

**Illinois Agricultural Experimental Station  
Department of Crop Sciences  
University of Illinois  
Urbana, IL 61801**

**Annual Report NCR-167  
- 2003 -**

**Faculty of the corn breeding group at the University of Illinois**

- Martin Bohn
- John Dudley
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**Our objectives**

- Improve grain yield and value-added traits of corn.
- Improve agronomic characteristics of corn including resistance to disease and pests.
- Provide educational opportunities for students that prepare them for careers in plant breeding, genetics, and plant pathology.
- Provide continuing educational opportunities for commercial corn breeders.

**Program highlights**

- The Illinois Maize Breeding and Genetics Laboratory (IMBGL) organized the 39<sup>th</sup> Illinois Corn Breeders' School held in Urbana, Illinois, March 2-4, 2003. Key note speakers were Dr. A.E. Melchinger (University of Hohenheim, Germany, "Marker assisted selection in maize") and Dr. D. Hoisington (CIMMYT, Mexico, "Strategies for breeding for drought tolerance and incorporating new technologies in breeding programs at CIMMYT"). The table of contents and attendance lists of Corn Breeders' Schools are available at the IMBGL internet homepage at <http://imbgl.cropsci.uiuc.edu>.
- One location of the 700-800 hybrid trial was grown by IMBGL, University of Illinois, in Urbana.

**Publications in peer reviewed journals**

Bohn, M., T. Magg, D. Klein, and A.E. Melchinger. 2003. Breeding early maturing European Dent maize (*Zea mays* L.) for improved agronomic performance and

- resistance against the European corn borer (*Ostrinia nubilalis* Hb.). *Maydica* 48:239-247.
- Egesel, C.O., J.C. Wong, R.J. Lambert, and T.R. Rocheford. 2003. Combining ability of maize inbreds for carotenoids and tocopherols. *Crop Sci.* 43:818-823.
- Magg, T., M. Bohn, D. Klein, and A.E. Melchinger. 2003. Concentration of moniliformin produced by *Fusarium* species in grains of transgenic Bt maize hybrids compared to their isogenic counterparts and commercial varieties under European corn borer (*Ostrinia nubilalis* Hb.) pressure. *Plant Breeding* 122:322-327.
- Heckenberger, M., M. Bohn, J.R. van der Voort, J. Peleman, and A.E. Melchinger. 2003. Variation of DNA fingerprints among accessions within maize inbred lines and implications for identification of essentially derived varieties: II. Genetic and technical sources of variation in AFLP data and comparison with SSR data. *Molecular Breeding*. 12:97-106.
- Mikkilineni, V., and T.R. Rocheford. 2003. Sequence variation and genomic organization of fatty acid desaturase-2 (*fad2*) and fatty acid desaturase-6 (*fad6*) cDNAs in maize. *Theor. Appl. Genet.* 106:1326-1332.
- Paul, C., G. Naidoo, A. Forbes, V. Mikkilineni, D. White, and T. Rocheford. 2003. Quantitative trait loci for low aflatoxin production in two related maize populations. *Theor. Appl. Genet.* 107:263-270.
- Reif, J.C., A.E. Melchinger, X.C. Xia, M. Warburton, D.A. Hoisington, S.K. Vasal, D. Beck, M. Bohn, and M. Frisch. 2003. Use of SSRs for establishing heterotic groups in subtropical maize. *Theor. Appl. Genet.* 107:947-957.
- Reif, J. C., A. E. Melchinger, X. C. Xia, M. L. Warburton, D. A. Hoisington, S. K. Vasal, G. Srinivasan, M. Bohn, and M. Frisch. 2003. Genetic distance based on simple sequence repeats and heterosis in tropical maize. *Crop Sci.* 43: 1275-1282.