Oral presentation

Recovering Ancient Genes for Sustainable Maize Agriculture

Mary Eubanks[a]
[a]Department of Biology, Duke University, Durham, NC 27008-0338

Introduction. It is assumed that feeding the world's burgeoning population in the future demands a new Green Revolution with large-scale inputs of agricultural chemicals, irrigation, and genetically engineered crops. Maize, one of the most important global crop commodities, epitomizes the industrial agriculture model, with significant consequences for human health and the environment.

Objectives. Hybrids between the wild relatives of maize, teosinte and *Tripsacum*, are experimental prototypes of ancient maize that permit transfer of new genes for sustainable agronomic traits into maize.

Methods. In growth chamber experiments and field tests, I selected plants with corn rootworm and drought tolerance. These formed the core group for my recurrent selection breeding program developing tolerant inbred maize lines. Inbreds crossed with commercial inbreds were grown in field tests to assess combining ability, yield, and expression of traits.

Results. Yield and nutritional values for various hybrid combinations will be reported.

Conclusion. This new genetic resource enables development of hybrid maize that can still be grown on a large-scale, but more sustainably than current industrial agricultural practices.

Keywords: *Tripsacum*, teosinte, inbreds, hybrid maize, recurrent selection breeding

Selected References

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Presenting Author: Mary Eubanks, eubanks@duke.edu