

**Registration**

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**Twenty-First**

**ANNUAL**

**Kansas State  
University  
Conference**

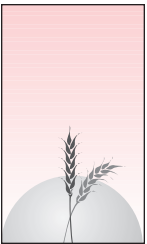
on

**APPLIED  
STATISTICS  
IN AGRICULTURE**

Clarion Hotel  
Manhattan, Kansas

**April 19–April 21, 2009**





**Hosted by:**

Department of Statistics  
Kansas State University

**Sponsored by:**

American Statistical Association  
Eli Lilly & Company  
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USDA-ARS

# KANSAS STATE UNIVERSITY

## **Conference on Applied Statistics in Agriculture**

**April 19–21, 2009  
Clarion Hotel  
Manhattan, Kansas**

The Kansas State University Conference on Applied Statistics in Agriculture provides a forum for discussion of statistical issues motivated by agricultural problems. The conference brings together statisticians from academia, industry and government to discuss ideas and advancements in the application of statistics to solving agricultural research problems.

This is a three-day conference consisting of a technical workshop, two keynote addresses, a series of contributed papers and poster presentations. The conference has a relaxed atmosphere designed to encourage discussions on papers and presentations with authors and other participants. This communication enhances the interface of statistics with the agricultural sciences.

The Kansas State University Conference on Applied Statistics in Agriculture is unique in that it emphasizes the application of statistics in solving real-life problems, highlighting agriculture, while recognizing the joint effort of the statistician and the agricultural researcher. Presentations made jointly by the statistician and the researcher in agriculture are encouraged. Presentation of data sets and analyses which motivated the work shares equal importance with development of the statistical theory. Papers on either new or innovative applications of existing statistical methodologies are appropriate for presentation at this conference.





**Dallas Johnson  
&  
George Milliken**  
Kansas State University

Dallas Johnson and George Milliken earned international reputations with the publication of their seminal book "The Analysis of Messy Data" in 1984. They have subsequently taught the methods described in the text to a whole generation of statisticians and subject matter scientists.

They have recently revised and updated the book, incorporating the developments in theory and statistical software that have been made in the period since the first edition was published. The second edition of the text was published in 2008.

Their workshop will describe many of these advances and will enable attendees to learn the latest techniques in dealing with nonstandard data situations.

Dallas and George are both emeritus professors at Kansas State. Each earned the doctorate under the direction of Dr. Franklin Graybill at Colorado State, and subsequently joined the faculty in the Department of Statistics at Kansas State University; George in 1969 and Dallas in 1975.



# Workshop

## Analysis of Messy Data Revisions

*Dr. Dallas Johnson & Dr. George Milliken, Kansas State University*

Revisions to *Analysis of Messy Data*, Vol. 1-*Designed Experiments* have been completed. The workshop will emphasize many changes that have been made to the book. The revised book can be obtained by workshop participants at a 25% discount. The discount price is \$67.50 per book. The workshop assumes that participants are familiar with material that is in the first edition of the book.

Some of the topics to be included are:

- I. Analysis of experiments with heterogeneous errors using mixed models
- II. Simultaneous inference procedures and new error rate definitions
- III. Multilevel designs: split-plots, strip-plots
- IV. Random effect models- parameter estimates, hypothesis tests, and various types of confidence intervals for variance components
- V. Mixed model theory- analyzing the random effects part of the model, analyzing the fixed effects part of the model, sample size and power considerations
- VI. Split-plot-in-time analyses of repeated measures experiments
- VII. Analyzing repeated measures experiments using MANOVA methods
- VIII. p-value adjustment method
- IX. Analyzing repeated measures experiments using MIXED model software
- X. Crossover experiments with carryover
- XI. Lots and lots of examples



# AGENDA

## Sunday, April 19

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7:30 - 8:30 am      **Registration and Check-In for Workshop Participants**

8:30 am - 5:00 pm      **Workshop: The Analysis of Messy Data**  
*Dallas Johnson & George Milliken,*  
*Kansas State University*

7:00 - 10:00 pm      Social Mixer      (*Snacks and Cash Bar*)

## Monday, April 20

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8:00 - 10:00 am      **Registration and Check-In for Conference Participants**

8:30 - 8:45 am      **Welcome**

■ Session #1

8:45 - 10:15 am

**Associating Single Nucleotide Polymorphisms (SNPs) with Binary**

*Alexander E. Lipka, Purdue University*

*George P. McCabe, Purdue University*

*R.W. Doerge, Purdue University*

**Bayesian Nonparametric Bioassay Estimation of an Unknown Dose**

*Bahman Shafii, University of Idaho*

*William J. Price, University of Idaho*

**Relative Potency Estimation in Direct Bioassay with Measurement Errors**

*Weixing Song, Kansas State University*

10:15 - 10:45 am      **Break & Poster Session**

■ Session #2

10:45 am - 12:00 pm      KEYNOTE ADDRESS

**The Process of Designing Experiments**

*George Milliken, Kansas State University*

12:00 - 1:30 pm      Lunch

■ Session #3

1:30 - 3:00 pm

**Predicting the Time of 50% Seed Viability in Maize**

*Allan Trapp II, Iowa State University*

*Philip Dixon, Iowa State University*

*Mark Widrechner, USDA-ARS North Central Regional Plan*

*Introduction Station*



**Comparisons of Three Parametric Methods for Testing Equality of Binomially Distributed Populations**

*Jixiang Wu, Mississippi State University*

*Johnie N. Jenkins, USDA-ARS*

*Jack C. McCarty, USDA-ARS*

**Bayesian Statistical methods to Model Heterogeneity in Cow- and –Herd level Relationships between production and reproduction in Dairy Cows**

*Nora M. Bello, Michigan State University*

*Robert J. Tempelman, Michigan State University*

3:00 – 3:30 pm

**Break**

■ Session #4

3:30 – 5:00 pm

**Some Messy Experimental Designs**

*Dallas Johnson, Kansas State University*

6:30 – 9:00 pm

**Student Pizza Party**

9:00 – 12:00 pm

**Kansas Country Dance**

**Tuesday, April 21**

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■ Session #5

8:30 – 10:00

**Statistical Issues in Next-Generation Sequencing Data**

*Paul Livermore Auer, Purdue University*

*R.W. Doerge, Purdue University*

**Comparative Study of Time Series and Multiple Regression for Modeling Dependence of Cattle Body Temperature on Environmental Variables During Heat Stress**

*Manoj Pathak, University of Nebraska-Lincoln*

*Dr. A.M. Parkhurst, University of Nebraska-Lincoln*

*Dr. Rodrigo Arias, University of Nebraska-Lincoln*

*Dr. T. L. Mader, University of Nebraska-Lincoln*

*Application of the DYA method to compare wheat variety yields*

*Arlin Feyerherm, Kansas State University*

10:00 – 11:00 am

**Break & Poster Session**

■ Session #6

11:00 – 12:00

**A General P-value and Applications to Multiple Testing**

*Joshua Habiger, University of South Carolina*

*Edsel A. Pena, University of South Carolina*

**Statistical Methods for Affymetrix Tiling Array Data**

*Gayla R. Olbricht, Purdue University*

*Bruce A. Craig, Purdue University*

*R. W. Doerge, Purdue University*



12:00 – 1:30 pm **Lunch**

■ Session #7

1:30 – 3:00 pm

**Correcting Bias in Angler Effort Estimation Using Aerial Counts**

*Byran Smucker, Penn State University*

*Robert Lorantas, Pennsylvania Fish and Boat Commission*

*James Rosenberger, Penn State University*

**The Morrow Plots: A National Landmark with continued Scientific Relevance**

*Susanne Aref, Aref Consulting Group LLC*

*Michelle M. Wander, University of Illinois at Urbana-Champaign*

**Mixed Model Quantitative Trait Loci Analysis**

*Cherie A. Ochsenfeld, Purdue University*

*Kristofer Jennings, Purdue University*

*R. W. Doerge, Purdue University*

3:00 – 3:30 pm **Break**

■ Session #8

3:30 – 5:00 pm

**A Tree-specific stem profile model for white spruce: A calibration approach by nonlinear mixed-effects modeling**

*Yuqing Yang, Forest Management Branch, Alberta Department of Sustainable Resource Development*

*Shongming Huang, Forest Management Branch, Alberta Department of Sustainable Resource Development*

*Shawn X. Meng, Forest Management Branch, Alberta Department of Sustainable Resource Development*

**Statistical Challenges in Genomic Mapping of Complex Traits**

*Jianming Yu, Kansas State University*

**A Sequential Bayesian Calculation for the Classification of Discrete, Ordered Data**

*Michael Anderson, Kansas State University*

## Posters

**Statistical and Numerical Dependence in Gene Expression Summaries**

*John R. Stevens, Utah State University*

*Gabriel Nicholas, University of Wisconsin at Madison*

**Non-Randomness in Genic Order and Spatial Structure of a Genome**

*Douglas Baumann, Purdue University*

**Using Time Series to Study Dynamics of Sweat Rates of Holstein Cows Exposed to Initial and Prolonged Solar Heat Stress**

*Bixia Liang, University of Nebraska-Lincoln*

*A. M. Parkhurst, University of Nebraska-Lincoln*

*C.N. Lee, University of Hawaii at Hawaii*

*K.G. Gebremedhin 3, Cornell University, Ithaca*

*P.E. Hillman, Cornell University, Ithaca*

*R.J. Collier, University of Arizona*



**Comparing Experimental Designs for a Bi-Logistical Model used to Estimate Heat Stress when Moving Feedlot Cattle**

Xiaopeng Li, *University of Nebraska-Lincoln*  
Anne M. Parkhurst, *University of Nebraska-Lincoln*  
Terry L. Mader, *University of Nebraska-Lincoln*

**Using Time Series to Study Effect of Air Temperature and Humidity on Body Temperature of Cows in Puerto Rico**

Yan Zeng, *University of Nebraska-Lincoln*  
A. M. Parkhurst, *University of Nebraska-Lincoln*  
J. Pantoja, *University of Puerto Rico*

**Development of Precipitation-Runoff Relationship in Nekarood watershed in Mazandaran Province, Iran**

Karim Soleimani, *College of Natural Resources, University of Mazandaran.Sari*  
Mahmood habibnezhad, *College of Natural Resources, University of Mazandaran.Sari*

**Using Compartment Models to Evaluate the Fate of Sulfamethazine in Surface Water**

Garritt Page, *Iowa State University*  
Phillip Dixon, *Iowa State University*  
Joel Coats, *Iowa State University*  
Thomas Moorman, *USDA-ARS National Soil Tilth*

**A Simulation Study to Evaluate the Analysis of Non-normal Data with Correlated Errors**

Emily Hagel, *University of Nebraska*  
Walter Stroup, *University of Nebraska*

**The Statistical Analysis of Dynamics of Organic Substance and Microbiotic Complex in Root-inhabited Media and their Relationship with Plants Productivity in Conditions of Primary Soil Formation**

V.K. Mukhomorov, *Agrophysical Institute, St. Petersburg, Russia*

**Integrated Analysis of Genomic and Quantitative Trait Data**

Tilman Achberger, *Purdue University*  
Ivan Baxter, *Purdue University*  
James Fleet, *Purdue University*  
David Salt, *Purdue University*  
R.W. Doerge, *Purdue University*

**Inferring Genetic Regulatory Interactions with Dynamic Bayesian Networks and Kalman Estimators**

Andrea Rau, *Purdue University & INRA*  
Florence Jafr zic, *INRA*  
Jean-Louis Foulley, *INRA*  
Rebecca Doerge, *Purdue University*

**What caused the Death? A Random Act or Exceeding an Individual Tolerance, and how to tell.**

Man-Yu Yum, *Iowa State University*  
Philip M. Dixon, *Iowa State University*

**Associating (Sorghum) GUS expression with Cinfu and Huck Promoters  
Brian Denton, Purdue University**

Balasubramaniam Muthukumar, *University of Georgia*  
Jeff Bennetzen, *University of Georgia*  
R. W. Doerge, *Purdue University*

**Proc Report in Style**

Wendy Boberg, *AFMC*

**Seven Years of Statcom at Purdue University: Managing a Growing Number of Student Volunteers**

Douglas Baumann, *Purdue University*  
Andrea M. Rau, *Purdue University*



## INFORMATION

### Free Student Registration

Due to sponsor support of student participation, the conference is allowing one free student registration per fully paid regular faculty registration. Please copy the registration form and submit the student registration along with the faculty paid registration.

### Housing

A block of rooms is held at the Clarion Hotel. Non-smoking rooms are available. Reservations should be made directly with the hotel prior to April 1st. Be sure to mention the KSU Conference on Applied Statistics in Agriculture when making your arrangements. The Clarion registration form is enclosed. Other hotels in Manhattan are listed for your convenience.

#### **Clarion Hotel**

530 Richards Drive  
Manhattan, KS 66502  
(785) 539-5311

#### **Ramada Inn**

17th & Anderson Avenue  
Manhattan, KS 66502  
(785) 539-7531

#### **Super 8 Motel**

200 Tuttle Creek Blvd.  
Manhattan, KS 66502  
(785) 537-8468

#### **Hampton Inn**

501 E Poyntz  
Manhattan, KS 66502  
(785) 539-5000

#### **Comfort Inn**

150 E Poyntz  
Manhattan, KS 66502  
(785) 770-8000

#### **Econolodge**

1501 Tuttle Creek Blvd.  
Manhattan, KS 66502  
(785) 539-5391

#### **Motel 6**

510 Tuttle Creek Blvd.  
Manhattan, KS 66502  
(785) 537-1022

#### **Fairfield Inn**

300 Colorado  
Manhattan, KS 66502  
(785) 539-2400

### Social

There will be a social on Sunday, April 19th, from 8:00 - 11:00 p.m. in the Regency Room (Regency A) at the Manhattan Clarion Hotel.

### Kansas Country Dance

There will be a Kansas Country Dance on Monday evening. The Kansas Country Dance has become a conference tradition. The dance is free to all conference participants and will begin as soon as the student pizza party ends. The activity will be mostly line dancing, so you don't need a partner to participate. We'll also provide an instructor, so if you've never tried it before, you'll be a pro in no time! A cash bar will also be available.



### Location

Manhattan is located 130 miles west of Kansas City. Connecting flights from major airlines to Manhattan are through Kansas City International airport. KCI Roadrunner Express, a van shuttle service, is also available for travel from Kansas City to Manhattan. Call (785) 539-2284 or 1-800-747-2524 for reservations on KCI Roadrunner Express. The Clarion Hotel provides a courtesy van to and from the Manhattan airport from 7:00 am to 10:00 pm daily. To request transportation, call the Clarion Hotel at (785) 539-5311.

### Meals

As part of your registration fee, buffet lunches will be provided on Monday and Tuesday. You will find that Manhattan has several fine eating establishments for the evening meal. Restaurant menus will be available at the conference to help with your selection.

### Proceedings

As part of your registration fee, you will receive a CD copy of the conference proceedings when they are published (probably early spring 2010). Articles submitted by presenters are reviewed. Proceedings from past conferences will be on sale during the conference for \$10 each.

### Refund Policy

If you must cancel your registration, there will be a \$20 processing fee. Please contact the conference registration office by phone (785) 532-5569 or fax (785) 532-2422 in order to receive your refund. No refunds will be issued after April 15th, 2009.

### Registration

Advance registration is available by mail or fax before April 1st. Online registration is also available. Check the Registration Link on our website at <http://www.ksu.edu/stats/agstat.conference/> for further information.

Mail or fax your registration for the conference and/or spousal tour to:

Applied Statistics Agriculture Registration  
Division of Continuing Education  
Kansas State University  
141 College Court Building  
Manhattan, KS 66506-6015  
Phone: (785) 532-5569  
Fax: (785) 532-2422

Conference registration includes buffet lunch on Monday and Tuesday, refreshment breaks, Kansas Country Dance, conference materials and proceedings.

Registration check-in will be held in the lobby of the Clarion Hotel on Sunday from 7:30-8:30 am for workshop participants and on Monday from 8:00-10:00 am for conference participants. Stop by to pick up your conference materials and name tag.



### Special Assistance

Kansas State University is committed to making programs accessible to all participants. If you have special requirements due to disabilities or dietary restrictions, please contact the Division of Continuing Education Registrar at (785) 532-5566 by April 1st and mark the space on the registration form. After that date, we will make every effort to provide assistance but cannot guarantee that requested services will be available.

### Student Information

Limited funds are available to help defray the cost of conference registration, housing, meals, and travel. Priority will be given to graduate students presenting a paper or a poster presentation. Poster abstracts are being accepted. Apply to Dr. John E. Boyer Jr., Department of Statistics, Kansas State University, Phone (785) 532-0518, Fax (785) 532-7736.

### Student Pizza Party

To welcome students to the conference, there will be a free pizza party on Monday evening from 6:00-9:00 pm. Please indicate on your registration form that you are a student and will be attending the pizza party. If you are planning to bring a guest, please indicate on the registration form. There will be a \$10 charge for all non-students attending.

The Kansas Country Dance for all conference participants will begin shortly after the student pizza party.

### Questions?

For further information Dr. John E. Boyer Jr. at the Department of Statistics at (785) 532-6883 or fax (785) 532-7736.

For questions concerning your registration, please contact the conference registration office by phone (785) 532-5569.

#### K-State Notice of Nondiscrimination

Kansas State University is committed to nondiscrimination on the basis of race, color, ethnic or national origin, sex, sexual orientation, gender identity, religion, age, ancestry, disability, military status, veteran status, or other nonmerit reasons, in admissions, educational programs or activities, and employment, including employment of disabled veterans and veterans of the Vietnam Era, as required by applicable laws and regulations. Responsibility for coordination of compliance efforts and receipt of inquiries concerning Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, the Age Discrimination Act of 1975, and the Americans With Disabilities Act of 1990 has been delegated to the director of Affirmative Action, Kansas State University, 214 Anderson Hall, Manhattan, KS 66506-0124, (phone) 785-532-6220; (TTY) 785-532-4807.

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# CLARION HOTEL FORM



**CHECK IN TIME: 4:00 PM**

**CHECK OUT TIME: 11:00AM**

We accept VISA, Diners Club, MasterCard, American Express and Discover credit cards. Room rates subject to current taxes. Reservations are not transferable and must be guaranteed by the guest. In care of cancellation, please notify our reservation office at (785) 539-5311. Return this form to Clarion Hotel, 530 Richards Drive, Manhattan, KS 66502 or fax (785) 539-8368.

Group Name KSU CONFERENCE ON APPLIED STATISTICS IN AGRICULTURE

Organization \_\_\_\_\_

Please reserve the following accommodations:

- 2 Double Beds (outside) \$72.00
- 2 Double Beds (dome side) \$72.00
- King Size Bed \$72.00

\*\* Room type requested is subject to availability. If not available, room will be assigned to the next comparable room type.

Total # of Rooms \_\_\_\_\_ Total # of Persons \_\_\_\_\_

Number of Nights \_\_\_\_\_ Arrival Date \_\_\_\_\_ Departure Date \_\_\_\_\_

Special Requests \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone Number \_\_\_\_\_

Please check:

- Guaranteed Arrival C If "no shows" you will be billed for the first night.

Credit Card Type \_\_\_\_\_

Number \_\_\_\_\_ Exp Date \_\_\_\_\_

Signature \_\_\_\_\_

A block of rooms has been reserved for your group. Your reservation must be received prior to **3/27/09** or the rooms will be made available to the public and our regular rates will apply.

# Registration Form

Applied Statistics in Agriculture X • April 19–21, 2009

Registration can also be done online at [www.k-state.edu/stats/agstat.conference/](http://www.k-state.edu/stats/agstat.conference/)



Kansas State University®

Please print or type all information

Last Name \_\_\_\_\_ First Name \_\_\_\_\_

Institution \_\_\_\_\_

Department \_\_\_\_\_

Mailing Address \_\_\_\_\_

City \_\_\_\_\_ State/Prov \_\_\_\_\_ Country \_\_\_\_\_ Zip Code \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-mail \_\_\_\_\_

**Conference Registration Fees** (includes two luncheons, refreshment breaks, Kansas Country Dance, conference materials, and conference proceedings)

- \$160 US Registration
- \$185 US after April 15
- \$ 85 US Author and Coauthor
- \$ 60 US Student
- \$ 67.50 US Book
- Free Student Author
- Free Student with Paid Faculty (Limit 1 per Faculty)

Faculty Member's Name: \_\_\_\_\_

**Workshop Registration Fees** (includes one lunch, refreshment breaks and workshop materials).

- \$185 US Registration (includes workshop notes)
- \$ 60 US Student

**Student Pizza Party** (no charge to students—guests/non-students are \$10 each)

- Reserve space for \_\_\_\_\_ student(s) and \_\_\_\_\_ guest(s)

\$ \_\_\_\_\_ Total Enclosed (make checks payable to Kansas State University)

**Charge to:**  Mastercard  Visa  American Express  Discover

Card number \_\_\_\_\_ Expiration date \_\_\_\_\_

Print cardholder's name \_\_\_\_\_

Cardholder's signature \_\_\_\_\_

**So that we may assist you**, please indicate any special needs you may have (dietary restrictions, physically limited services):

**Mail or fax registration to:** Applied Statistics in Agriculture Registration, Division of Continuing Education, Kansas State University, 141 College Court Building, Manhattan, KS 66506–6015 fax 785-532-2422

- I do not give permission to print my name, address, affiliation and e-mail address on the roster of participants to be distributed at the conference. (If you do not check here, it will be assumed you do not object.)



**Applied Statistics in Agriculture**  
Department of Statistics  
101 Dickens Hall  
Manhattan, KS 66506-0802

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