

University of Guelph NCR-167 Station Report - 2005

Location: Guelph, Ontario, Canada

Personnel: Elizabeth Lee (faculty), Byron Good (field technician), Chris Grainger (lab technician), Matt Smid (lab technician), Asheesh Singh (Ph.D. student), Megan Stewart (M.Sc. student), Andrew Burt (Ph.D. student), Andrea Chambers (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
- Development of high lutein and zeaxanthin lines

Inbred line releases: none

Publications:

- Tollenaar, M., and **E.A. Lee**. 2006. Physiological dissection of grain yield in maize by examining genetic improvement and heterosis. *Maydica*. (submitted 4-08-05, Duvick commemorative issue, accepted 7-05, March 2006 publication).
- Lee, E.A.**, A. Singh, M.J. Ash, and B. Good. 2006. Use of sister-lines and the performance of modified single-cross maize hybrids. *Crop Sci.* 46:312-320.
- Liu, J., **E.A. Lee**, M.K. Sears, and A.W. Schaafsma. 2005. Wheat curl mite (Acari: Eriophyidae) dispersal and its relationship with kernel red streaking in maize (*Zea mays* L.). *Journal of Economic Entomology*. (MS #05-003, editor accepted 6-20-05).
- Weir, A.D., J. Omielan, **E.A. Lee**, and I. Rajcan. 2005. Use of NMR spectroscopy for predicting protein concentration in soybean seeds based on oil measurements. *JOACS*. 82:87-91.
- McNaughton, K.E., J. Letarte, **E.A. Lee**, and F.J. Tardif. 2005. Several mutations in *als* confer herbicide resistance in redroot pigweeds (*Amaranthus retroflexus*) and Powell amaranth (*Amaranthus powellii*). *Weed Sci.* 53:17-22.
- Lee, E. A.**, A. Ahmadzadeh, and M. Tollenaar. 2005. Quantitative genetic analysis of the physiological processes underlying maize grain yield. *Crop Sci.* 45:981-87-987.

Posters and talks:

- Singh, A.K., and **E.A. Lee**. 2005. Using a novel approach, identity-by-descent limited recombinant inbred line population, to identify maize yield Qtls. ASA-CSSA-SSSA annual meetings, Salt Lake City, UT, November 6-10, 2005. (talk)

- Lee, E.A.** 2005. Heterosis – everything you wanted to know about it and then some. NCR-167 Annual Meetings, Mpls, MN, Feb. 21-22, 2005. (talk)
- Singh, A.K., and **E.A. Lee**. 2005. Understanding maize grain yield QTLs in terms of underlying physiological mechanisms. ASA-CSSA-SSSA annual meetings, Salt Lake City, UT, November 6-10, 2005.
- Stewart, M., A. Hund, M. Tollenaar, and **E.A. Lee**. 2005. Identification of late season cold tolerance QTLs in maize. Maize Genetics Conference, Lake Geneva, WI, March 10-13, 2005. (poster)
- Singh, A., and **E.A. Lee**. 2005. Identification of maize grain yield QTLs using an identical-by-descent limited recombinant inbred line population. Maize Genetics Conference, Lake Geneva, WI, March 10-13, 2005. (poster)
- Wambach, T., K. Liu, **E.A. Lee**, and L. Lukens. 2005. Genetic Variation for Maize Seedling Root Growth under Water-Deficit Stress. Maize Genetics Conference, Lake Geneva, WI, March 10-13, 2005. (poster)
- Lee, E.A.**, and A. Singh. 2005. Novel Mapping Population Structure - Identity-by-Descent Limited Recombinant Inbred Lines. Maize Genetics Conference, Lake Geneva, WI, March 10-13, 2005. (poster)