

University of Guelph NCR-167 Station Report - 2003

Location: Guelph and Ridgetown, Ontario, Canada

Personnel: Elizabeth Lee (faculty), Byron Good (field technician), Mary Jane Ash (field technician), Scott Jay (field technician), Chris Grainger (lab technician), Asheesh Singh (Ph.D. student), Megan Stewart (M.Sc. student), Muhammad Alam Rehan (M.Sc. student).

Breeding focus:

- Short-season yellow dent inbred lines
- White and yellow food grade inbred lines
- Germplasm enhancement

Research areas:

- Late-season cold tolerance
- Genetics underlying kernel quality in food corn
- Genetics of grain yield and of the physiological processes contributing to grain yield
- Yield potential and general stress tolerance

Inbred line releases:

cgx316 -white food-grade	SD79 x SD80
cgx318-white food-grade	SD79 x SD80
cgx322-white food-grade	SD79 x SD80
cgx327-white food-grade	SD79 x SD80
cgx328-white food-grade	SD79 x SD80
cgx333-white food-grade	SD79 x SD80
cgx364-white food-grade	SD79 x SD80
cgx375-white food-grade	SD79 x SD80
cgx388-white food-grade	SD79 x SD80
cgx396-white food-grade	SD79 x SD80
cgx398-white food-grade	SD79 x SD80
cgx406-white food-grade	SD79 x SD80
cgx437-white food-grade	SD79 x SD80
cgx463-white food-grade	SD79 x SD80
cgx502-white food-grade	SD79 x SD80
cgx511-white food-grade	SD79 x SD80
cgx518-white food-grade	SD79 x SD80

Theses:

Jennifer Young, May 9, 2003, Genetics Underlying White Food Corn Quality Factors. (M.Sc.)

Ardershir Ahmadzadeh, December 22, 2003, Combining Ability in Maize. (Ph.D.). Co-advised by M. Tollenaar

Publications:

- Lee, E.A. 2004. Chapter 89. Maize: Genetics. In: *The Encyclopedia of Grain Science*, C. Wrigley, C. Walker, and H. Corke, eds. Academic Press. London. (accepted 10-03, in press)
- Lee, E.A. and L.W. Kannenberg. 2004. Chapter 87. Maize: Breeding. In: *The Encyclopedia of Grain Science*, C. Wrigley, C. Walker, and H. Corke, eds. Academic Press. London. (accepted 8-03, in press)
- Lee, E.A. and J.W. Dudley. 2004. Chapter Plant breeding education. In: *Plant Breeding: The Arnel R. Hallauer International Symposium*, K.R. Lamkey and M. Lee, eds., Iowa State Press, Ames, IA. (submitted to publisher 9-03)
- Tollenaar, M., and E.A Lee. 2004. Chapter 2. Genetic yield improvement and stress tolerance in maize. In: *Physiology and Biotechnology Integration for Plant Breeding*, H. Nguyen and A. Blum, eds. Marcel Dekker Inc., New York. (in press)
- Ahmadzadeh, A., E.A. Lee, and M. Tollenaar. 2003. Heterosis for leaf CER during the grain-filling period in maize. *Crop Sci.* (accepted #C03-0522).
- Tollenaar, M., A. Ahmadzadeh, and E.A. Lee. 2003. Physiological basis of heterosis for grain yield in maize. *Crop Sci.* (accepted #C03-0523).
- Lee, E.A., and L.W. Kannenberg. 2003. Effect of inbreeding method and selection criteria on inbred and hybrid performance. *Maydica.* (accepted, MS#0962, for Springfield issue, in press 10-16-03)
- Lee, E.A., T. K. Doerksen, and L.W. Kannenberg. 2003. Genetic components of yield stability in maize breeding populations. *Crop Sci.* 43:2018-27.
- Doersken, T.K., L.W. Kannenberg, and E.A. Lee. 2003. The impact of recurrent selection on combining ability in maize breeding populations. *Crop Sci.* 43:1652-58.
- Diebold, R.S., K.E. McNaughton, E.A. Lee and F.J. Tardif. 2003. Multiple resistance to imazethapyr and atrazine in *Powell amaranth*. *Weed Sci.* 51:312-318.

Posters and talks:

- Lee, E.A. 2003. Genome fluidity and quantitative genetics. ASTA Corn and Sorghum Annual Meetings, December 11-12, 2003, Chicago, IL. (invited talk)
- Lee, E.A., and J.W. Dudley. 2003. Plant breeding education. Arnel Hallauer International Symposium on Plant Breeding, August 17-22, 2003, Mexico City, Mexico. (invited talk)
- Lee, E.A. 2003. Genome fluidity and quantitative genetics. NCR-167 Annual Meetings, Madison, WI, Feb. 17-18, 2003. (talk)
- Lee, E.A. 2003. Genome fluidity and quantitative genetics. NEC-29 Annual Meetings, Ottawa, ON, Feb. 13-14, 2003. (talk)
- Lee, E.A., A. Ahmadzadeh, and M. Tollenaar. 2004. Physiogenetic components of grain yield in maize. ASA-CSSA-SSSA annual meetings, Denver, CO, November 2-6, 2003. (poster)