

Kansas State University Libraries

New Prairie Press

Conference on Applied Statistics in Agriculture

2014 - 26th Annual Conference Proceedings

Editor's Preface and Table of Contents

Weixing Song

Kansas State University

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

Song, Weixing (2014). "Editor's Preface and Table of Contents," *Conference on Applied Statistics in Agriculture*. <https://doi.org/10.4148/2475-7772.1000>

This Event 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.

Conference
on
Applied Statistics
in Agriculture
Proceedings

Kansas State University

April 27-29, 2014

**26th Annual
CONFERENCE**

Preface

These proceedings contain papers presented in the twenty-fourth annual Kansas State University Conference on Applied Statistics in Agriculture, held in Manhattan, Kansas, April 27 - April 29, 2014. 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. More than one hundred registrants for this year's conference came from across the country and represented government, industry, and academia.

The keynote speaker was Gustavo de los Campos, Ph.D., University of Alabama. Dr. Gustavo de los Campos presented a workshop on April 27 titled "Statistical Methods for Genome – Enabled Prediction of Complex Traits" .

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.

Sincere thanks to the following individuals: Dallas Johnson, Edward Gbur, Linda Young, Edzard Van Santen, Jixiang Wu, Munni Begum, Adam Schapaugh for referring submitted manuscripts, Jackie Anders and student volunteers for help in conference planning and organization, and Jo Blackburn for managing the reviewing process and for assembling the proceedings. Special thanks go to our conference sponsors for their continued support: American Statistical Association, DuPont Pioneer, Elanco, Zoetis.

Weixing Song, Ph.D.

2014 Proceedings Editor

Table of Contents

**RESPONSE OF SOYBEAN YIELD AND YIELD COMPONENTS TO
PHOSPHORUS FERTILIZATION IN SOUTH DAKOTA** **1**

Adams Kusi Appiah, Department of Mathematics and Statistics, South Dakota State University

Rebecca Helget, Department of Plant Science, South Dakota State University

Yi Xu, Department of Plant Science, South Dakota State University

Jixiang Wu, Department of Plant Science, South Dakota State University

**MULTIVARIATE STATISTICAL ANALYSIS OF COLEOPTERA SPECTRAL
REFLECTANCE** **20**

Sarah E.M. Herberger, Department of Statistics, University of Idaho

Bahaman Shafii, Department of Statistics, Department of Plant Soil and Entomological Sciences, University of Idaho

Stephen P. Cook, Department of Plant Soil and Entomological Sciences, University of Idaho

Christopher J. Williams, Department of Statistics, University of Idaho

William J. Price, Statistical Programs, University of Idaho

MODELING SLEEP AND WAKE BOUTS IN DROSOPHILA MELANOGASTER **58**

Gayla R. Olbricht, Department of Mathematics and Statistics, Missouri University of Science and Technology

V.A. Samaranyake, Department of Mathematics and Statistics, Missouri University of Science and Technology

Sahitya Injamuri, Department of Biological Sciences, Missouri University of Science and Technology

Luyang Wang, Department of Mathematics and Statistics, Missouri University of Science and Technology

Courtney Fiebelman, Department of Biological Sciences, Missouri University of Science and Technology

Matthew S. Thimgan, Department of Biological Sciences, Missouri University of Science and Technology

BAYESIAN INFERENCE FOR A COVARIANCE MATRIX **71**

Ignacio Alvarez, Department of Statistics, Iowa State University

Jarad Niemi, Department of Statistics and Department of Economics, Iowa State University

Matt Simpson, Department of Statistics and Department of Economics, Iowa State University

**USE OF THE POSTERIOR PREDICTIVE DISTRIBUTION AS A DIAGNOSTIC
TOOL FOR MIXED MODELS** **83**

*Matthew Kramer, USDA/ARS/BCS, Bldg.005, Room 130, 10300 Baltimore Ave. Beltsville,
MD 20705*

**CHECK BASED STABILITY ANALYSIS METHOD AND ITS APPLICATION
TO WINTER WHEAT VARIETY TRIALS** **102**

*Jixiang Wu, Department of Plant Science, South Dakota State University
Karl Glover, Department of Plant Science, South Dakota State University
Nathan Mueller, Cropping Systems & Agricultural Technologies Extension, UNL
Extension in Dodge County, Fremont, NE 68025*

**DEVELOPING PREDICTION EQUATIONS FOR CARCASS LEAN MASS IN
THE PRESCENCE OF PROPORTIONAL MEASUREMENT ERROR** **115**

*Zachary J. Hass, Department of Statistics, Purdue University
Ziqi Zhou, Department of Statistics, George Washington University
Bruce A. Craig, Department of Statistics, Purdue University*

**MODELING RATIOS WITH POTENTIAL ZERO-INFLATION TO ASSESS
SOIL NEMATODE COMMUNITY STRUCTURE** **130**

*Joanna Zbylut, Department of Statistics, Kansas State University
Leigh Murray, Department of Statistics, Kansas State University
S.H. Thomas, Department of Entomology, Plant Pathology and Weed Science, New
Mexico State University
J. Beacham, Department of Entomology, Plant Pathology and Weed Science, New
Mexico State University
J. Schroeder, Department of Entomology, Plant Pathology and Weed Science, New
Mexico State University
C. Fiore, Department of Entomology, Plant Pathology and Weed Science, New Mexico
State University*

ATTENDEES LIST **149**

10/14/2014

Kansas State University

Attendee List

26th Annual Conference on Applied Statistics in Agriculture
April 27 - 29, 2014

Caitlyn Abell

DNA Genetics
2415 13th St
Columbus, NE 68601
ph: (402) 563-9644 x304
cabell@dnaswinegenetics.com

Steven Matthew Anderson

KSU
Statistics
2499 West 111th Place
Westminster, CO 80234
ph: (303) 995-0740
sander69@ksu.edu

Nora M Bello

KSU Dept. of Statistics
Statistics
110 Dickens Hall
Manhattan, KS 66506
ph: (785) 532-0523
nbello@ksu.edu

John Boyer

KSU Dept of Statistics
101 Dickens
Manhattan, KS 66506
ph: (785) 532-0518
jboyer@ksu.edu

William Bridges

0-117 Martin Hall
Clemson, SC 29634
ph: (864) 656-3012
wbrdgs@clemson.edu

Bruce Craig

Purdue University
Statistics
219 Jennings St
West Lafayette, IN 47906
ph: (765) 463-5185
bacraig@purdue.edu

Ignacio Alvarez

Iowa State University
1121 Snedecor Hall
Ames, IA 50010
ph: (515) 294-3440
ialvarez@iastate.edu

Douglas Baumann

University of Wisconsin - La Crosse
Mathematics
1725 State St
1034 Cowley Hall
La Crosse, WI 54601
ph: (608) 785-6617
dbaumann@uwlax.edu

Jonathan Blankenship

Monsanto Company
STC
800 N Lindbergh Blvd
Saint Louis, MO 63167
ph: (314) 694-8702
jonathan.blankenship@monsanto.com

Debbie Leigh Boykin

USDA ARS
PO Box 225
Stoneville, MS 38776
ph: (662) 686-5274
fax: (662) 686-5309
debbie.boykin@ars.usda.gov

Michael Casler

1925 Linden Dr.
Madison, WI 53706-1108
ph: (608) 890-0065
mdcasler@wisc.edu

Natalie Da Silva

Iowa State University
1121 Snedecor Hall
Ames, IA 50011-1210
ph: (515) 294-3440
ndasilva@iastate.edu

Jon Anderson

University of Minnesota
600 E 4th St
Morris, MN 56267
ph: (320) 589-6306
anderson@morris.umn.edu

Munni Begum

Ball State University
Department of Mathematical Sciences
Ball State University
Muncie, IN 47306
ph: (765) 285-8673
mbegum@bsu.edu

Nicholas R Bloedow

Kansas State University
Statistics
436 Butterfield Road
Manhattan, KS 66502
ph: (920) 203-9511
bloedow@ksu.edu

Heather Bradford

119 Weber
Manhattan, KS 66506
ph: (419) 953-9815
hlbradfo@ksu.edu

Natalia Cernicchiaro

Kansas State University
Diagnostic medicine/pathobiology
304 Coles Hall
1800 Denison Ave
Manhattan, KS 66506
ph: (785) 532-4621
ncernic@vet.k-state.edu

Gustavo de los Campos

University of Alabama-Birmingham
Biostatistics
Ryals Public Health Bldg 327L
Birmingham, AL 35294
ph: (205) 975-9248
fax: (205) 975-2540
gcampos@uab.edu

Nicole M Dick
1711 N 7th St
Garden City, KS 67846
ph: (785) 317-0602
nausicaa_09@yahoo.com

Sandra Dunckel
Kansas State University
Plant Pathology
4728 Throckmorton Hall
Manhattan, KS 66506
ph: (559) 362-1794
sdunckel@ksu.edu

Edward Gbur
University of Arkansas
Agricultural Statistics Lab
935 W Maple Street
Fayetteville, AR 72701-1201
ph: (479) 575-5677
fax: (479) 575-8643
egbur@uark.edu

Josh Habiger
Oklahoma State University
Statistics
Oklahoma State University
301 MSCS
Stillwater, OK 74078
ph: (785) 565-3993
jhabige@okstate.edu

Zachary Hass
250 University St
West Lafayette, IN 47907
ph: (715) 851-3843
zhass@purdue.edu

James Higgins
Kansas State University
Statistics
Dickens Hall
Manhattan, KS 66506
ph: (785) 532-6883
jhiggins@k-state.edu

Dallas E Johnson
Kansas State University
Statistics
101 Dickens Hall
Manhattan, KS 66506-0802
ph: (785) 532-0510
fax: (785) 532-7736
dejohnsn@ksu.edu

Rebecca W. Doerge
Purdue University
Statistics
150 North University St.
West Lafayette, IN 47907
ph: (765) 494-6030
doerge@purdue.edu

Lizhi Feng
Pioneer Hybrid International Inc
7300 NW 62nd Ave
Johnston, IA 50131
ph: (515) 270-5917
lizhi.feng@pioneer.com

Makram Geha
Dow AgroSciences LLC.
Seed and Traits R&D
9330 Zionsville Road
Indianapolis, IN 46268
ph: (317) 337-7119
mjgeha@dow.com

Kathy Hanford
University of Nebraska
340 Hardin Hall
Lincoln, NE 68583-0963
ph: (402) 472-7209
fax: (402) 472-5179
kathy.hanford@unl.edu

Abebe T Hassen
Pioneer Hybrid International Inc
5217 Clemens Blvd
Ames, IA 50014
ph: (515) 334-6809
abebe.hassen@pioneer.com

Mark Hinds
Pioneer Hi-Bred Int'l
Maize Development
7300 NW 62nd Avenue
Johnston, IA 50131
ph: (515) 677-2333
mark.hinds@pioneer.com

Steve Kachman
University of Nebraska
Statistics
340 Hardin Hall
Lincoln, NE 68583-0963
ph: (402) 472-7302
fax: (402) 472-5179
skachman1@unl.edu

Juan Du
Kansas State University
Department of Statistics
108D Dickens Hall
Manhattan, KS 66506
ph: (517) 256-2916
dujuan@ksu.edu

Gary L. Gadbury
Kansas State University
Statistics
101C Dickens Hall
Manhattan, KS 66506
ph: (785) 532-0526
gadbury@ksu.edu

Carla L. Goad
Oklahoma State University
Statistics
301 MSCS
Stillwater, OK 74078-1056
ph: (405) 744-5684
fax: (405) 744-3533
carla.goad@okstate.edu

Zheng Hao
Kansas State University
1602 Hillcrest Drive Apt 113
Manhattan, KS 66502
ph: (785) 340-5428
haozheng@math.ksu.edu

Sarah E Herberger
University of Idaho
Statistical Science
225 Peterson Dr.
Moscow, ID 83843
ph: (810) 441-1208
onyxsarah@gmail.com

Wei-Wen Hsu
Kansas State University
Statistics
101 Dickens Hall
Kansas State University
Manhattan, KS 66506
ph: (785) 532-3585
wwhsu@k-state.edu

Karen Denise Keating
KSU Dept. of Statistics
101 Dickens Hall
Manhattan, KS 66506
ph: (785) 532-6883
fax: (785) 532-7736
keatingk@ksu.edu

John David Keighley

KUMC
Biostatistics
Department of Biostatistics MS 1026
3901 Rainbow Blvd
Kansas City, KS 66160
ph: (913) 588-7391
jkeighle@kumc.edu

Eli Lilly and Company

Eli Lilly and Company

Adam Martin-Schwarze

Iowa State University
Statistics
1121 Snedecor Hall
Ames, IA 50011-1210
ph: (515) 294-3440
adamms@iastate.edu

David Meek

1128 Marston Ave.
Ames, IA 50010
ph: (515) 233-2860
dwmeek@opencominc.com

Leigh Murray

KSU Dept. of Statistics
101A Dickens Hall
Manhattan, KS 66506
ph: (785) 532-0515
fax: (785) 532-7736
lmurray@ksu.edu

Jarad Niemi

Iowa State University
Statistics
1121 Snedecor Hall
Ames, IA 50011-1210
ph: (515) 294-8679
niemi@iastate.edu

Debra Palmquist

USDA-ARS
1815 N. University St
Room 3006
Peoria, IL 61604
ph: (309) 681-6587
Deb.Palmquist@ars.usda.gov

Matt Kramer

USDA, ARS, Biometrics
10300 Baltimore Ave., B-005, Rm 126
Beltsville, MD 20705-2350
ph: (301) 504-8121
matt.kramer@ars.usda.gov

Meng Lin

Agronomy
1602 Hillcrest Dr
Manhattan, KS 66502
ph: (785) 317-2280
menglin@ksu.edu

Frank Maulana

Kansas State University
Agronomy
1605 Hillcrest Dr. Apt #X3
Manhattan, KS 66502
ph: (785) 341-0549
maulanafrank@yahoo.co.uk

Marcelo Mollinari

Purdue University
Statistics
216 Nimitz Dr. #16
West Lafayette, IN 47906
ph: (765) 421-4977
mmollina@purdue.edu

Dan Nettleton

Iowa State University
1121 Snedecor Hall
Ames, IA 50011-1210
ph: (515) 294-2142
fax: (515) 294-4040
dnett@iastate.edu

Gayla Olbricht

400 W. 12th Street
Rolla, MO 65409-0020
ph: (573) 341-4913
olbrichtg@mst.edu

Anne Parkhurst

University of Nebraska
Statistics
340 Hardin Hall
Lincoln, NE 68583-0963
ph: (402) 472-2903
fax: (402) 472-5179
aparkhurst1@unl.edu

Adams Kusi Appiah

724 11th Ave
Brookings, SD 57006
ph: (605) 651-1754
adams.kusiappiah@jacks.sdstate.edu

Bruce Mackey

USDA, ARS
800 Buchanan St.
Albany, CA 94710
ph: (510) 559-6078
bruce.mackey@ars.usda.gov

Spencer Maynes

University of Nebraska
Statistics
340 Hardin Hall
Lincoln, NE 68583-0963
ph: (402) 472-2903
fax: (402) 472-5179
smaynes89@gmail.com

Benjamin Mullinix

Texas A&M University
1103 East FM 1294
Lubbock, TX 79403
ph: (229) 326-2410
bgmullinix@ag.tamu.edu

Molly Neumann

300 Liberty Street
La Crosse, WI 54603
ph: (608) 397-0447
Neumann.moll@uwlax.edu

Zhining Ou

Kansas State University
Statistics
101 Dickens Hall
Manhattan, KS 66506
ph: (785) 613-5928
ozhining@ksu.edu

Neil Paton

Cargill Animal Nutrition
SMT
10 Nutrition Way - Box 69
Brookville, OH 45309
ph: (937) 770-2400
npaton@nl.provimi.com

Ping Ping

5400 Corporate Circle
Salem, VA 24153
ph: (540) 389-9361 x1220
yah_ucr@yahoo.com

Perla Reyes

KSU Dept. of Statistics
101 Dickens Hall
Manhattan, KS 66506
ph: (785) 532-0518
fax: (785) 532-7736
pereyesc@ksu.edu

Gretchen F. Sassenrath

Kansas State University
Agronomy - SE Ag Research Center
P.O. Box 316
KSU-SEARC
Parsons, KS 67357
ph: (620) 421-4826 x15
gsassenrath@ksu.edu

Jerad Schroeder

101 Dickens Hall
Manhattan, KS 66506
ph: (785) 532-0530
fax: (785) 532-7736
jerads@k-state.edu

Narinder Singh

Kansas State University
Plant Pathology
3019D Throckmorton
Manhattan, KS 66506
ph: (317) 500-0470
nss470@ksu.edu

Walter Stroup

University of Nebraska
Statistics
340 Hardin Hall
Lincoln, NE 68583
ph: (402) 472-1149
fax: (402) 472-5179
wstroup1@unl.edu

Edzard van Santen

Auburn University
Agronomy and Soils
202 Funchess Hall
Auburn University, AL 36849-5412
ph: (334) 844-3975
vanedza@auburn.edu

Seth Raitchel

2133 Halls Landing
Manhattan, KS 66502
ph: (573) 291-2405
sraithel@ksu.edu

Trevor Rife

4024 Throckmorton Hall
Kansas State University
Manhattan, KS 66502
ph: (307) 575-4033
trife@ksu.edu

Garrett Saunders

Utah State University
Mathematics & Statistics
3900 Old Main Hill
Logan, UT 84322-3900
ph: (208) 866-9008
garrett.saunders@aggiemail.usu.edu

Bahman Shafii

University of Idaho
Statistical Programs
Statistical Programs
Moscow, ID 83844-2337
ph: (208) 885-7173
fax: (208) 885-6654
bshafii@uidaho.edu

Clark David Smothers

Zoetis
Biometrics
333 Portage Street
Kalamazoo, MI 49007-4432
ph: (269) 833-3334
clark.d.smothers@zoetis.com

Kevin C Thompson

University of Arkansas
Agri Stat Lab
Office of Bus Affairs Admin 317
Fayetteville, AR 72701
ph: (479) 575-7951
fax: (479) 575-2838
mwhitme@uark.edu

Bryan Vinyard

USDA-ARS
10300 Baltimore Ave Bldg 5 Rm 126
Beltsville, MD 20705-2350
ph: (301) 504-8121
fax: (301) 504-9442
bryan.vinyard@ars.usda.gov

Kelli Retallick

119 Weber
Manhattan, KS 66506
ph: (419) 953-9815
kretallick@ksu.edu

Jeremiah Rounds

425 S River Rd
Apt 6
West LaFayette, IN 47906
ph: (251) 241-9756
roundsjeremiah@gmail.com

Adam Schapaugh

Monsanto Company
Statistics Technology Center, Regulatory
Sciences
800 N. Lindbergh Blvd.
St. Louis, MO 63167
ph: (314) 694-1532
adam.schapaugh@monsanto.com

Daljit Singh

Kansas State University
Plant Pathology
4014A Throckmorton
Manhattan, KS 66506
ph: (540) 449-2689
singhdj2@ksu.edu

John R Stevens

Utah State University
Department of Mathematics and Statistics
3900 Old Main Hill
Logan, UT 84322-3900
ph: (435) 797-2818
john.r.stevens@usu.edu

Christopher Vahl

KSU Dept. of Statistics
101 Dickens Hall
Manhattan, KS 66506
ph: (785) 532-0509
vahl@k-state.edu

Carl Walker

DuPont Pioneer
7300 NW 62nd Ave
Johnston, IA 50131-1004
ph: (509) 432-9686
carl.walker@pioneer.com

Yang Wang

1605 Roof Dr. Apt23
Manhattan, KS 66502
ph: (620) 803-2351
yangw@ksu.edu

Kari L. White

KSU
Breeding and Genetics
232 Weber Hall
Manhattan, KS 66506
ph: (719) 469-8923
kotteman@k-state.edu

Danielle Wilson-Wells

University of Nebraska Lincoln
Statistics
340 Hardin Hall
Lincoln, NE 68583-0963
ph: (402) 472-2903
fax: (402) 472-5179
danielle5878@huskers.unl.edu

Yi Xu

South Dakota State Univ
649 Faculty Dr Apt 6
Brookings, SD 57006
ph: (605) 651-9006
yi.xu@sdstate.edu

Linda J Young

USDA NASS
1400 Independence Ave., SW
Room 6054
Washington, DC 20250
ph: (202) 690-1401
linda.young@nass.usda.gov

Chenxi Zhang

North Carolina State University
Crop Science
101 Derieux Pl
4411 Williams Hall
Raleigh, NC 27695-7620
ph: (919) 986-1840
czhang4@ncsu.edu

Dilooshi Weerasooriya

Kansas State University
Agronomy
1600 Hillcrest Drive, Apt v-22
Manhattan, KS 66502
ph: (785) 320-3736
dilooshik@gmail.com

Linda C Whitehand

1200 Brickyard Way
Apt 410
Pt Richmond, CA 94801
ph: (510) 685-1657
lwhitehand@sbcglobal.net

Huaiqing Wu

Iowa State University
Statistics
1121 Snedocor Hall
Ames, IA 50011-1210
ph: (515) 294-8949
isuhwu@iastate.edu

Fan Yang

University of Nebraska - Lincoln
Statistics
340 Hardin Hall
Lincoln, NE 68583-0963
ph: (402) 472-2903
fy.yang@utoronto.ca

Suizhi Yu

KSU
Statistics
1117 Pioneer Ln
Apt327
Manhattan, KS 66502
ph: (202) 714-5020
frankyu@k-state.edu

Faye Zheng

250 N. University St.
West Lafayette, IN 47907
ph: (615) 275-6576
zheng64@purdue.edu

Mark West

USDA ARS
2150 Centre Ave.
Fort Collins, CO 80526
ph: (970) 492-7027
mark.west@ars.usda.gov

Michael Whitley

101 Dickens Hall
Manhattan, KS 66506-0802
ph: (630) 779-0062
mwhitley@ksu.edu

Jixiang Wu

South Dakota State University
Plant Science
1133 Telluride Ln
Brookings, SD 57006
ph: (605) 688-5947
jixiang.wu@sdstate.edu

Kathleen Yeater

USDA
104 Ambrose Hill
Williamsburg, VA 23185
ph: (757) 220-9142
kathleen.yeater@ars.usda.gov

Joanna Zbylut

501 Stone Dr
apt 1211
Manhattan, KS 66503
ph: (785) 317-8687
jzbylut@ksu.edu

Jun Zhu

University of Wisconsin-Madison
Statistics and Entomology
Department of Statistics
University of Wisconsin
Madison, WI 53706
ph: (608) 890-3916
jzhu@stat.wisc.edu