

Name: Gebisa Ejeta
Rank: Professor
Effort: 85% Research; 15% Teaching

Summary of Research:

Our group focuses on analysis and exploitation of genetic resistance to the major biotic and abiotic stresses of the sorghum crop. We also address problems associated with the nutritional quality of sorghum for food and feed, and more recently the potential use of the crop for alternative energy. Drought tolerance and resistance to diseases (leaf rust and grain mold) are important problems of sorghum both in the US and Africa. Early season seedling cold tolerance is an increasingly major constraint to expanding the acreage of sorghum into the northern United States. The parasitic weed, Striga has been an intractable and endemic problem in Africa. In each of these constraints, our general approach has been to develop a better understanding of the overall interactions between the biology of the host and/or the pathogen, and the influence of the environment in determining the expression of tolerance or resistance to these stresses. We generate genetic variation through various means and employ the best possible biological tools to influence selection in the desired direction.

Extramural Funding:

U.S. Agency for International Development
U.S. Department of Agriculture
The Rockefeller Foundation

Collaborative Linkages:

University of Nebraska	University of Hoheneim, Germany
Texas A&M University	Wagenigen University, the Netherlands
Kansas State University	University of Bologna, Italy
Ohio State University	The Weizmann Institute, Israel
The Rockefeller Foundation	Sasakawa Global 2000
World Vision International	
The Bill & Melinda Gates Foundation	
International Crops Research Institute for the Semi Arid Tropics (ICRISAT)	
International Institute of Tropical Agriculture (IITA)	
National Agricultural Research Services in several countries	

International Efforts:

See list above

Recent Publications:

Joel, D.M., Y. Hershenhorn, H.Eizenberg, R. Aly, G. Ejeta, P.J.Rich, J.K. Ransom, J. Sauerborn, and D. Rubiales. 2006. Hort Reviews vol. 33 (In press).

Ejeta, G. 2005. Integrating biotechnology, breeding, and agronomy in the control of Striga in sorghum. pp 239-251. In: Tuberosa, R. Phillips, R.L., Gale, M. (eds) In the Wake of the Double Helix: From the Green Revolution to the Gene Revolution. Avenue Media Press, Bologna, Italy.

Rich, G., C. Grenier, and G. Ejeta. 2004. Striga resistance in the wild relatives of sorghum. Crop Sci. 44:2221-2229.

Mohamed, A., A. Ellicott, T. L. Housley, and G. Ejeta. 2003. Hypersensitive response to striga infection in sorghum. Crop Sci. 43:824-828.

Menkir, A. and G.Ejeta. 2002. Selection for grain yield in sorghum under moisture stress and nutrient stress environments. African Crop Sci. Journal 11:55-64