# 42nd Annual Maize Genetics Conference

## March 2000

**Thursday, 16 March**

***6:00-7:00 PM DINNER***

**7:15-7:30 PM** **ANNOUNCEMENTS**

**7:30-9:00 PM** **PLENARY TALKS** **Chair: Sue Wessler**

**7:30** **Jane Langdale, Oxford University**
Cellular differentiation in maize leaves

**8:15** **Elliot Meyerowitz, California Institute of Technology**
Cell-cell communication in the *Arabidopsis* shoot apical meristem

**9:30PM Posters may be hung Thursday evening and must be removed by noon Sunday**

***BEER WILL BE AVAILABLE ACROSS FROM THE POSTER AREA UNTIL 2:00AM***

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**FRIDAY, 17 March**

***7:00-8:30 AM BREAKFAST***

**8:30-10:10AM** **SESSION #1** **Chair: Neelima Sinha**

**THE GENE**

**8:30 Laurel Mezitt, University of California-Davis**
Cloning and Characterization of *Sucrose Export Defective1 (Sxd1)*
8:45-8:50 Discussion

**8:50 Bradley Till, University of Oregon**
*CRS1:* a nucleus-encoded protein required for the splicing of the maize chloroplast *atpF* group II intron
9:05-9:10 Discussion

**9:10 Damon Lisch, UC Berkeley**
Mutations that affect paramutation also reverse Mu element methylation
9:25-9:30 Discussion

**9:30 Elsbeth Walker, University of Massachusetts, Amherst**
Cloning of maize *yellow stripe1 (ys1),* an iron-regulated gene involved in high affinity Fe(III) uptake
9:45-9:50 Discussion

**9:50 Donal M. O'Sullivan, IACR-Long Ashton Research Station**
Use of a new maize BAC library to study intra-specific variation at the *Rp1* rust resistance superlocus
10:05-10:10 Discussion

***10:10-10:40AM BREAK WITH BEVERAGES***

**10:40-12:20PM** **SESSION 2** **Chair: Torbert Rocheford**

**THE SEED**

**10:40 Matthew Evans, University of Wisconsin-Madison**
Maternal gametophyte effect genes in maize seed development
10:55-11:00 Discussion

**11:00 Philip Becraft, Iowa State University**
Positional cues specify and maintain aleurone cell fate in endosperm development
11:15-11:20 Discussion

**11:20 Kirsten Nielsen, NC State University**
Differential response of pathogenic and non-pathogenic fungi to maize ribosome-inactivating protein
11:35-11:40 Discussion

**11:40 Brian Scheffler, USDA-ARS-NPURU, University, Mississippi**
Molecular characterization of *In-D: A* semi-dominant mutation of the *intensifier* locus
11:55-12:00 Discussion

**12:00 Odd-Arne Olsen, Agricultural University of Norway**
Genetic dissection of nuclear endosperm development
12:15-12:20 Discussion

***12:30-1:30PM LUNCH***

**1:30-2:30PM** **POSTER SESSION 1** Contributors will be at EVEN-NUMBERED posters

**2:30-3:30PM** **POSTER SESSION 2** Contributors will be at ODD-NUMBERED posters

***BEVERAGES WILL BE AVAILABLE FROM 3:30-4:00***

**4:00-5:30PM** **FORUM:** **Strategies/Plans to Enhance Maize Transformation in the Public Sector**

**Chair:** **Kelly Dawe**

**Speaker:** **Steve Moose, University of Illinois**

**Panel:** **Jeff Bennetzen, Purdue University (Moderator)**
**Wayne Parrott, University of Georgia**
**Michael Spencer, Monsanto**
**Patrick Schnable, Iowa State University**
**Vicki Chandler, University of Arizona**
**Lyuda Sidorenko, Iowa State University**
**Steve Moose, University of Illinois**

***6:00-7:00PM DINNER***

**7:15PM** **WORKSHOP: COMPARATIVE GENOMICS** **Chair: Cliff Weil**

**Speakers:**

**Molly Jahn, Cornell University**
**Gernot Presting, Clemson University**
**Andy Kleinhofs, Washington State University**

**9:30-10:00PM** **POSTER SESSION #3** Contributors will be at EVEN-NUMBERED posters

**10:00-10:30PM** **POSTER SESSION #4** Contributors will be at ODD-NUMBERED posters

***BEER WILL BE AVAILABLE ACROSS FROM THE POSTER AREA UNTIL 2:00AM***

**SATURDAY, 18 March**

***7:00-8:30AM BREAKFAST***

**8:30-10:10AM** **SESSION #3** **Chair: Cliff Weil**

**THE PLANT (PART 1)**

**8:30 Laurie Smith, University of California-San Diego**
Molecular analysis of the *Tangled* gene
8:45-8:50 Discussion

**8:50 Mark Lubkowitz, University of California-Berkeley**
Assembling a genetic network for regional identity along the proximo-distal axis of the leaf
9:05-9:10 Discussion

**9:10 Dave Jackson, Cold Spring Harbor Lab**
The *fasciated ear2* gene encodes a leucine rich repeat protein that controls inflorescence and floral development in the maize ear
9:25-9:30 Discussion

**9:30 Luzie Wingen, Max-Planck-Institute for Breeding Research**
A candidate gene for the *Tunicate1* locus
9:45-9:50 Discussion

**9:50 Enrico Scarpella, Institute of Molecular Plant Sciences, Leiden University**
A role for the rice homeobox gene *Oshox1* in provascular cell fate commitment
10:05-10:10 Discussion

***10:10-10:40AM BREAK WITH BEVERAGES***

***And now for our exploratory foray into the Concurrent Session Experiment***

**10:40-12:25 CONCURRENT SESSIONS**

**Session # 4 THE GENOME**
**Session # 5 THE PLANT (Part 2)**
**Session # 6 THE GENE**

**Session # 4 THE GENOME** **Chair: Kelly Dawe**

**10:40-10:45 Introduction to session**

**10:45 Mei Guo, Pioneer Hi-Bred Int. Inc.**
Insights into molecular basis of heterosis: mRNA profiles of maize hybrids and inbred parents
11:00-11:05 Discussion

**11:05 Anjali Dogra, University of Missouri-Columbia**
Dosage dependent control of heterosis
11:20-11:25 Discussion

**11:25 Edward Braun, Ohio State University**
Uncovering complex patterns of evolution for genes encoding *Myb*-domain proteins
11:40-11:45 Discussion

**11:45 Evelyn Hiatt, University of Georgia**
The *TR-1* knob repeat exhibits extreme levels of neocentromeric activity
12:00-12:05 Discussion

**12:05 Nick Lauter, University of Minnesota**
Genetic variation for phenotypically invariant traits detected in teosinte: implications for the evolution of novel forms
12:20-12:25 Discussion

**Session #5—THE PLANT (Part 2)** **Chair: Neelima Sinha**

**10:40-10:45 Introduction to session**

**10:45 Michael Muszynski, Pioneer Hi-Bred Intl. Inc.**
Modifying flowering time through modulation of *indeterminate1 (id1)* expression
11:00-11:05 Discussion

**11:05 Jennifer Nelson, University of California-Berkeley**
Mosaic analysis of a dorsiventral leaf polarity mutant
11:20-11:25 Discussion

**11:25 Debbie Laudencia-Chingcuanco, University of California-Berkeley**
*Indeterminate floral apex 1* is required for maintenance of meristem identity
11:40-11:45 Discussion

**11:45 Sharon Kessler, University of California-Davis**
Characterization of *xcl,* a mutation affecting planes of cell division
12:00-12:05 Discussion

**12:05 Matt Sauer, University of Pennsylvania**
*EPC,* a gene controlling juvenile to adult phase change in maize
12:20-12:25 Discussion

**Session #6—THE GENE** **Chair: Becky Boston**

**10:40-10:45 Introduction to session**

**10:45 Jay Hollick, University of California, Berkeley**
Diverse roles of *required to maintain repression (rmr)* factors in gene silencing
11:00-11:05 Discussion

**11:05 Subbaiah Chalivendra, University of Illinois**
Altered patterns of sucrose synthase phosphorylation and localization precede root tip death in anoxic maize seedlings
11:20-11:25 Discussion

**11:25 Brian Dilkes, University of Arizona**
Cell cycle regulatory components in the endosperm endoreduplication cycle
11:40-11:45 Discussion

**11:45 Binzhang Shen, Rutgers University**
Ac tagging and characterization of a terpenoid cyclase gene induced by herbivore damage
12:00-12:05 Discussion

**12:05 Suzy Cocciolone, Iowa State University**
Regulation of the maize *a1* promoter in transgenic plants
12:20-12:25 Discussion

***12:30-1:30PM LUNCH***

**1:30-2:30PM** **POSTER SESSION #5** Contributors will be at ODD-NUMBERED posters

**2:30-3:30PM** **POSTER SESSION #6** Contributors will be at EVEN-NUMBERED posters

***BEVERAGES WILL BE AVAILABLE FROM 3:30-4:00***

**4:00** **WORKSHOP: Genomics Resources** **Chair: Sue Wessler**

**Speakers:** **Vicki Chandler, University of Arizona**
Functional genomics of chromatin genes

**Virginia Walbot, Stanford University**
Maize gene discovery project

**Jeff Bennetzen, Purdue University**
Genomic sequence comparisons between maize BACs and orthologous regions of barley, rice, sorghum and wheat

**Ed Coe, USDA-ARS, Columbia, Missouri**
Comprehensive genetic, physical, and database resources for maize

**Kelly Dawe, University of Georgia**
Functional genomics of maize centromeres

**Rob Marteinssen, Cold Spring Harbor Laboratory**
Center for maize targeted mutagenesis

**Lisa Harper, University of California-Berkeley**
An integrated map of cytological, genetic and physical information of maize

**Ron Phillips, University of Minnesota**
Radiation hybrid and cloning system for the genetic and physical mapping of the corn genome

**Jo Messing, Rutgers University**
The international rice genome sequencing project

**Don McCarty, University of Florida**
Applied genomics: strategies for efficient molecular analysis of complex genetic systems

***6:00-7:00PM DINNER***

**7:30-9:00PM** **PLENARY TALKS** **Chair: Ben Bowen**

**7:30** **Graham Moore, John Innes Centre,**
Wheat, a model or commodity--chromosome pairing and polyploidy

**8:15** **John Doebley, University of Wisconsin,**
Genetic evidence and the evolution of maize

**9:30-10:00PM** **POSTER SESSION #7** Contributors will be at ODD-NUMBERED posters

**10:00-10:30PM** **POSTER SESSION #8** Contributors will be at EVEN-NUMBERED posters

***BEER WILL BE AVAILABLE ACROSS FROM THE POSTER AREA UNTIL 2:00AM***

**Sunday, 19 March**

***7:00-8:30AM BREAKFAST***

**8:30-10:10AM** **SESSION #7** **Chair: Becky Boston**

**THE GENOME**

**8:30 Mark Settles, University of Florida**
Genomic approaches to seed development
8:45-8:50 Discussion

**8:50 Jeffrey Wong,** University of Illinois
Molecular marker mapping of chromosomal regions associated with carotenoids and tocopherols in maize
9:05-9:10 Discussion

**9:10 Jeffry Thornsberry, North Carolina State University**
Association tests of candidate genes regulating plant height and flowering time
9:25-9:30 Discussion

**9:30 Tim Helentjaris, Pioneer Hi-Bred Int., Inc**
Insights from applying expression profiling to female development under stress
9:45-9:50 Discussion

**9:50 Peter Carlton, UC Berkeley**
Centromeres, telomeres, and meiotic chromosome pairing
10:05-10:10 Discussion

***10:10-10:40AM BREAK WITH BEVERAGES***

**10:40AM MEETING ADJOURNS**

# LIST OF POSTERS

## I Biochemical Genetics

| | | |
|---|---|---|
| 1 | Miguel Cervantes-Cervantes | Preliminary characterization of the geranylgeranylpyrophosphate synthase (GGPPS) gene family of maize. |
| 2 | Prem Chourey | Metabolic analyses of a double mutant of sucrose synthase (SuSy) genes in developing endosperm. |
| 3 | Prem S. Chourey | Analysis of a double mutant of sucrose synthase (SuSy) genes that shows evidence of a third SuSy gene. |
| 4 | Joanna Cross | ADP-Glucose Pyrophosphorylase Activity from Maize-Potato Hybrids |
| 5 | Jorg Degenhardt | Biochemical and molecular characterization of the terpene synthase gene family in *Zea mays* |
| 6 | Karsten Frenzel | Characterisation of zmKCS, a fl-Ketoacyl-CoA-Synthase from Maize possibly involved in Wax Biosynthesis |
| 7 | Diane Janick-Buckner | Characterization of the camouflage 1 mutant of maize |
| 8 | Kirsten Nielsen | Differential response of pathogenic and non-pathogenic fungi to maize ribosome-inactivating protein |
| 10 | Bruce R Thomas | Regulation of sugar production in cereal seedlings |
| 11 | Elsbeth Walker | Cloning of maize yellow stripe1 (ys1), an iron-regulated gene involved in high affinity Fe(III) uptake. |
| 12 | Jonathan Walton | Functional Genomics of Hemicellulose Biosynthesis |
| 13 | Xuelu Wang | QTL mapping of elongation factor 1-alpha (eEF1A) content and characterization of eEF1A genes in maize endosperm |
| 14 | Chunyuan Wu | Biochemical and reverse genetic analysis of the maize starch debranching enzyme ZPU1 |
| 15 | Eleanore Wurtzel | A heterologous system to identify strategic genes for metabolic engineering of the maize carotenoid biosynthetic pathway. |
| 16 | Galina Zayakina | Highly polymorphic zeins of maize represent a useful source of genetic markers. |

## II Cytogenetics

| | | |
|---|---|---|
| 17 | Amie Franklin | Analysis of desynaptic 2 supports an involvement of the Rad51 recombination protein in homologous chromosome synapsis |
| 18 | Inna Golubovskaya | The pam1 gene: Bouquet Formation and Homologous Synapsis |
| 19 | Lisa Harper | Towards an Integrated Map of Cytological and Genetic Information |
| 20 | Eetienne Kaszas | Phosphorylation of histone H3 is correlated with changes in sister chromatid cohesion during meiosis in maize |
| 21 | Yong Li | Development and characterization of maize-Tripsacum F1 hybrid population segregating for apomixis |
| 22 | Joshua Marshall | FRETM as an optical technique to determine molecular interactions in maize kinetochore/centromere on a sub-optical scale |
| 23 | Graham Moore | Wheat, a model or commodity-chromosome pairing and polyploidy |
| 24 | Ron Okagaki | Towards an oat-maize radiation hybrid panel |
| 25 | Brent Page | Evidence For and Evolutionary Relationship Between Chromosome 4 and the B Chromosome, Based on Related Centromere Repeats |
| 26 | Monther Sadder | Comparison of the genetic map to the physical map of molecular markers related to QTLs for resistance against southwestern corn borer (Diatraea grandiosella D.) on pachytene chromosomes using in situ hybridization in maize (Zea mays L.) |
| 27 | Stephen Sowinski | Effect of Abnormal Chromosome 10 on the Frequency of Recombination in maize |
| 28 | Nathan Springer | Epigenetic inheritance of an aneuploid induced phenotype |
| 29 | M. Isabel Vales | Maize-chromosome 9 rearrangements in progenies of oat-maize chromosome 9 radiation hybrids |
| 30 | David F. Weber | Use of the r-X1 Deficiency System to Recover Trisomics for Chromosome 8 in Maize |
| 31 | Pascale Williams | CRP1: A Translational Activator in Maize Chloroplasts |
| 32 | Hong-Guo Yu | Maize single-kinetochore chromosomes can align at the equator by tension-sensitive interactions with opposite spindle poles |
| 33 | Yin-Zhou Zheng | Analysis of a small cluster of B specific repeat sequences in the long arm of the B chromosome |

## III Cytoplasmic Inheritance

| | | |
|---|---|---|
| 34 | Christine Chase | Transposon tagging of nuclear genes that regulate mitochondrial gene expression |
| 35 | Chester Dewald | Comparison of Seven Inbred Maize Lines with Their BC-3 Derivatives in Tripsacum Cytoplasm |
| 36 | Susan Gabay-Laughnan | Genetic characterization of CMS-S restorer-of-fertility alleles in Mexican races of maize and teosinte |

## IV Developmental Genetics

| | | |
|---|---|---|
| 37 | Debbie L. Alexander | Phenotypic analysis of corkscrew; a recessive mutation affecting shoot development |
| 38 | Robert Baker | Characterization of nl*1179, a mutant affected in leaf development |
| 39 | David Barnes | ramosa2 affects a determinacy switch point in the developing maize inflorescence |
| 40 | Peter Bommert | Analysis of embryo-specific mutants in Zea mays reveals that radial organization of the maize proembryo preceeds the establishment of the shoot apical meristem |

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|---|---|---|
| 41 | David Braun | Genes controlling later events in leaf development: liguleless1 and tie-dyed1 |
| 42 | Gladys Cassab | Three maize root-specific genes are not correctly expressed in regenerated caps in the absence of the quiescent center |
| 43 | Andrew Doust | Inflorescence development in Setaria |
| 44 | Matthew Evans | Maternal Gametophyte Effect Genes in Maize Seed Development |
| 45 | Marcelo Friedlender | Activation of maize defense markers by Les9 |
| 46 | Giulini A. Gavazzi G. | Characterization of maize mutants affecting embryogenesis |
| 47 | Angela Hay | Characterization of the dominant leaf mutation Wab (Wavy Auricles in Blades). |
| 48 | Momoyo Ito | Epidermal cell differentiation and radial pattern formation in grass embryogenesis. |
| 49 | Lynne Jesaitis | laminate coleoptile is required for coleoptile identity and normal leaf pattern |
| 50 | Nick Kaplinsky | rgo1 and ids1 interact to control spikelet meristem identity and new spikelet identity mutants. |
| 51 | Michael Kolomiets | Characterization of clear spot-1 (csp1), a disease lesion mimic mutant of maize. |
| 52 | Yew Lee | To understand how plants sensesce |
| 53 | Jun Lim | Radial patterning during regeneration of the root apical meristem in maize |
| 54 | Mark Lubkowitz | Discerning the function of liguleless3 in leaf development: a search for downstream targets |
| 55 | Paula McSteen | barren inflorescence2 (bif2), barren stalk1 (ba1), Barren inflorescence1 (Bif1) and Suppressor of sessile spikelet1 (Sos1): multiple pathways for axillary meristem development in the maize inflorescence |
| 56 | Jennifer Moon | Cloning and Characterization of Maize Lazy-1 |
| 57 | M.G. Neuffer | Diurnal Response of Selected Chlorophyll Mutants Under Different Combinations of Light and Temperature |
| 58 | Asuka Nishimura | Analyses of genes involved in the lateral organ formation from the shoot apical meristem |
| 59 | Odd-Arne Olsen | Genetic dissection of nuclear endosperm development |
| 60 | Woong June Park | Tissue-specific Expression of AUX1 in Maize Roots |
| 61 | Scott Poethig | The phase-specific identity of a leaf is specified after leaf initiation |
| 62 | Dorien Postma-Haarsma | CHARACTERIZATION OF KNOX CLASS HOMEOBOX GENES FROM RICE |
| 63 | Peter Rogowsky | Esr genes show different levels of expression in the same region of maize endosperm |
| 64 | Mark Running | Mutations in thick tassel dwarf 1 affect meristem function |
| 65 | Matt Sauer | EPC, a gene controlling juvenile to adult phase change in maize |
| 66 | Ruairidh Sawers | Bundle Sheath Defective2 (BSD2); a novel protein required for the accumulation of RuBisCO |
| 67 | Michael Scanlon | Clonal analysis of NS1, cloning of ns2?: progress toward elucidating the function of the narrow sheath duplicate genes during maize leaf development. |
| 68 | Enrico Scarpella | A role for the rice homeobox gene Oshox1 in provascular cell fate commitment |
| 69 | Susanne Hansen | Expression analysis of ZmMADS1 and ZmMADS3 in different tissue cultures of maize |
| 70 | Anne W. Sylvester | Observing the predictability of random events during leaf development: Analysis of *rli1-warty*and other cell pattern mutants. |
| 71 | George Theodoris | Characterization of genes involved in organ development in maize |
| 72 | Bruce R Thomas | Maize beta-glucanases - multiple genes and multiple roles in plant development |
| 73 | Leszek Vincent | Developing systematic descriptors and containment hierarchies for maize |

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| 74 | Erik Vollbrecht | Characterization of ramosa1, a gene regulating indeterminacy in the maize inflorescence |
| 75 | Luzie U. Wingen | A candidate gene for the Tunicate1 locus |
| 76 | Yuan Zhang | Glucocorticoid Inducible cr4 Transcription in Transgenic Maize |

## V Genome Structure/Synteny

| | | |
|---|---|---|
| 77 | Chris Carson | Mutant Mapping in the Missouri Maize Project |
| 78 | Doug Davis | Progress On Maize Whole-Genome Radiation Hybrids |
| 79 | Georgia Davis | A High-Resolution Genetic Map of the B73 x Mo17 Population. |
| 80 | Michael Freeling | Announcing: The "Grass Hybrids" Public Database and Website |
| 81 | Huihua Fu | Genomic organization of the highly recombinogenic bz region of maize |
| 82 | Shailesh Lal | Gene discovery using the maize genome database ZmDB |
| 83 | Bruce May | Maize Targeted Mutagenesis: A Knockout Resource for the Maize Community |
| 84 | Wade Odland | Current and future uses of oat-maize addition and radiation hybrid lines |
| 85 | Leonore Reiser | The Arabidopsis Information Resource (TAIR) |
| 86 | David Remington | EVALUATING DISEQUILIBRIUM AMONG POLYMORPHISMS WITHIN AND BETWEEN CANDIDATE GENES IN MAIZE |
| 87 | Hector Sanchez-Villeda | MaizeDB - Gateway to All Public Maize Genome Data. |
| 88 | Steve Schroeder | Data Management in the Missouri Maize Project |
| 89 | David Selinger | Comparison of nucleotide substitutions and multi-base insertions in *b* alleles from *Zea mays* ssp and *Zea luxurians* suggests a relatively recent origin for most insertions. |
| 90 | Natalya Sharopova | Microsatellites in maize - development and mapping. |
| 91 | Xianghe Yan | Use of the transposon Ac as a gene-searching engine in the maize genome. |

## VI Molecular Genetics

| | | |
|---|---|---|
| 92 | Greenland Andy | Nuclear expression of T-urf13 in the tapetum mimics male sterility in CMS-T maize. |
| 93 | Donald Auger | Nuclear dosage effects on mitochondrial gene expression |
| 94 | Don Baldwin | Transcript profiling of the maize defense response to a fungal pathogen and its toxin, a histone deacetylase inhibitor |
| 95 | Deverie K. Bongard | SNP discovery using the maize EST database. |
| 96 | Brent Buckner | Sequence analysis of a recessive allele of the y1 gene of maize |
| 97 | Anne Bunner | Characterization of two Novel Arginine/Serince-Rich Splicing Factors that are Differentially Spliced in Maize |
| 98 | Todd Christensen | Identification and Characterization of Seven Rop GTPases in Maize |
| 99 | Maureen Clancy | Maize shrunken1 first intron-mediated enhancement of gene expression |
| 100 | Kathryn Clayton | Construction of a consensus SSR map for maize using a high-throughput marker screening system |
| 101 | Cintia M. Coelho | Genetic control of endosperm endoreduplication and modes of maternal control |
| 102 | Jennifer Cooper | Chromosome Arm Aneuploidy Causes Dosage Effects on *sucrose synthase1* and *shrunken1* RNA levels in maize plants |
| 103 | Chuck Dietrich | Characterization of the maize gl8 gene family and its role in the fatty acid elongase complex. |
| 104 | Brian Dilkes | Cell cycle regulatory components in the endosperm endoreduplication cycle. |
| 105 | Anjali Dogra | Dosage dependent control of heterosis |

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| 106 | Jane Dorweiler | *Mediator of Paramutation2* is a dominant inhibitor of the establishment of paramutation |
| 107 | Cynthia Ernst | Utility of marker assisted selection for introgression of commercially important genes into elite germplasm |
| 108 | Wolfgang Goettel | Heritable allelic interaction between *P-pr* and *P-rr* |
| 109 | John Gray | A CHLOROPLAST PROTECTIVE FUNCTION FOR *lls1 (lethal leaf-spot 1)* IN PLANTS ? |
| 110 | Baozhu Guo | Identification of a gene at the syntenic sh2-a1 region in maize acting as a QTL affecting silk maysin synthesis |
| 111 | Mei Guo | Insights into Molecular Basis of Heterosis: mRNA Profiles of Maize Hybrids and Inbred Parents |
| 112 | Jose Gutierrez-Marcos | Imprinted genes in maize endosperm |
| 113 | Linda Harris | Maize/Gibberella ear rot- maize genes induced in the plant/pathogen interaction |
| 114 | Linda Harris | Maize genomics at ECORC |
| 115 | Tim Helentjaris | Insights from applying expression profiling to female development under stress. |
| 116 | Zihua Hu | Genome-scale RNA profiling of parentally imprinted genes in maize endosperm |
| 117 | Jinsheng Lai | Stable expression of the high methionine storage protein gene in transgenic progenies of various maize inbred lines |
| 118 | Carolyn Lawrence | Rooting the Kinesin Tree: A Phylogenomic Analysis |
| 119 | Jin Li | Site-selected Mutagenesis of the rad51b Gene in Maize |
| 120 | Dennis J. McCormac | Translation of the chloroplast *atpB/E* mRNA requires a nuclear gene in maize. |
| 121 | Venugopal Mikkilineni | Genomic Organization of the Fatty Acid Desaturase-2 (FAD-2) EST's in Maize. |
| 122 | Snezana Mladenovic Drinic | Chromatin polymorphism dependent gene expression in maize |
| 123 | Rita-Ann Monde | Genetic analysis of thylakoid protein targeting |
| 124 | Daniel Moran | Expression of a wheat high molecular weight glutenin in transgenic maize: A comparison of seed-specific promoters. |
| 125 | Rebecca J. Mroczek | ANALYSIS OF THE ORGANIZATION OF THE ABNORMAL-10 CHROMOSOME OF MAIZE |
| 126 | Jorge Nieto-Sotelo | Characterization of five maize *hsp101-m-::Mu* lines obtained by reverse genetics |
| 127 | E. Owusuwaa Owusu | The Maize Tousled-Like Kinase Gene Family |
| 128 | UTA PASZKOWSKI | dinf1 and nope1, two mycorrhiza-specific mutants in maize |
| 129 | Varaporn Sangtong | Expression and inheritance of a wheat endosperm storage protein in maize |
| 130 | Yutaka Sato | Knock-out the knox genes |
| 131 | David Selinger | Characterization of a tissue-specific gene silencing phenomenon involving *B-Bolivia* and CaMV 35S/B chimeric transgenes. |
| 132 | Binzhang Shen | Ac tagging and characterization of a terpenoid cyclase gene induced by herbivore damage |
| 133 | Lyudmila Sidorenko | Novel type of P1-rr suppresison is caused by transgene carrying full length P1-rr promoter |
| 134 | David Skibbe | Characterization of the Zea mays Aldehyde Dehydrogenase Gene Family |
| 135 | Karolin Stahl | Expression of the DIMBOA biosynthesis genes |
| 136 | Maike Stam | The involvement of long distance communication in a natural case of gene silencing in plants, paramutation at the b locus in maize |
| 137 | Ann Stapleton | Wax helps: the glossy1 mutant is more sensitive to ultraviolet radiation by some physiological measures |
| 138 | Shannon Stenehjem | Identification of genes transcribed from a QTL |
| 139 | Masaharu Suzuki | Conservation of maize VP1 function in the dicot, Arabidopsis. |
| 140 | Richard Thompson | rgf, a mutation reducing grain filling in maize through effects on basal |

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| | | endosperm and pedicel development |
| 141 | Mark van Haaren | High resolution AFLPÆ genetic maps of Maize |
| 142 | Rik van Wijk | Linkage Map Integration: An integrated genetic map of Zea mays L. |
| 143 | Hong Yao | Characterization of the 140-kb Multigenic a1-sh2 Interval |
| 144 | Suling Zhao | Phosphate Transporters in Maize |

## VII Quantitative Traits

| | | |
|---|---|---|
| 145 | Edward Bruggeman | Relationships between yield, stability, and density tolerance |
| 146 | Shaun Bushman | Genetics of Chlorogenic Acid and Maysin Synthesis in Maize Silks |
| 147 | Ana Butron | Effect of p1 locus on synthesis of silk maysin, apimaysin, 3'-methoximaysin and chlorogenic acid in maize |
| 148 | Nick Lauter | Genetic variation for phenotypically invariant traits detected in teosinte: implications for the evolution of novel forms |
| 149 | Cesar Lopez | Heterotic Patterns Among Elite Flint Maize Populations from Argentina |
| 150 | Larissa Wilson | Associating Phenotypic Traits With Sequence Variation in Maize id1 |

## VIII Transposable Elements

| | | |
|---|---|---|
| 151 | Ryuji Ishikawa | New members of RiceMutaor elements by deletion and non-homologous recombination with ectopic DNA segments |
| 152 | Ning Jiang | Tourist traps in the maize genome |
| 153 | Richard Langham | *MuDR-like Sequences are Widespread in the Grasses* |
| 154 | Zenaida V. Magbanua | ASSESSING THE UTILITY OF MITES AS MOLECULAR MARKERS |
| 155 | Adriano Marocco | Study of the chilling-induced chlorosis by using the virescent mutants of maize. |
| 156 | Robert Meeley | An Overview And Some Observations From Work On Mutator-Based Reverse Genetics |
| 157 | Christine Schaefer | Development of an En/Spm transposon system for barley |
| 158 | Richard Slotkin | Transposition Frequency of *Rescue Mu* |
| 159 | Xianghe Yan | Jittery, a low-copy, Mu-related transposon apparently mobilized by BSMV infection |
| 160 | Xiaoyu Zhang | mPIF Elements: Possible Non-autonomous Members of the PIF Transposable Elements |
| 161 | Jianbo Zhang | Non-linear Ac/Ds transposition and maize genome reorganization |

# Memorial in Honor of
# Earl B. Patterson

Earl B. Patterson passed away on Saturday May 1, 1999. He was 75 years old. He is survived by his children, Mark and Anne. His wife Betty passed away August 1, 1999.

His name is synonymous with the Maize Genetics Cooperation Stock Center whose current thriving status is attributable, in large measure, to his unstinting effort in its behalf. His deep imprint also remains with the annual Maize Genetics Conference, which he organized and presided over through the 60s, 70s and early 80s.

Earl Patterson was born on a farm in southeastern Nebraska near the town of Reynolds, on July 21, 1923, the youngest of nine unusually gifted children in a closely-knit family of four girls and five boys. Earl attended the University of Nebraska where, in 1947, after serving three years in the U.S. armed services during WWII, he received his B.S. degree in technical science, graduating first in his class. Dr. Frank Keim, long-time head of the Department of Agronomy at the University of Nebraska, and a genetics teacher who was familiar with Earl's excellent qualifications and interest in the subject, encouraged him to pursue advanced studies with Dr. E. G. Anderson, himself of Nebraska origin, at the California Institute of Technology in Pasadena. Upon Dr. Keim's recommendation, Earl's application was accepted and his graduate years were spent in the Biology Division at Cal Tech with Dr. Anderson as his mentor. He received his Ph.D. degree in genetics at that institution in 1952, and stayed at Cal Tech for another year as a postdoctoral fellow.

In 1953 Earl accepted a position in the Departments of Botany and Agronomy at the University of Illinois in Urbana. Here he was responsible for the Maize Genetics Cooperation Stock Center which had just been moved from Cornell University to Urbana. Two years later, in 1955, he became project leader of that program in the Department of Agronomy. Earlier maintenance of the maize genetic stocks at Cornell led to selection of strains that were adapted to the short growing season at Ithaca but only poorly suited to culture in the Corn Belt and most other corn growing regions. As a result, Earl Patterson's first task in his new position at Illinois was to commence the conversion of these many genetic stocks to inbred and hybrid backgrounds that were better adapted to most corn growing regions. Earl maintained the stock center through these formative years until 1966 when he relinquished his stock center responsibilities to concentrate on research. Earl’s research focused on the isolation and characterization of male sterility mutants in maize. He found numerous new nuclear male-sterile mutations. When Southern Corn Leaf Blight, a disease specific to T-type male-sterile cytoplasm, struck the hybrid corn industry, seed companies reverted to manual detasselling. Earl developed a method to use his nuclear male-sterile traits to replace cms-T to avoid detasselling. Combining his male-sterile traits with various chromosomal aberration stocks, he developed a new method for producing hybrid corn seed. This work resulted in the issuing of two patents.

In 1977, Earl stepped up to fill the gap left by the retirement from teaching of the head instructor of the introductory genetics course. He was lead instructor for this course, in collaboration with faculty from the Animal Sciences Department, until 1987. The average enrollment was 80-90 students per semester.

When the Director position at the Maize Genetics Cooperation Stock Center again became vacant in 1986, Larry Schrader, then Head of the Agronomy Department at Illinois, persuaded Earl to resume management of the Stock Center. It was to the great benefit of all maize researchers that Earl returned to that position at a time when future support and direction of the center were uncertain. He continued that effort until his retirement in 1993.

Earl always gave "distribution" of seed stocks very special attention. On each request for seed, he brought to bear his encyclopedic knowledge of maize genetics lore. A request for seeds often resulted in the shipment of more packets than requested because of Earl's uncanny ability to anticipate needs and problems associated with growing and handling the items requested. All manner of useful suggestions were likely to be found in the letters that accompanied the packets of seeds requested. There is no doubt that a collection of letters that Earl has sent in response to seed requests over the years would be a valuable resource for maize geneticists.

While the Maize Genetics Cooperation Stock Center is today well supported and a thriving organization, it was not always so. In its earlier years at Illinois, funds for its operation were uncertain and often meager. With an improved internal status for the Stock Center in recent years has come increased support from the Agricultural Research Service of the United States Department of Agriculture, and in 1992 this agency assumed responsibility for operations and funding of the program. To Earl, whose labors, and sometime frustrations, have been so closely associated with the development of the Stock Center, the strong position that it has recently achieved was a source of great satisfaction and pride.

In 1958, Earl Patterson along with John Laughnan, Ed Coe, and Gerry Neuffer, talked about the possibility of an annual informal get-together of maize geneticists and their graduate students. The first meeting was in January 1959, and took place at Allerton Park, a part of a farm facility owned by the University of Illinois and located just outside of Monticello, Illinois. There were about twelve participants at that first meeting, so few that it could be held in the quite small Oak Room in Allerton Park House. These maize meetings as they came to be called were delightfully informal and grew in numbers of participants over the years. They were presided over by Earl. He made all the arrangements for use of the facility and dates of the meetings each year. He sent out notices of meetings to potential participants and arranged for ground transportation to Allerton House. There was no prearranged program of speakers; participants would arrive on Friday evening and at that time or early the next morning Earl would talk with people interested in sharing their research experiences and in that way developed a program for the get-together. At first, there was no need for a microphone, even for the most soft-spoken individuals, but as the meetings grew in size it necessarily moved to amplification. Earl introduced the speakers, adjusted the microphone, operated the overhead, arranged for the right kind of soft chalk and erased the blackboard, all with a special finesse that earned for him the position of permanent chair of all sessions. In addition to all these things Earl presided over the gene mapping sessions usually held on Saturday evenings. As the meetings grew in size, it was recognized that some modest level of organization was needed. Earl's suggestion of establishing a steering committee for the annual meetings was approved by the maize group. Today this committee continues to serve an important function in the Maize Genetics community.

After 25 years, the maize meetings grew to such a size that Allerton House could no longer accommodate them and so, regretfully, the maize genetics community was obliged to move the meetings from this treasured site. This past March the 41st annual meeting of maize geneticists, now called the Maize Genetics Conference, was held at the Grand Geneva Convention Center in Lake Geneva, WI, with over 400 teachers and researchers in attendance. Younger members of the maize genetics group are probably not acquainted with Earl Patterson nor aware of the reverence in which the Allerton meetings are still held by their predecessors. However, they should know that it was Earl who established the original format for these meetings and successfully propagated the informal atmosphere that is still recognizable in the present-day meetings, in spite of their size.

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