



Ohio State HCS News

HORTICULTURE & CROP SCIENCE IN VIRTUAL PERSPECTIVE - THE OHIO STATE UNIVERSITY

hcs.osu.edu/news

Corn Breeding Dissertation Helps Africans



Godfrey Asea and advisor Rich Pratt both made presentations at the 7th annual African Crop Science Society Conference in Entebbe, Uganda.

In September 2001 **Godfrey Asea**, a native Ugandan, traveled to Wooster, Ohio to study with corn breeding expert **Dr. Rich Pratt** at OSU's Ohio Agricultural Research and Development Center (OARDC). After completing his Ph.D. in December 2005, Dr. Asea is prepared to return to Africa and put his research into action. Armed with an increased understanding of the corn (maize) genes that are resistant to disease, Dr. Asea strives to help African farmers fight against pests and diseases that devastate their crops. He recently returned to Entebbe, Uganda to present his dissertation research at the [7th Annual African Crop Science Society Conference - Opportunities and Challenges for Transforming Agriculture](#).

Dr. Asea's research on identifying genes that are resistant to disease will hopefully benefit African farmers. His dissertation, "[Genetic Characterization of Partial Resistance and Comparative Strategies for Improvement of Host-Resistance to Multiple Foliar Pathogens of Maize](#)", demonstrates how molecular markers, or "tags", can be used to simplify and speed up the breeding process. The identification of different genes gives the breeder the ability to arrange combinations. Putting gene combinations together helps prevent the pathogen from "defeating" the resistant genes.

An associate professor in the Horticulture & Crop Science Department, Dr. Pratt has been committed to helping Africans solve African farming problems for quite some time ([Award Recognizes OSU's Commitment to African Agriculture](#)), as such he has trained and advised numerous African students. "The idea here is building up the capabilities of African universities, lifting the quality of their research, and addressing real-life problems. Unless the science is taken into the field and makes an impact in the livelihood of subsistence farmers, there isn't much contribution," explains Pratt. "Improving the disease resistance of crops in the tropics and sub-tropics is very important because many pests and diseases attack corn in those environments. Preventing crop loss is critical for poor farmers who rely on their harvest to feed themselves and earn a little cash if there is enough to market as well.



Dr. Richard Pratt was awarded the 2005 African Crop Science Society (ACCS) Award for his contributions to scientific development in Africa.

In addition to helping African farmers, Pratt is proud of the scientific contributions of work Asea's research, "Unfortunately, multiple diseases usually threaten the crops. Breeding for resistance to multiple diseases is very difficult. Godfrey's work showed that using the molecular "tags" allows the breeder to make more gain in a more expedient and cost-efficient manner. Identification of the genes for resistance is also important because they can be used in the U.S. as well to keep the U.S. crop green."

Thanks to Pratt and many other OARDC researchers,

Ohio State-trained African scientists now hold leadership positions in both government and academic research institutions. OSU's most recent PhD graduate, Godfrey Asea, has accepted a position as maize breeder with the National Agriculture Research Organization (Ministry of Agriculture) in Uganda. He plans to breed the disease resistant lines with lines that have superior nutritional content.

While at OSU, Asea worked with OARDC researcher Pat Lipps on a greenhouse inoculation protocol for juvenile maize. This unique work had never before been accomplished and is now documented in a senior-authored a paper published in the December 2005 issue of the Journal of Phytopathology, "[Development of Greenhouse Inoculation Procedures for Evaluation of Partial Resistance to Cercospora zeae-maydis in Maize Inbreds](#)", with co-authors Drs. Lipps, Pratt, Stuart Gordon, and Adipala Ekwamu.

Asea first came to Ohio in 2000 for a four month "sandwich program" as part of his Master's Degree program at Makerere University. This program was a collaborative effort between The Rockefeller Foundation which sponsored the M.S. program and USAID IPM/CRSP which sponsored the study at OSU. His research was awarded the "Best Student Presenter" prize by the Rockefeller Foundation at the Makerere University Annual Graduate Workshop that year.

Photo courtesy Rich Pratt. Story and web editing by [Victor van Buchem](#).

Published March 03 2006 - <http://HCS.OSU.EDU>