

Kansas State University Libraries

**New Prairie Press**

---

Conference on Applied Statistics in Agriculture

2007 - 19th Annual Conference Proceedings

---

## Editor's Preface and Table of Contents

John E. Boyer Jr.

Follow this and additional works at: <https://newprairiepress.org/agstatconference>



Part of the [Agriculture Commons](#), and the [Applied Statistics Commons](#)



This work is licensed under a [Creative Commons Attribution-Noncommercial-No Derivative Works 4.0 License](#).

---

### Recommended Citation

Boyer, John E. Jr. (2007). "Editor's Preface and Table of Contents," *Conference on Applied Statistics in Agriculture*. <https://doi.org/10.4148/2475-7772.1104>

This is brought to you for free and open access by the Conferences at New Prairie Press. It has been accepted for inclusion in Conference on Applied Statistics in Agriculture by an authorized administrator of New Prairie Press. For more information, please contact [cads@k-state.edu](mailto:cads@k-state.edu).

Proceedings

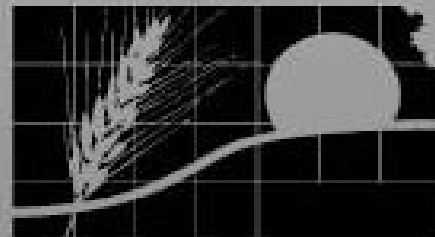
Nineteenth  
ANNUAL

**Kansas State  
University  
Conference**

on

**APPLIED  
STATISTICS  
IN AGRICULTURE**

The Clarion Hotel  
Manhattan, Kansas  
April 27-May 1, 2007



## Preface

These proceedings contain papers presented in the nineteenth annual Kansas State University Conference on Applied Statistics in Agriculture, held in Manhattan, Kansas, April 27-May 1, 2007. The purpose of the conference is to provide a forum for discussion on the application of statistics to problems in agricultural sciences. Papers and posters presented at the conference and included in the proceedings are intended to provide information to both the statistician and agricultural researcher on current issues of agricultural and general statistical interest.

The keynote speaker was Dr. R.W. Doerge, with Purdue University, West Lafayette, Indiana. On April 28, 2007, Dr. Doerge presented a workshop titled “Introduction to Quantitative Trait Locus (QTL) Mapping in Experimental Populations: Past and Present”.

Each contributed paper was refereed before being accepted for publication in these proceedings. The papers were accepted for publication based on their interest, relevance, innovation and application to the agricultural sciences and statistics.

Thanks goes out to the following referees: Bruce Craig, Philip Dixon, Stuart Gardner, Ed Gbur, Carla Goad, Jennifer Hockett, Dallas Johnson, Matt Kramer, Steve Lund, Bruce Mackey, Ben Mallinix, George Milliken, Anne Parkhurst, Bill Price, John Stevens, Caryn Thompson, Jessica Thomson, Bryan Vinyard, Kevin Wright and Man Yu Yum; to the staff members for their help in assembling the proceedings; and finally to our conference sponsors: American Statistical Association, Eli Lilly & Company, Pfizer Inc, Pioneer Hi Bred-a DuPont Business and the USDA-ARS for their continued support.

John E. Boyer, Jr., Ph. D.  
Proceedings Editor

# Table of Contents

	Page
<b>Tridimensional Regression</b>	
Kendra Schmid, University of Nebraska-Lincoln	
David Marx, University of Nebraska-Lincoln	
Ashok Samal, University of Nebraska-Lincoln .....	1
<b>Alternative Estimation Techniques for Assessing Probability of Frost Damage in Subalpine Fir Trees</b>	
William J. Price, University of Idaho	
Bahman Shaffi, University of Idaho	
Danny L. Barney, University of Idaho .....	10
<b>Using the Cumulative-Size Mechanistic Model for Analyzing Insect Data</b>	
T.I. Matis, Texas Tech	
J.H. Matis, Texas A&M	
G.J. Michels Jr., Texas Agriculture Experiment Station-Bushland	
M.N. Parajulee, Texas Agriculture Experiment Station-Lubbock .....	23
<b>Specifications of a Prototype Software System for Developing Variable-Rate Treatment Prescriptions for Use in Precision Agriculture</b>	
Kevin S. McCarter, Louisiana State University-Baton Rouge	
Eugene Burris, Louisiana State University AgCenter-St. Joseph	
George A. Milliken, Kansas State University	
Ernest L. Clawson, Louisiana State University AgCenter-St. Joseph	
Hoi Yee Wong, Louisiana State University-Baton Rouge	
Jeffrey L. Willers, USDA/ARS Mississippi State University .....	39
<b>Selection of Blocked Two-Level Fractional Factorial Designs for Agricultural Experiments</b>	
Weiming Ke, South Dakota State University	
Cuirong Ren, South Dakota State University	
Huitian Lu, South Dakota State University .....	62
<b>Adjusting Population Estimates for Genotyping Error in Non-Invasive DNA-Based Mark-Recapture Experiments</b>	
Shannon M. Knapp, Purdue University	
Bruce A. Craig, Purdue University .....	74
<b>Tolerance Intervals for Gene Flow Rates from Transgenic to Non-Transgenic Wheat and Corn Using a Logistic Regression Model with Random Location Effects</b>	
Samuel Broderick, Colorado State University	
Phillip Chapman, Colorado State University	
Patrick Byrne, Colorado State University	
Todd Gaines, Colorado State University .....	89

**Using Nonlinear Fixed and Mixed Models with Switch Functions to Allow for Hormesis  
in Growth of Escherichia Coli**

C. Tu, University of Nebraska-Lincoln  
A.M. Parkhurst, University of Nebraska-Lincoln  
L.M. Durso, University of Nebraska-Lincoln  
R.W. Hutkins, University of Nebraska-Lincoln .....109

**Using a Nonlinear Crossed Random Effects Model with Three-Way Treatment Structure  
for Describing Circadian Patterns of Serum Prolactin Concentrations in Heat Stressed Holsteins**

M. Zhou, University of Nebraska-Lincoln  
A.M. Parkhurst, University of Nebraska-Lincoln  
B.C. Pollard, University of Arizona-Tucson  
R.J. Collier, University of Arizona-Tucson.....126

**Sample Size Determination in Animal Health Studies**

Zhanglin Cui, Eli Lilly & Company  
Alan G. Zimmermann, Eli Lilly & Company  
Daniel H. Mowrey, Eli Lilly & Company .....143

**Spectral Procedures Enhance the Analysis of Three Agricultural Time Series**

David Meek, USDA-ARS-MWA - National Soil Tilth Laboratory, Ames, IA  
J. Prueger, USDA-ARS-MWA - National Soil Tilth Laboratory, Ames, IA  
M. Tomer, USDA-ARS-MWA - National Soil Tilth Laboratory, Ames, IA  
R. Malone, USDA-ARS-MWA - National Soil Tilth Laboratory, Ames, IA.....154

**2007 Listing of Conference Attendees .....171**

## LIST OF ATTENDEES

**An, Lingling** - Purdue University  
**Bargen, Jason** - Pfizer Inc  
**Bauer, Karin** - Midwest Research Institute  
**Biven, Laura** - US Department of Agriculture  
**Blankenship, Erin** - Univ. of Nebraska-Lincoln  
**Boyer, John** - Kansas State University  
**Boykin, Debbie** – USDA/ARS  
**Brennan, Meghan** - University of Florida  
**Bryson, Lawrence** - Pfizer Animal Health  
**Bsharat, Rebhi** - Kansas State University  
**Burch, Brent** - Northern Arizona University  
**Camp, Mary** – USDA/ARS  
**Chapman, Jessica** - Iowa State University  
**Chapman, Phillip** - Colorado State University  
**Cheng, Lili** - Kansas State University  
**Christman, Mary** - University of Florida  
**Cochrane, Chun Yen** - Kansas State University  
**Cornelius, Paul** - University of Kentucky  
**Craig, Bruce** - Purdue University  
**Cui, Lin** - Eli Lilly & Company  
**Dey, Rajarshi** - Kansas State University  
**Doerge, Rebecca** - Purdue University  
**Douglass, Larry** - University of Maryland  
**Duke, Sara** – USDA/ARS  
**Durham, Susan** - Utah State University  
**Feng, Lizhi** - Pioneer Hi Bred, a DuPont Business  
**Fernandez, George** - University of Nevada-Reno  
**Ferry, Nancy** - DuPont Crop Protection  
**Gbur, Edward** - University of Arkansas  
**Goad, Carla** - Oklahoma State University  
**Goodwin, Roger** - USDA/Nat'l Agricultural Stats Svcs  
**Guo, Shengjie** - University of Nebraska-Lincoln  
**Higgins, James** - Kansas State University  
**Hinds, Mark** - Pioneer Hi Bred, a DuPont Business  
**Hobbs, Jonathan** - Iowa State University  
**Hoffman, Wherly** - Eli Lilly & Company  
**Hollinger, Amy** - Southeast Missouri State University  
**Hooks, Tisha** - University of Nebraska-Lincoln  
**House, John** - St. Luke's Hospital  
**Huang, Qiwen** - University of Nebraska-Lincoln  
**Jayawardhana, Ananda** - Pittsburg State University  
**Jiang, Pingping** - University of Missouri  
**Johnson, Dallas** - Kansas State University  
**Jung, Yoonsung** - Kansas State University  
**Kastens, Jude** - Kansas University  
**Ke, Weiming** - South Dakota State University  
**Khamis, Imad** - Southeast Missouri State University  
**Kiernan, Kathleen** - SAS Institute  
**Kim, Sungwook** - Pittsburg State University  
**Knight, Christopher** - Novus International Inc  
**Koehler, Kenneth** - Iowa State University  
**Kramer, Matt** – USDA/ARS  
**Kratzer, Dal** - ESCI  
**Lamsal, Sunil** - Southeast Missouri State University  
**Leone, Erin** - University of Maryland  
**Leyva-Estrada, Norma** - Iowa State University  
**Liu, Grace** - Pioneer Hi Bred, a DuPont Business  
**Loughin, Thomas** - Kansas State University  
**Loughin, Marie** - Milliken Associates Inc.  
**Lu, Huitian** - South Dakota State University  
**Luo, Lang**  
**MacKinnon, April** - Milliken Associates Inc.  
**Macchiavelli, Raul** - University of Puerto Rico  
**Mackey, Bruce** - USDA/ARS  
**Marx, David** - University of Nebraska-Lincoln  
**McCarter, Kevin** - Louisiana State University  
**Meek, David** – USDA/ARS  
**Meyer, Corrie** - Southeast Missouri State University  
**Milliken, George** - Kansas State University  
**Min, Jun** - Kansas State University  
**Mo, Hua** - Pioneer Hi Bred, a DuPont Business  
**Mohanty, Radha** - Monsanto Company  
**Mowrey, Daniel** - Eli Lilly & Company  
**Mullinix, Benjamin** - UGA Tifton Campus  
**Neill, Jim** - Kansas State University  
**Nemeth, Margaret** - Monsanto Company  
**Njuho, Peter** - Kansas State University  
**Ogunyinka, Ebenezer** - Kansas State University  
**Palmquist, Deb** – USDA/ARS  
**Parkhurst, Anne** - University of Nebraska-Lincoln  
**Payne, Rob** - Degussa Corporation  
**Phillips, Greg** - USDA  
**Price, William** - University of Idaho  
**Qiao, Meihua** - Eli Lilly & Company  
**Quinlan, Michelle** - University of Nebraska-Lincoln  
**Recknor, Justin** - Iowa State University  
**Remund, Kirk** - Monsanto Company  
**Ren, Cuirong** - South Dakota State University  
**Richardson, Troy** - Kansas State University  
**Ridpath, Harold** – USDA/APHIS  
**Rodriguez, Jorge** - Kansas State University  
**Roozeboom, Kraig** - Kansas State University

## LIST OF ATTENDEES

**van Santen**, Edzard - Auburn University  
**Schroepfel**, Stephen - Southeast Missouri State Univ.  
**Senne**, Lane - PRA International  
**Shafii**, Bahman - University of Idaho  
**Shrestha**, Smriti - Kansas State University  
**Simon** Stephen - Childrens Mercy Hospital  
**Singh**, Pradeep - Southeast Missouri State University  
**Smith**, Christina - Kansas State University  
**Song**, Jiuzhou - University of Maryland  
**St. Pierre**, Normand - Ohio State University  
**Staudhammer**, Christina - University of Florida  
**Steadman**, Greg  
**Stevens**, John - Purdue University  
**Stroup**, Walt - University of Nebraska-Lincoln  
**Sun**, Zhiwei - Kansas State University  
**Sweeney**, Diane - Schering-Plough Animal Health  
**Tang**, Zhongwen - Kansas State University  
**Tanner**, James - Tanner Consulting  
**Taylor**, Veronica - FDA  
**Thomson**, Jessica - USDA  
**Tolos**, Siti - Kansas State University  
**Travnicek**, Daryl - University of Nebraska-Lincoln  
**Van Vleck**, Dale – USDA/ARS  
**VanLeeuwen**, Dawn - New Mexico State University  
**Vinyard**, Bryan – USDA/ARS  
**Wang**, Dong - Iowa State University  
**Wang**, Yi - University of Nebraska-Lincoln  
**West**, Mark - USDA/ARS  
**Whitehand**, Linda – USDA/ARS/WRRC  
**Wilson**, Samuel - Kansas State University  
**Wright**, Deanne – Pioneer Hi Bred, a DuPont Business  
**Wright**, Kevin - Pioneer Hi Bred, a DuPont Business  
**Wroughton**, Jacqueline - University of Nebraska-Lincoln  
**Xie**, Lin - Kansas State University  
**Yang**, Celeste - Kansas State University  
**Yang**, Xiao - Southeast Missouri State University  
**Yeater**, Kathy – USDA/ARS  
**Young**, Linda - University of Florida  
**Zeng**, Beiyan - Monsanto Company  
**Zhang**, Kurt - Kansas State University  
**Zhang**, Wuyan  
**Zhao**, Huiyan - Monsanto Company  
**Zhou**, Meijian - University of Nebraska-Lincoln