student mentored by Prof. John Sanders, Agricultural Economist, Purdue University presented a lecture on "Returns to the Introduction of new Sorghum Cultivars into the Dairy Industry of El Salvador."

Alexis concluded that :

- CENTA forage sorghum varieties S-2, RCV, S-3 and SS-44 have been widely accepted by dairy farmers in El Salvador and variety RCV, named for INTSORMIL/CENTA sorghum breeder Rene Clara Valencia, virtually occupies 100% of the sorghum area in El Salvador which is about 32,000 ha.
- Use of sorghum silage reduces the costs of feed per unit of milk produced.
- The annual net benefit to consumers and producers from the forage sorghum breeding program reached $14,000,000 by 2010 and is now accelerating due to the recent introduction of SS-44.
- The returns on the forage sorghum breeding research program are high at 37%.



Alexis Villacis

The PowerPoint lecture by Alexis can be seen at: http://intsormil.org/smscientificpresents/VillacisSorgum%20Impact%20El%20Salvador.pdf

CENTA Releases First BMR Sorghum Variety in Central America

The sorghum variety, Sorgo CENTA S-2 *bmr* was commercially released at a ceremony held in a dairy farmer's sorghum field near San Miguel, El Salvador. The release ceremony was sponsored by CENTA (Centro Nacional de Tecnololgia Agropecuaria y Forestale), Ministerio de Agricultura y Ganaderia (MAG), Agricultura Familiar, USAID/El Salvador and INTSORMIL. This is the first *bmr* variety to be released in Central America. "*bmr*" refers to a phenotypic character which causes a brownish colored midrib (compared to a white midrib in non- *bmr* varieties). Varieties with the *bmr* gene have a low lignin content of the forage (leaves and stems) and are highly digestible by dairy cows.

Sorgo CENTA S-2 *bmr* was developed by INTSORMIL/CENTA Central American Regional Coordinator Rene Clara Valencia through the support of Texas A&M University sorghum breeder Bill Rooney. In 2004 CENTA received eight lines with the gene *bmr*-12 from an INTSORMIL collaborator at Purdue University and this gene was incorporated into an improved forage variety sorghum, CENTA S-2. The addition of the *bmr* gene in CENTA S-2 *bmr* produced a forage sorghum variety which is nutritionally superior and highly digestible by dairy cows resulting in about 20% higher milk production than non-*bmr* varieties.

Farmer's field of CENTA S-2 *bmr* sorghum at site of release ceremony

Banner welcoming dairy farmers to the release of sorghum CENTA S-2 bmr, a new forage variety.

The *bmr* varieties are targeted to the small scale dairy farmers who are part of the "Agricultura Familiar" program (family farmers) under the El Salvadoran government's "Plan de Agricultura Familiar" (PAF) (family agriculture). Thus, the *bmr* varieties are components of the program for food security of the rural family farmers as these varieties will significantly increase rural income of the El Salvadoran dairy farmer and supports the CENTA/MAG motto, "Garantizando nuestra seguridad alimentaria," (Guaranteeing our food security).

A major constraint to further development of the Central American and Haitian dairy industry is the lack of sufficient good quality forage which results in low milk and meat production and an increase in production costs. Thus, the *bmr* varieties, developed by the CENTA sorghum breeding program, are being distributed to farmers throughout the region and Haiti through the support of a USAID/Washington and INTSORMIL managed project "Identification and Release of Brown Midrib (*bmr*) Sorghum Varieties to Producers in Central America and Haiti." This project has huge potential economic benefits. For the 388,000 sorghum farmers in Costa Rica, El Salvador, Guatemala, Haiti, Honduras, Nicaragua and Panama, *bmr* sorghum varieties can potentially increase their farm income by 15% or a total of $163,000,000 per year.

Dr. Bill Rooney, Texas A&M presenting a sack of CENTA S-2 *bmr* seed to a local farmer.

Bill Rooney, Texas A&M; John Yohe, INTSORMIL; Vilma Calderon, CENTA; Mario Parada Jaco, CENTA; E.A. "Short" Heinrichs, INTSORMIL and René Clara Valencia, CENTA (l to r) in front of a field of CENTA S-2 *bmr* sorghum at the release ceremony.