

DIRECTOR'S REPORT OF RESEARCH IN KANSAS 2009

JULY 1, 2008 TO JUNE 30, 2009



KANSAS AGRICULTURAL
EXPERIMENT STATION

Letter of Transmittal

Office of the Director

To the Honorable Mark Parkinson, Governor of Kansas

It is my pleasure to transmit herewith the report of the Agricultural Experiment Station of the Kansas State University of Agriculture and Applied Science for the fiscal year ending June 30, 2009. This report contains the title, author, and publication information for manuscripts published by station scientists. The report was published only in electronic format.

Gary Pierzynski
Interim Director, K-State Research and Extension
and Interim Dean, College of Agriculture

A Message from the Director

We are pleased to provide this 2009 Director's Report of Research in Kansas. The report is intended to inform you about our research programs under way and some of our accomplishments. K-State Research and Extension is dedicated to a safe and sustainable food and fiber system and to strong, healthy communities, families, and youth through integrated research, analysis, and education.

This report is produced and distributed in electronic format only. An annual report distributed via the Internet provides information in a more timely fashion, eliminates printing costs, and makes the report accessible to a broader audience.

The 2009 Director's Report of Research in Kansas provides a list of journal articles, station publications, and other published manuscripts from scientists in our departments, centers, fields, and associated programs.

The Agricultural Experiment Station is the research component of [K-State Research and Extension](#). Our research programs provide the latest information used by our extension programs to address issues facing Kansas citizens.

Gary Pierzynski
Interim Director, K-State Research and Extension
and Interim Dean, College of Agriculture



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Search Tips

To find publications by a particular author, type the surname in the “find” search box in the Acrobat toolbar in this document. Use “Find Next” until all relevant publications are found.

To minimize irrelevant items when searching for common names such as Smith or Johnson, go to the page for the author’s unit (or use the unit bookmark) to start your search.

Research Components of the Kansas Agricultural Experiment Station*

(See map, p. 2)

Academic Departments

College of Agriculture

Agricultural Economics
Agronomy
Animal Sciences and Industry
Communications
Entomology
Grain Science and Industry
Horticulture, Forestry and Recreation Resources
Plant Pathology

College of Arts and Sciences

Biochemistry
Biology
Statistics

College of Engineering

Biological and Agricultural Engineering
Chemical Engineering

College of Human Ecology

Apparel, Textiles, and Interior Design
Hospitality Management and Dietetics
Human Nutrition

College of Veterinary Medicine

Anatomy and Physiology
Clinical Sciences
Diagnostic Medicine/Pathobiology
Veterinary Diagnostic Lab

Research Centers

Agricultural Research Center–Hays
Horticulture and Forestry Research-Extension Center
John C. Pair Horticultural Center
Northwest Research-Extension Center
Southeast Agricultural Research Center
Southwest Research-Extension Center

Experiment Fields

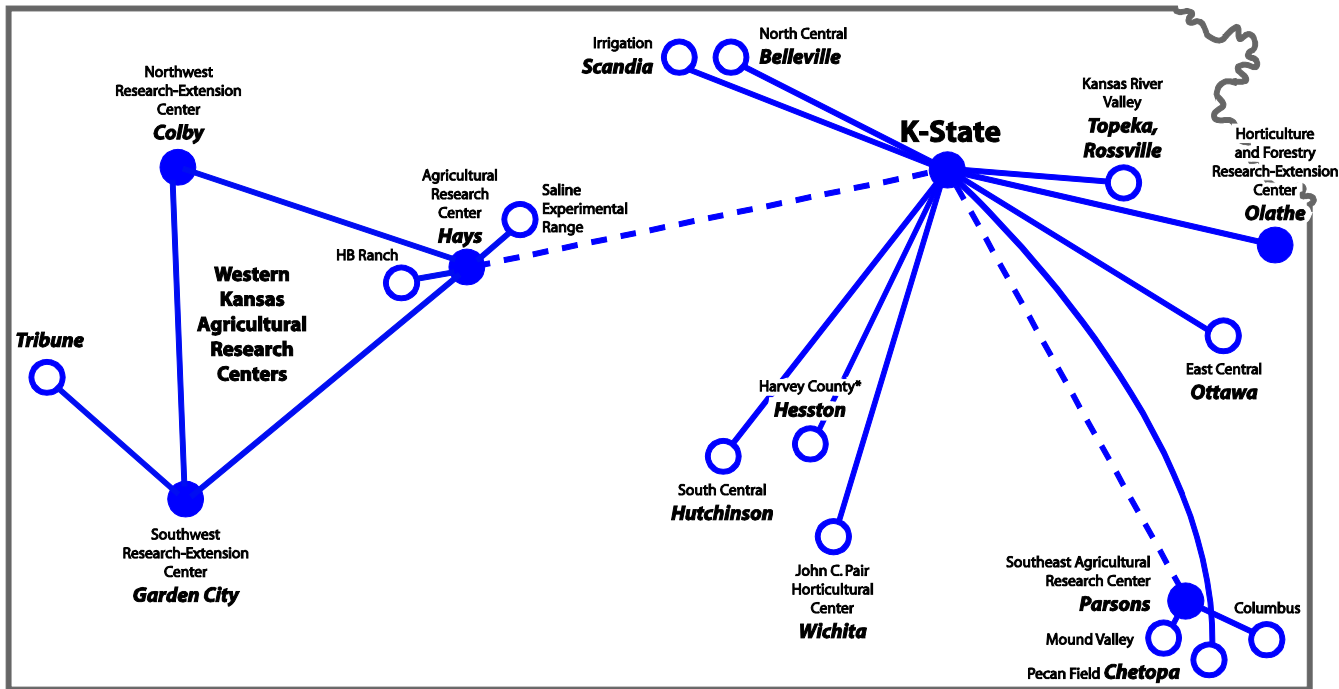
East Central - Ottawa
Harvey County – Hesston (Closed in Dec. 2009)
Irrigation - Scandia
Kansas River Valley - Rossville, Silver Lake
North Central - Belleville
Pecan Field - Chetopa
South Central - Hutchinson

Associated Programs

Bioprocessing and Industrial Value-Added Program
Center for Animal Identification
Center for Biobased Products by Design
Center for Sustainable Energy
Food Science Institute
Great Plains Diagnostic Network
Great Plains Sorghum Improvement and Utilization Center
Kansas Ag and Rural Leadership
Kansas Center for Agricultural Resources and the Environment
Kansas Center for Sustainable Ag and Alternative Crops
Kansas Cooperative Development Center
Kansas Water Resources Institute
Konza Prairie Biological Station
International Grains Program
International Meat and Livestock Program
Plant Biotechnology Center
Weather Data Library
Wheat Genetic and Genomic Resources Center

* List includes units having faculty with KAES appointments in fiscal year 2009. For a full list of departments and programs of the Kansas State University Agricultural Experiment Station and Cooperative Extension Service and for additional information on K-State Research and Extension, see www.ksre.ksu.edu, and click on “About Us” in the sidebar.

Kansas State University Agricultural Research Locations



● ○ Current research centers and experiment fields.
*Harvey County Experiment Field closed in December 2009.

Station Publications

Reports of Progress

- SRP 999 2008 Kansas Performance Tests with Winter Wheat Varieties
- SRP 1000 2008 Kansas Performance Tests with Corn Hybrids
- SRP 1001 Swine Day 2008 (electronic only)
- SRP 1002 Dairy Research 2008
- SRP 1003 2008 Kansas Performance Tests with Soybean Varieties
- SRP 1004 2008 Kansas Performance Tests with Grain Sorghum Hybrids
- SRP 1006 2008 Kansas Performance Tests with Sunflower Hybrids
- SRP 1007 2009 Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland
- SRP 1008 2008 Kansas Performance Tests with Cotton Varieties
- SRP 1009 2008 National Winter Canola Variety Trial
- SRP 1010 Beef Cattle Research 2009 (electronic only)
- SRP 1011 Agronomy Field Research 2008 (electronic only)
- SRP 1012 Kansas Fertilizer Research 2008 (electronic only)
- SRP 1013 2009 Agricultural Research, Southeast Agricultural Research Center
- SRP 1014 Field Day 2009, Southwest Research-Extension Center
- SRP 1016 Roundup 2009, Agricultural Research Center-Hays
- SRP 1017 Agronomy Field Research 2009 (electronic only)

Special Publications

- DRR08 Director's report of research in Kansas 2008 (electronic only)

Suffix Letters for Contribution Numbers

- A Proceedings of meeting or symposium
- B Book or book chapter
- C Computer program
- D Department report
- J Journal manuscript
- S Station publication (report of progress, keeping up with research, special publication, or bulletin)
- T Trade publication

Categories are based on information received before manuscripts are published. Type of publication sometimes changes later.

Station publications are available on the World Wide Web at: www.ksre.ksu.edu/library

Department reports are available only from the appropriate department office. Copies of journal articles or other external publications must be obtained from authors, journals, or a library. Some citations include a digital object identifier (doi) for use in retrieving manuscripts online. To locate an object using its doi, visit <http://dx.doi.org/>.

Publications of Station Scientists (by unit and contribution number)

Note: Manuscripts are cross listed under all relevant units according to authors' affiliation and appointment (i.e., Kansas Agricultural Experiment Station tenths).

Administration

DRR08 Director's report of research in Kansas 2008
May 2009, 209 pp. (electronic only)
www.ksre.ksu.edu/library/misc2/DirRept08.pdf

Agricultural Economics

07-295-J Grain sorghum and corn comparisons:
Yield, economic, and environmental
responses
S.A. Staggenborg, K.C. Dhuyvetter, W.B.
Gordon
Agronomy Journal, 100:1600-1604, 2008

08-143-J Soybean yield and yield components
response to plant density in narrow row
systems
M. Epler, S. Staggenborg
Crop Management, 2008
doi:10.1094/CM-2008-0925-01-RS

08-228-J Economics of reduced-till, no-till and
opportunity cropping in western Kansas
R.O. Burton, Jr., R.P. Smith, A.J. Schlegel
*Journal of the American Society of Farm
Managers and Rural Appraisers*, 72:164-
176, 2009

09-064-D Staff, programs, and publications in
agricultural economics, Kansas State
University 2007
D.L. Foster
Agricultural Economics Department Staff
paper no. 09-01, 2008, 36 pp.

09-137-D Irrigated crop-share leasing arrangements in
Kansas
J. Schlegel, L.J. Tsoodle
Agricultural Economics Department Staff
paper no. 09-02, 2008, 18 pp.

09-143-J The procompetitive effect of demand-
enhancing check-off programs
J.M. Crespi, S. Marette
*American Journal of Agricultural
Economics*, 91:389-401, 2009

09-359-D Economic impacts of selected water
conservation policies in the Ogallala Aquifer
S. Amosson, L. Almas, B. Golden, B.
Guerrero, J. Johnson, R. Taylor, E. Wheeler-
Cook
Agricultural Economics Department Staff
paper no. 09-04, 2009, 51 pp.

09-364-D Staff, programs, and publications in
agricultural economics, Kansas State
University 2008
J. Maberry
Agricultural Economics Department Staff
paper no. 09-03, 2009, 45 pp.

Publications without contribution numbers

A stochastic model to compare breeding
system costs for synchronization of estrus
and artificial insemination to natural service
S.K. Johnson, R.D. Jones
The Professional Animal Scientist, 24:588-
595, 2008

Consumer responses to new food quality
information: Are some consumers more
sensitive than others?
Z. Gao, T.C. Schroeder
Agricultural Economics, 40:339-346, 2009

Probabilistic models of yield, price, and
revenue risks for fed cattle production
E. Belasco, M. Taylor, B.K. Goodwin, T.C.
Schroeder
*Journal of Agricultural and Applied
Economics*, 41:91-105, 2009

Valuing fed cattle using objective tenderness
measures
J.M. Riley, T.C. Schroeder, T. Wheeler, S.
Shackelford, M. Koohmaraie
*Journal of Agricultural and Applied
Economics*, 41:163-175, 2009

Agronomy

04-099-J Starter nitrogen fertilizer management for
continuous no-till corn production
B.J. Niehues, R.E. Lamond, C.B. Godsey,
C.J. Olsen
Agronomy Journal, 96:1412-1418, 2004

- 04-111-J Comparison of genotype and cultural practices to control iron deficiency chlorosis in soybean
J.E. Lingenfelser, W.T. Schapaugh, J.P. Schmidt, J.J. Higgins
Communications in Soil Science and Plant Analysis, 36:1047-1062, 2005
- 04-156-J Comparison of the Weibull model with measured wind speed distributions for stochastic wind generation
S.J. van Donk, L.E. Wagner, E.L. Skidmore, J. Tatarko
Transactions of the ASAE, 48(2):503-510, 2005
- 04-189-J On the construction and calibration of dual-probe heat capacity sensors
J.M. Ham, E.J. Benson
Soil Science Society of America Journal, 68:1185-1190, 2004
- 04-211-J Carbon and nitrogen mineralization as affected by drying and wetting cycles
M.M. Mikha, C.W. Rice, G.A. Milliken
Soil Biology & Biochemistry, 37:339-347, 2005
- 04-256-J Carbon dynamics in tallgrass prairie and wheat ecosystems
R. Kocyigit, C.W. Rice
Turkish Journal of Agriculture and Forestry, 28:141-153, 2004
- 04-262-J Lagoon-biogas emissions and carbon balance estimates of a swine production facility
T.M. DeSutter, J.M. Ham
Journal of Environmental Quality, 34:198-206, 2005
- 04-332-B Carbon cycle in soils: Dynamics and management
C.W. Rice
In: Encyclopedia of soils in the environment, D. Hillel (Ed.). Oxford, UK: Elsevier, pp. 164-169, 2005
- 04-382-J A field-based assessment tool for phosphorus losses in runoff in Kansas
O. Sonmez, G.M. Pierzynski, L. Frees, B. Davis, D. Leikam, D.S. Sweeney, K.A. Janssen
Journal of Soil and Water Conservation, 64:212-222, 2009
- 05-019-J Partitioning of nitrogen over five growing seasons in tallgrass prairie
C.J. Dell, M. A. Williams, C.W. Rice
Ecology, 86:1280-1287, 2005
- 05-163-J Corn yield response to nitrogen rate and timing in sandy irrigated soils
R.J. Gehl, J.P. Schmidt, L.D. Maddux, W.B. Gordon
Agronomy Journal, 97:1230-1238, 2005
- 05-327-J Emerging technologies for *in situ* measurement of soil carbon
R.J. Gehl, C.W. Rice
Climate Change, 80:43-54, 2007
- 06-083-J Post-harvest soil nitrate in irrigated corn: Variability among eight field sites and multiple nitrogen rates
R.J. Gehl, J.P. Schmidt, C.B. Godsey, L.D. Maddux, W.B. Gordon
Soil Science Society of America Journal, 70:1922-1931, 2006
- 06-112-J Phosphorus source effects on soil organic phosphorus: A ³¹P NMR study
M. Shafqat, G.M. Pierzynski, K. Xia
Communications in Soil Science and Plant Analysis, 40: 1722-1746, 2009
- 06-141-J Greenhouse gas mitigation in agriculture
P. Smith, D. Martino, Z. Cai, D. Gwary, H. Janzen, P. Kumar, B. McCarl, F. O'Mara, C. Rice, B. Scholes, O. Sirotenko, M. Howden, T. McAllister, S. Ogle, G. Pan, V. Romanenkov, U. Schneider, S. Towprayoon, M. Wattenbach, J. Smith
Philosophical Transactions of the Royal Society B, 363:789-813, 2008
- 06-222-J Policy and technological constraints to implementation of greenhouse gas mitigation options in agriculture
P. Smith, D. Martino, Z. Cai, D. Gwary, H. Janzen, P. Kumar, B. McCarl, F. O'Mara, C. Rice, B. Scholes, O. Sirotenko, M. Howden, T. McAllister, S. Ogle, Pan, V. Romanenkov, U. Schneider, S. Towprayoon.
Agriculture, Ecosystems and Environment, 118:6-28, 2007
- 06-242-J Modification and validation of GLEAMS for prediction of phosphorus leaching in waste-amended soils
N.O. Nelson, J.E. Parsons
Transactions of the ASABE, 49(5):1395-1407, 2006

- 06-287-J Guar tolerance to postemergence herbicides
B.L.S. Olson, J.W. Sij, T.A. Baughman
Weed Technology, 21:523-525, 2007
- 06-336-J Soil biological properties following additions of bmr mutant grain sorghum
P.M. White, C.W. Rice, J.A. Baldock, M.R. Tuinstra
Soil Biology & Biochemistry, 39:1518-1532, 2007
- 07-036-J Predicting soil pH and pH in situ buffer with a real-time sensor
S.A. Staggenborg, M. Carignano, L. Haag
Agronomy Journal, 99:854-861, 2007
- 07-085-J Tillage effects on microbial and carbon dynamics during plant residue decomposition
P.M. White, C.W. Rice
Soil Science Society of America Journal, 73(1):138-145, 2009
- 07-096-J Efficacy of sulfonylurea herbicides when tank mixed with mesotrione
C.L. Schuster, K. Al-Khatib, J.A. Dille
Weed Technology, 22:222-230, 2008
- 07-112-J Inheritance of resistance of common waterhemp (*Amaranthus rudis*) to protoporphyrinogen oxidase-inhibiting herbicide
D.E. Shoup, K. Al-Khatib, P.A. Kulakow
Transactions of the Kansas Academy of Science, 111(3 & 4):283-291, 2008
- 07-119-J The early history of wheat improvement in the Great Plains
G.M. Paulsen, J.P. Shroyer
Agronomy Journal, 100:S-70-S-78, 2008
- 07-174-J Simulation appraisal of the adequacy of number of background markers for relationship estimation in association mapping
J. Yu, Z. Zhang, C. Zhu, D.A. Tabanao, G. Pressoir, M.R. Tuinstra, S. Kresovich, R.J. Todhunter, E.S. Buckler
The Plant Genome, 2:63-77, 2009
- 07-175-J Using temporally limited wind data in the wind erosion prediction system
E.L. Skidmore, C. Liao, S.J. van Donk
Transactions of the ASABE, 51(5):1585-1590, 2008
- 07-189-J Management practices to minimize tan spot in a continuous wheat rotation
M. Carignano, J.P. Shroyer, S.A. Staggenborg
Agronomy Journal, 100:145-153, 2008
- 07-190-J Estimated particulate emissions by wind erosion from the Indian Harbor confined disposal facility
L.J. Hagen, P.R. Schroeder, L. Thai
Practice Periodical of Hazardous Toxic & Radioactive Waste Management, 13(1):20-28, 2009
- 07-197-J Phosphorus sources and management in organic production systems
N.O. Nelson, R.R. Janke
HortTechnology, 17:442-454, 2007
- 07-249-J Cotton injury and yield as affected by simulated drift of 2,4-D and dicamba
M.E. Marple, K. Al-Khatib, D.E. Peterson
Weed Technology, 21:987-992, 2008
- 07-294-J Horizontal root growth: Water uptake and stomatal resistance under microgravity
M.B. Kirkham
Vadose Zone Journal, 7:1125-1131, 2008
- 07-295-J Grain sorghum and corn comparisons: Yield, economic, and environmental responses
S.A. Staggenborg, K.C. Dhuyvetter, W.B. Gordon
Agronomy Journal, 100:1600-1604, 2008
- 08-006-J Determination of endosperm protein secondary structure in hard wheat breeding lines using synchrotron infrared microspectroscopy
E.S. Bonwell, T.L. Fisher, A.K. Fritz, D. Wetzell
Vibrational Spectroscopy, 48:76-81, 2008
- 08-028-J Modeling runoff and sediment yields from combined in-field crop practices using the Soil and Water Assessment Tool
D. Maski, K.R. Mankin, K.A. Janssen, P. Tuppad, G.M. Pierzynski
Journal of Soil and Water Conservation, 63(4):193-203, 2008

- 08-073-J Efficacy of preemergence application of S-metolachlor plus fomesafen or metribuzin as an element in the control of common waterhemp (*Amaranthus rudis* Sauer) in soybeans
M.G. Duff, K. Al-Khatib, D.E. Peterson
Transactions of the Kansas Academy of Science, 111:230-238, 2008
- 08-074-J Relative competitiveness of protoporphyrinogen oxidase-resistant common waterhemp (*Amaranthus rudis*)
M.G. Duff, K. Al-Khatib, D.E. Peterson
Weed Science, 57:169-174, 2009
- 08-083-J Soil temperature and planting depth effects on tef emergence
S. Evert, S. Staggenborg, B.L. Olson
Journal of Agronomy and Crop Science, 195:232-236, 2009
- 08-143-J Soybean yield and yield components response to plant density in narrow row systems
M. Epler, S. Staggenborg
Crop Management, 2008
doi:10.1094/CM-2008-0925-01-RS
- 08-167-B Linkage disequilibrium and association mapping in the Triticeae
M.E. Sorrells, J. Yu
In: Genetics and genomics of the Triticeae, Volume 7, C. Feuillet, G.J. Muehlbauer (Eds.). New York, NY: Springer, pp. 655-684, 2009
- 08-168-J Differential response of grain sorghum hybrids to foliar-applied mesotrione
M.J.M. Abit, K. Al-Khatib, D.L. Regehr, M.R. Tuinstra, M.M. Claassen, P.W. Greier, P.W. Stahlman, B.W. Gordon, R.S. Currie
Weed Technology, 23:28-33, 2009
- 08-196-J Impact of nighttime temperature on physiology and growth of spring wheat
P.V.V. Prasad, S.R. Pisipati, Z. Ristic, U. Bukovnik, A.K. Fritz
Crop Science, 48:2372-2380, 2008
- 08-213-J Sensitivity of grain sorghum to high temperature stress during reproductive development
P.V.V. Prasad, S.R. Pisipati, R.N. Mutava, M.R. Tuinstra
Crop Science, 48:1911-1917, 2008
- 08-217-J Preemergence herbicide efficacy and phytotoxicity in grain sorghum
P.W. Geier, P.W. Stahlman, D.L. Regehr, B.L. Olson
Weed Technology, 23:197-201, 2009
- 08-219-J Protection of soil organic C and N in temperate and tropical soils: Effect of native and agroecosystems
K.P. Fabrizzi, C.W. Rice, T.J.C. Amado, J. Fiorin, P. Barbagelata, R. Melchiori
Biogeochemistry, 92:129-143, 2009
- 08-237-J Source specific fecal bacteria modeling using source and water assessment tool model
P.B. Parajuli, K.R. Mankin, P.L. Barnes
Bioresource Technology, 100:953-963, 2009
- 08-249-J Comparison of AnnAGNPS and SWAT model simulation results in USDA-CEAP agricultural watersheds in south-central Kansas
P.B. Parajuli, N.O. Nelson, L.D. Frees, K.R. Mankin
Hydrological Processes, 23:748-763, 2009
- 08-253-J Surface boundary layer of cattle feedlots: Implications for air emissions measurement
K.A. Baum, J.M. Ham, N.A. Brunsell, P.I. Coyne
Agricultural and Forest Meteorology, 148:1882-1893, 2008
- 08-265-J Fertilizer management for short-season corn grown in reduced, strip-till, and no-till systems on claypan soil
D.W. Sweeney, G.L. Kilgore, K.W. Kelley
Crop Management, 2008
doi:10.1094/CM-2008-072J-01-RS
- 08-278-B Impact of drought and heat stress on physiological, growth and yield processes
P.V.V. Prasad, S.A. Staggenborg, Z. Ristic
In: Modeling water stress effects on plant growth processes, L.H. Ahuja and S.A. Saseendran (Eds.). Madison, WI: ASA – CSSA. Advances in Agricultural Systems Modeling, pp. 301-355, 2009
- 08-284-J Applicability of targeting vegetative filter strips to abate fecal bacteria and sediment yield using SWAT
P.B. Parajuli, K.R. Mankin, P.L. Barnes
Agricultural Water Management, 95:1189-1200, 2008

- 08-300-J Influence of tillage, row spacing-population system, and glyphosate herbicide timing on soybean production in the eastern Great Plains
K.W. Kelley, D.W. Sweeney
Crop Management, 2008
doi:10.1094/CM-2008-1114-01-RS
- 08-301-J Soil aggregation and carbon sequestration are tightly correlated with the abundance of arbuscular mycorrhizal fungi: Results from long-term field experiments
G.W.T. Wilson, C.W. Rice, M.C. Rillig, A. Springer, D.C. Harnett
Ecology Letters, 12:452-461, 2009
- 08-329-J Efficacy of herbicide seed treatments for controlling *Striga* infestation of sorghum
M.R. Tuinstra, S. Soumana, K. Al-Khatib, I. Kapran, A. Toure, A. van Ast, L. Bastiaans, N.W. Ochanda, I. Salami, M. Kayentao, S. Dembele
Crop Science, 49:923-929, 2009
- 08-334-J Exudation of mesotrione from potato roots injures neighboring plants
R.A. Boydston, K. Al-Khatib
Weed Science, 56:852-855, 2008
- 08-380-J Phosphate sorption of calcined materials used as components of soilless root media characterized in laboratory studies
R.A. Ogutu, K.A. Williams, G.M. Pierzynski
HortScience, 44(2):431-437, 2009
- 08-396-J Assessing intellectual development of horticulture undergraduates using the Perry scheme and learning environment preferences instrument
C.C. Lavis, K.A. Williams, S.J. Thein
NACTA Journal, 52(4):25-31, 2008
- 08-402-J Adaptation of a speciation sampling cartridge for measuring ammonia flux from cattle feedlots using relaxed eddy accumulation
K.A. Baum, J.M. Ham
Atmospheric Environment, 45:1753-1759, 2009
- 09-006-S 2008 Kansas Performance Tests with Winter Wheat Varieties
Multiple authors.
Coordinating author: J. Lingenfelter
KS Agric. Exp. Stn. Report of Prog. 999, July 2008
- 09-007-J Seed composition, seedling emergence and early seedling vigour of red kidney bean seed produced at elevated temperature and carbon dioxide
J.M.G. Thomas, P.V.V. Prasad, K.J. Boote, L.H. Allen, Jr.
Journal of Agronomy and Crop Science, 195:148-156, 2009
- 09-030-J Discovery and mapping single feature polymorphisms in wheat using Affymetrix arrays
A.N. Bernardo, P.J. Bradbury, H-X. Ma, S-W Hu, R.L. Bowden, E.S. Buckler, G-H. Bai
BCM Genomics, 2009
doi:10.1186/1471-2164-10-251
- 09-033-J Lesion mimic associates with adult plant resistance to leaf rust infection in wheat
T. Li, G. Bai
Molecular Plant-Microbe Interactions, 119:13-21, 2009
- 09-043-J Influence of fungicide and sowing density on the growth and yield of two groundnut cultivars
J.B. Naab, K.J. Boote, P.V.V. Prasad, S.S. Seini, J.W. Jones
Journal of Agricultural Science, 147:179-191, 2009
- 09-051-J Conversion of grassland to coniferous woodland has limited effects on soil nitrogen cycle processes
D.C. McKinley, C.W. Rice, J.M. Blair
Soil Biology & Biochemistry, 40:2627-2633, 2008
- 09-093-J Heat tolerance and expression of protein synthesis elongation factors, EF-Tu and EF-1 α , in spring wheat
U. Bukovnik, J. Fu, M. Bennett, P.V.V. Prasad, Z. Ristic
Functional Plant Biology, 36:234-241, 2009
- 09-098-J Glyphosate weed control enhancement with ammonium sulfate and commercial water conditioning agents
D.E. Peterson, C.R. Thompson
Journal of ASTM International, 6(5), 2009
doi:10.1520/JAI102147
- 09-107-S 2008 Kansas Performance Tests with Corn Hybrids
Multiple authors.
Coordinating author: J. Lingenfelter
KS Agric. Exp. Stn. Report of Prog. 1000, November 2008

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|----------|---|----------|---|
| 09-108-S | 2008 Kansas Performance Tests with Soybean Varieties
Multiple authors.
Coordinating author: J. Lingenfelter
KS Agric. Exp. Stn. Report of Prog. 1003, December 2008 | 09-180-S | 2008 Kansas Performance Tests with Sunflower Hybrids
Multiple authors.
Coordinating author: J. Lingenfelter
KS Agric. Exp. Stn. Report of Prog. 1006, January 2009 |
| 09-109-S | 2008 Kansas Performance Tests with Grain Sorghum Hybrids
Multiple authors.
Coordinating author: J. Lingenfelter
KS Agric. Exp. Stn. Report of Prog. 1004, December 2008 | 09-208-S | 2008 Agronomy Field Research
Multiple authors.
Coordinating author: J. Shroyer
KS Agric. Exp. Stn. Report of Prog. 1011, April 2009 |
| 09-121-J | Grazing effects on yield and quality of hard red and hard white winter wheat
J. Holman, C. Thompson, R. Hale, A. Schlegel
Agronomy Journal, 101(4):775-788, 2009 | 09-209-S | Kansas Fertilizer Research 2008
Multiple authors.
Coordinating author: D. Ruiz Diaz
KS Agric. Exp. Stn. Report of Prog. 1012, April 2009 |
| 09-140-J | Selection before backcross during exotic germplasm introgression
N. Ochanda, J. Yu, P.J. Bramel, A. Menkir, M.R. Tuinstra, M.D. Witt
Field Crops Research, 112:37-42, 2009 | 09-213-J | The potential of ultrahigh throughput genomic technologies in crop improvement.
J. Yu
The Plant Genome, 2:2, 2009
doi:10.3835/plantgenome2009.02.0002let |
| 09-145-J | Measuring seepage from waste lagoons and earthen basins with an overnight water balance test
J.M. Ham, K.A. Baum
Transactions of the ASABE, 52:835-844, 2009 | 09-225-S | 2009 Agronomy Field Research
Multiple authors.
Coordinating author: J. Shroyer
KS Agric. Exp. Stn. Report of Prog. 1017, April 2009 |
| 09-153-S | 2009 Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland
Multiple authors.
Coordinating author: D. Peterson
KS Agric. Exp. Stn. Report of Prog. 1007, January 2009 | 09-250-S | 2008 National Winter Canola Variety Trial
Multiple authors.
Coordinating author: M. Stamm
KS Agric. Exp. Stn. Report of Prog. 1009, April 2009 |
| 09-156-B | Applications of linkage disequilibrium and association mapping in maize
E.S. Ersoz, J. Yu, E.S. Buckler
In: Molecular genetic approaches to maize improvement, A.L. Kriz and B.A. Larkins (Eds.). New York, NY: Springer, pp. 173-195, 2009 | 09-259-S | 2008 Kansas Performance Tests with Cotton Varieties
Multiple authors.
Coordinating author: S. Staggenborg
KS Agric. Exp. Stn. Report of Prog. 1008, February 2009 |
| 09-157-J | Partitioning and accumulation of heavy metals in sunflower grown at biosolids farm in EDTA-facilitated phytoremediation
M.S. Liphadzi, M.B. Kirkham
Bioremediation, Biodiversity, and Bioavailability, 3:36-42, 2009 | 09-264-S | 2009 Agricultural Research
Multiple authors.
Coordinating author: L. Lomas
KS Agric. Exp. Stn. Report of Prog. 1013, April 2009 |
| | | 09-292-S | Field Day 2009, Southwest Research-Extension Center
Multiple authors.
Coordinating author: R. Currie
KS Agric. Exp. Stn. Report of Prog. 1014, June 2009 |

Publications without contribution numbers

Growth and yield response to simulated hail damage in guar
J.W. Sij, J.P. Ott, B.L.S. Olson, T.A. Baughman
Agronomy Journal, 97:1636-1639, 2005

Stalk persistence of interseeded wheat and rye cover crops treated at two growth stages and six rates of glyphosate
J.W. Sij, B.L.S. Olson, J.P. Ott, T.A. Baughman.
Texas Journal of Agriculture and Natural Resources, 19:93-101, 2006

Tolerance of three wheatgrass cultivars to sulfosulfuron herbicide
J.W. Sij, B.L.S. Olson, J.P. Ott, D.P. Malinowski
Texas Journal of Agriculture and Natural Resources, 20:32-41, 2007

Comparing drag hoses verses sprinklers on corn irrigated by a center pivot
B.L.S. Olson, D.H. Rogers
Applied Engineering in Agriculture, 24:41-45, 2008

Skip-row planting patterns stabilize corn grain yields in the central Great Plains
D.J. Lyon, A.D. Pavlista, G.W. Hergert, R.N. Klein, C.A. Shapiro, S. Knezevic, S.C. Mason, L.A. Nelson, D.D. Baltensperger, R.W. Elmore, M.F. Vigil, A.J. Schlegel, B.L. Olson, R.M. Aiken
Crop Management, 2009
doi:10.1094/CM-2009-0224-02-RS

Crop selections and water allocations for limited irrigation
N.L. Klocke, L.R. Stone, T.J. Dumler, S. Briggeman
Proceedings of the Central Plains Irrigation Conference and Exposition
Colby, KS, 2009, pp. 61-65

Irrigation scheduling for deficit irrigation
N.L. Klocke, L.R. Stone, D.A. Bolton
Proceedings of the EWRI-ASCE Conference
Kansas City, MO, 2009

Anatomy and Physiology

06-302-J Glycoprotein E (gE) specified by bovine herpesvirus type 5 (BHV-5) enables trans-neuronal virus spread and neurovirulence without being a structural component of enveloped virions
A. Al-Mubarak, J. Simon, C. Coats, J.D. Okemba, M.D. Burton, S.I. Chowdhury
Journal of Virology, 365(2):398-409, 2007

08-076-J Epithelial barrier modulation by a channel forming peptide
S. Somasekharan, R. Brandt, T. Iwamoto, J.M. Tomich, B.D. Schultz
Journal of Membrane Biology, 222(1):17-30, 2008

08-154-J Bradykinin-stimulated cyclooxygenase activity stimulates vas deferens epithelial anion secretion in vitro
F. Pierucci-Alves, B.D. Schultz
Biology of Reproduction, 79(3):501-509, 2008

09-138-J NC-1059, a channel-forming peptide that modulates drug delivery across in vitro corneal epithelium
J. Martin, P. Malreddy, T. Iwamoto, L. Freeman, H. Davidson, J.M. Tomich, B.D. Schultz
Investigative Ophthalmology & Visual Science, 50(7):3337-3345, 2009

Publications without contribution numbers

Molecular cloning and characterization of equine Toll-like receptor 9
Y.W. Zhang, E.G. Davis, F. Blecha, M.J. Wilkerson
Veterinary Immunology and Immunopathology, 124:209-219, 2008

Molecular identification and functional expression of porcine Toll-like receptor (TLR) 3 and TLR7
Y. Sang, J. Yang, C.R. Ross, R.R.R. Rowland, F. Blecha
Veterinary Immunology and Immunopathology, 125:162-167, 2008

Central nervous system administration of interleukin-6 produces splenic sympathoexcitation
B.G. Helwig, R.A. Craig, R.J. Fels, F. Blecha, M.J. Kenney
Autonomic Neuroscience, 141:104-111, 2008

Antimicrobial peptides and bacteriocins:
Alternatives to traditional antibiotics
Y. Sang, F. Blecha
Animal Health Research Reviews, 9:227-
235, 2008

Toll-like receptor (TLR) 3 activation
decreases porcine arterivirus infection
Y. Sang, C. Ross, R.R.R. Rowland, F.
Blecha
Viral Immunology, 21:303-314, 2008

Comparative analysis of *Xenopus tropicalis*
hepcidin I and hepcidin II genes
X. Hu, C. Ward, S. Aono, L. Lan, C.
Dykstra, R. Kempainen, E. Morrison, J. Shi
Gene, 426:91-97, 2008

Rat cardiomyocytes express a classical
epithelial beta-defensin
Linde, G. Lushington, F. Blecha, T.
Melgarejo
American Journal of Animal and Veterinary
Sciences, 3(1):1-6, 2008

Rat umbilical cord stem cells completely
abolish rat mammary carcinomas with no
evidence of metastasis or recurrence 100
days post-tumor cell inoculation
C. Ganta, D. Chiyo, R. Ayuzawa, M. Pyle,
G. Andrews, M. Weiss, M. Tamura, D.
Troyer
Cancer Research, 69(5):1815-1820, 2009

Naïve human umbilical cord matrix derived
stem cells significantly attenuate growth of
human cancer cells *in vitro* and *in vivo*
R. Ayuzawa, C. Doi, R. Rachakatla, M.
Pyle, D. Maurya, D. Troyer, M. Tamura
Cancer Letters, 280:31-37, 2009

Porcine host defense peptides: Expanding
repertoire and functions
Y. Sang, F. Blecha
Developmental & Comparative
Immunology, 33:334-343, 2009

Neural stem/progenitor cells modulate
immune responses by suppressing T
lymphocytes with nitric oxide and
prostaglandin E2
L. Wang, J. Shi, F.W. van Ginkel, L. Lan,
G. Niemeyer, D.R. Martin, E.Y. Snyder,
N.R. Cox
Experimental Neurology, 216:177-183,
2009

Analgesic efficacy of sodium salicylate in an
amphotericin B-induced synovitis/arthritis
model
J.L. Kotschwar, J.F. Coetzee, D.E.
Anderson, R. Gehring, B. KuKanich, M.D.
Apley
Journal of Dairy Science, 92(8):3731-3743,
2009

Animal Sciences and Industry

02-296-J Source of dietary lipid may modify the
immune response in stressed feeder cattle
T.B. Farran, J.S. Drouillard, D.A. Blasi, J.E.
Minton, T.H. Elsasser, C.D. Reinhardt, J.J.
Higgins
Journal of Animal Science, 86(6):1382-
1394, 2008

02-321-J Effects of grain processing and dietary lipid
source on performance, carcass
characteristics, plasma fatty acids, and
sensory properties of steaks from finishing
cattle
H.J. LaBrune, C.D. Reinhardt, M.E.
Dikeman, J.S. Drouillard
Journal of Animal Science, 86(1):167-172,
2008

08-355-J Application of acetate buffer in pH
adjustment of mash and its influence on fuel
ethanol fermentation
R. Zhao, S.R. Bean, B.A. Crozier-Dodson,
D.Y.C. Fung, D. Wang
Journal of Industrial Microbiology and
Biotechnology, 36(1):75-85, 2009

03-387-J Genetic relationship between sex-specific
traits in beef cattle: Mature weight, weight
adjusted for body condition score, height
and body condition score of cows, and
carcass traits of their steer relatives
K.A. Nephawe, L.V. Cundiff, M.E.
Dikeman, J.D. Crouse, and L.D. Van Vleck
Journal of Animal Science, 82(3):647-653,
2004

04-236-J Effect of space allowance during rearing and
selection criteria on performance of gilts
over three parities in a commercial swine
production system
M.G. Young, M.D. Tokach, F.X. Aherne,
S.S. Dritz, R.D. Goodband, J.L. Nelssen,
T.M. Loughin
Journal of Animal Science, 86(11):3181-
3193, 2008

- 05-030-J The optimal standardized ileal digestible lysine and total sulfur amino acid requirement for finishing pigs fed ractopamine hydrochloride
N.Z. Frantz, M.D. Tokach, R.D. Goodband, S.S. Dritz, J.M. DeRouchey, J. L. Nelssen, C.L. Jones
The Professional Animal Scientist, 25:161-168, 2009
- 05-162-J Effects of ascorbic acid, rosemary, and Origanox™ in preventing bone marrow discoloration in beef lumbar vertebrae in aerobic and anaerobic packaging systems
J.P. Grobbel, M.E. Dikeman, E.J. Yancey, J.S. Smith, D.H. Kropf, G.A. Milliken
Meat Science, 72(1):47-56, 2006
- 06-188-J Effects of steroidal implantation and ractopamine-HCl on nitrogen retention, blood metabolites and skeletal muscle gene expression in Holstein steers
D.K. Walker, E.C. Titgemeyer, E.K. Sissom, K.R. Brown, J.J. Higgins, G.A. Andrews, B.J. Johnson
Journal of Animal Physiology and Animal Nutrition, 91(9-10):439-447, 2007
- 06-230-J Effects of concentrate level and pen configuration on performance of Boer crossbred goat kids
M.E. Corrigan, J.S. Drouillard, E.R. Loe, B.E. Deppenbusch, M.J. Quinn
The Professional Animal Scientist, 24(6):614-618, 2008
- 06-241-B Rapid microbiological methods in food diagnostics
D.Y.C. Fung
In: Advances in food diagnostics, L.M.L. Nollet, F. Toldra (Eds.). Ames, IA: Blackwell, pp. 131-154, 2007
- 06-322-J Growth characteristics, blood metabolites, and insulin-like growth factor system components in maternal tissues from gilts fed L-carnitine through day seventy of gestation
K.R. Brown, R.D. Goodband, M.D. Tokach, S.S. Dritz, J.L. Nelssen, J.E. Minton, J.J. Higgins, J.C. Woodworth, B.J. Johnson
Journal of Animal Science, 85(7):1687-1694, 2007
- 07-237-J Pre-cooked fiber-enriched wheat flour obtained by extrusion: Rheological and functional properties
H. Gajula, S. Liu, S. Alavi, T. Herald, R. Madl, S.R. Bean, M. Tilley
International Journal of Food Properties, 12:27-44, 2009
- 07-266-J Determining the accuracy of gestation feed drops
J.D. Schneider, M.D. Tokach, S.S. Dritz, J.L. Nelssen, J.M. DeRouchey, R.D. Goodband
Journal of Swine Health and Production, 16(6):298-303, 2008
- 07-286-J Methodology for concurrent determination of urea kinetics and the capture of recycled urea nitrogen by ruminal microbes in cattle
T.A. Wickersham, E.C. Titgemeyer, R.C. Cochran
Animal, 3(3):372-379, 2009
- 07-287-J Effect of undegradable intake protein supplementation on urea kinetics and microbial use of recycled urea in steers consuming low-quality forage
T.A. Wickersham, E.C. Titgemeyer, R.C. Cochran, E.E. Wickersham
British Journal of Nutrition, 101(2):225-232, 2009
- 07-288-J Effect of rumen-degradable intake protein supplementation on urea kinetics and microbial use of recycled urea in steers consuming low-quality forage
T.A. Wickersham, E.C. Titgemeyer, R.C. Cochran, E.E. Wickersham, D.P. Gnad
Journal of Animal Science, 86(11):3079-3088, 2008
- 07-289-J Effect of frequency and amount of rumen-degradable intake protein supplementation on urea kinetics and microbial use of recycled urea in steers consuming low-quality forage
T.A. Wickersham, E.C. Titgemeyer, R.C. Cochran, E.E. Wickersham, E.S. Moore
Journal of Animal Science, 86(11):3089-3099, 2008

- 07-291-J Serum steroid concentrations at different phases of production and brain monoamine oxidase type A messenger ribonucleic acid in buller steers
M.P. Epp, D.A. Blasi, B.J. Johnson, J.P. Kayser, D.M. Grieger, J.S. Stevenson, J.E. Minton
The Professional Animal Scientist, 24(6):552-559, 2007
- 08-008-J Determining an optimum lysine:calorie ratio for barrows and gilts in a commercial finishing facility
R.G. Main, S.S. Dritz, M.D. Tokach, R.D. Goodband, J.L. Nelssen
Journal of Animal Science, 86:2190-2207, 2008
- 08-009-J Effects of feeding growing pigs less or more than their estimated lysine requirement in early and late finishing on overall performance
R.G. Main, S.S. Dritz, M.D. Tokach, R.D. Goodband, J.L. Nelssen, J.M. DeRouchey
The Professional Animal Scientist, 24(1):76-87, 2008
- 08-013-J Omega-3 fatty acids in the gravid pig uterus as affected by maternal supplementation with omega-3 fatty acids
A.E. Brazle, B.J. Johnson, S.K. Webel, T.J. Rathbun, D.L. Davis
Journal of Animal Science, 87(4):994-1002, 2008
- 08-018-J Effects of mucin and its carbohydrate constituents on *Escherichia coli* O157 growth in batch culture fermentations with ruminal or fecal microbial inoculum
J.T. Fox, J.S. Drouillard, X. Shi, T.G. Nagaraja
Journal of Animal Science, 87:1304-1313, 2009
- 08-084-J Effects of ractopamine HCl dose and treatment period on pig performance in a commercial finishing facility
R.G. Main, S.S. Dritz, M.D. Tokach, R.D. Goodband, J.L. Nelssen, J.M. DeRouchey
Journal of Swine Health and Production, 17:134-139, 2009
- 08-093-J Associations between the presence and magnitude of *Escherichia coli* O157 in feces at harvest and contamination of preintervention beef carcasses
J.T. Fox, D.G. Renter, M.W. Sanderson, A.L. Nutsch, X. Shi, T.G. Nagaraja
Journal of Food Protection, 71:1761-1767, 2008
- 08-094-J Potential associations between fecal shedding of *Salmonella* in feedlot cattle treated for apparent respiratory disease and subsequent adverse health outcomes
M.J. Alam, D.G. Renter, S.E. Ives, D.U. Thomson, M.W. Sanderson, L.C. Hollis, T.G. Nagaraja
Veterinary Research, 40:02, 2009
- 08-111-J At-line methods for controlling microbial growth and spoilage
D.Y.C. Fung, J.R. Edwards, B.A. Crozier-Dodson
International Meat Secretariat Scientific Workshop "Meat Safety: From Abattoir to Consumer"
Valencia, Spain, 2007, p. 16
- 08-112-J Methods for evaluating microbial flora in muscle foods
D.Y.C. Fung
In: Handbook of muscle foods analysis, L.M.L. Nollet, F. Toldra (Eds.). Boca Raton, FL: CRC Press, pp. 563-592, 2009
- 08-117-J Rapid methods and automation in microbiology: 25 years of scientific developments and global market trends
D.Y.C. Fung
In: Global issues in food science and technology, G. Barbosa-Canovas, A. Mortimer, D. Lineback, W. Spiess, K. Buckle, P. Colonna (Eds.). Burlington, MA: Elsevier, pp. 165-176, 2009
- 08-129-J Effects of different packaging atmospheres and injection-enhancement on beef tenderness, sensory attributes, desmin degradation, and display color
J.P. Grobbel, M.E. Dikeman, M.C. Hunt, G.A. Milliken
Journal of Animal Science, 86:2697-2710, 2008
- 08-201-J Fenbendazole stimulates interferon secretion in calves during viral infection
J.M. Cummins, D.P. Hutcheson, C.D. Reinhardt
Bovine Practitioner, 42:104-110, 2008

- 08-202-J Plasma metabolites of receiving heifers and the relationship between apparent bovine respiratory disease, body weight gain, and carcass characteristics
S.P. Montgomery, J.S. Drouillard, J.J. Sindt, M.A. Greenquist, W.F. Miller, J.N. Pike, E.R. Loe, M.J. Sulpizio
Journal of Animal Science, 87(1):328-333, 2009
- 08-295-J Competitive exclusion *Escherichia coli* cultures on *E. coli* O157 growth in batch culture ruminal or fecal microbial fermentation
J.T. Fox, J.S. Drouillard, T.G. Nagaraja
Foodborne Pathogens and Disease, 6(2):193-199, 2009
- 08-297-J Performance and carcass traits of finishing heifers fed crude glycerin
G.L. Parsons, M.K. Shelor, J.S. Drouillard
Journal of Animal Science, 87:653-657, 2009
- 08-302-J Effects of dietary vitamin A restriction during finishing on color display life, lipid oxidation, and sensory traits of longissimus and triceps brachii steaks from early and traditionally weaned steers
M.J. Daniel, M.E. Dikeman, A.M. Arnett, M.C. Hunt
Meat Science, 81:15-21, 2008
- 08-319-J Effects of implanting and feeding zilpaterol hydrochloride on performance, carcass characteristics, and subprimal beef yields of fed cows
S. Neill, J.A. Unruh, T.T. Marston, J.R. Jaeger, M.C. Hunt, J.J. Higgins
Journal of Animal Science, 87:704-710, 2009
- 08-346-J Evaluation of human chorionic gonadotropin as a replacement for gonadotropin-releasing hormone in ovulation-synchronization protocols before fixed timed artificial insemination in beef cattle
M.G. Burns, B.S. Buttrey, C.A. Dobbins, C.A. Martel, KC Olson, G.C. Lamb, J.S. Stevenson
Journal of Animal Science, 86:2539-2548, 2008
- 08-366-J Effects of vitamin A supplementation and weaning age on serum and liver retinol concentrations, carcass traits, and lipid composition in market beef cattle
A.M. Arnett, M.E. Dikeman, M.J. Daniel, KC Olson, J.R. Jaeger, J. Perrett
Meat Science, 81:596-606, 2009
- 08-371-J Evaluation of feeding dried distiller's grains with solubles and dry-rolled corn on the fecal prevalence of *Escherichia coli* O157:H7 and *Salmonella* spp. in cattle
M.E. Jacob, J.T. Fox, J.S. Drouillard, D.G. Renter, T.G. Nagaraja
Foodborne Pathogens and Disease, 6(2):145-153, 2009
- 09-025-J Board-invited review: Porcine mucosal immunity of the gastrointestinal tract
T.E. Burkey, K.A. Skjolaas, J.E. Minton
Journal of Animal Science, 87:1493-1501, 2009
- 09-056-J Effects of concurrent metaphylaxis with chlortetracycline and tulathromycin on high-risk cattle health and performance
J. Wallace, C.D. Reinhardt, D.U. Thomson
Bovine Practitioner, 43(1):14-17, 2009
- 09-073-J Effects of prepartum whole fuzzy cottonseed or whole raw soybean supplementation on response to timed artificial insemination by suckled mature beef cows following ovulation synchronization
M.D. Thomas, KC Olson, J.S. Stevenson, J.R. Jaeger, J.W. Bolte, N.A. Sproul, D.R. Linden, L.A. Pacheco
The Professional Animal Scientist, 25:41-48, 2009
- 09-074-S Swine Day 2008
Multiple authors.
Coordinating author: R. Goodband
KS Agric. Exp. Stn. Report of Prog. 1001, November 2008
- 09-134-S Dairy Research 2008
Multiple authors.
Coordinating author: J. Stevenson
KS Agric. Exp. Stn. Report of Prog. 1002, December 2008
- 09-168-S Beef Cattle Research 2009
Multiple authors.
Coordinating authors: J. Drouillard, E.A.E. Boyle
KS Agric. Exp. Stn. Report of Prog. 1010, March 2009

- 09-262-S Roundup 2009
Multiple authors.
Coordinating author: K. Harmoney
KS Agric. Exp. Stn. Report of Prog. 1016,
April 2009
- Publications without contribution numbers
- Effects of feeding L-carnitine to gilts through day 70 of gestation on litter traits and the expression of insulin-like growth factor system components and L-carnitine concentration in foetal tissues
K.R. Brown, R.D. Goodband, M.D. Tokach, S.S. Dritz, J.L. Nelssen, J.E. Minton, J.J. Higgins, X. Lin, J. Odle, J.C. Woodworth, B.J. Johnson
Journal of Animal Physiology and Animal Nutrition, 92:660-667, 2008
- A stochastic model to compare breeding system costs for synchronization of estrus and artificial insemination to natural service
S.K. Johnson, R.D. Jones
The Professional Animal Scientist, 24:588-595, 2008
- Rapid methods and automation in microbiology: 25 years of developments and predictions
D.Y.C. Fung
Alimentaria, 392:113-117, 2008
- Screening procedures for clenbuterol residue determination in raw swine livers using lateral-flow assay and enzyme-linked immunosorbent assay
W.H. Lai, D.Y.C. Fung, Y. Xu, Y.H. Xiong
Journal of Food Protection, 71(4):865-869, 2008
- Application of acetate buffer in pH adjustment of sorghum mash and its influence on fuel ethanol fermentation
R. Zhao, S.R. Bean, B.A. Crozier-Dodson, D.Y.C. Fung, D. Wang
Journal of Industrial Microbiology & Biotechnology, 36(1):75-85, 2008
- Rapid methods and automation in microbiology: 25 years of trends and predictions of the future
D.Y.C. Fung
Food Science and Technology, 22(3):21-23, 2008
- Microhistological characterization of the botanical composition of diets grazed by beef cows in the Kansas Flint Hills during winter
G.J. Eckerle, KC Olson, J.R. Jaeger, W.H. Fick, L.A. Pacheco, K. Walburger
Proceedings of the Western Section of the American Society of Animal Science, 60:399-402, 2009
- Beef calf performance and carcass characteristics following rumen-protected choline supplementation of cows during the peripartum period
J.R. Jaeger, KC Olson, S.R. Goodall, J.W. Bolte
Proceedings of the Western Section of the American Society of Animal Science, 60:59-62, 2009
- Beef cow performance following rumen-protected choline supplementation during the peripartum period
J.R. Jaeger, KC Olson, S.R. Goodall, J.W. Bolte
Proceedings of the Western Section of the American Society of Animal Science, 60:280-283, 2009
- Effects of early lactation on DM digestion, and ruminal dynamics of primiparous beef heifers fed low-quality, warm-season grass hay
D.R. Linden, KC Olson, J.R. Jaeger, L.W. Murray, D.E. Anderson, L.A. Pacheco, K.E. Holcomb, J.W. Bolte, N.A. Sproul, M.D. Thomas
Proceedings of the Western Section of the American Society of Animal Science, 60:346-349, 2009
- Effects of advancing gestation on DM digestion, and ruminal dynamics of primiparous beef heifers fed low-quality, warm-season grass hay
D.R. Linden, KC Olson, J.R. Jaeger, L.W. Murray, D.E. Anderson, L.A. Pacheco, K.E. Holcomb, J.W. Bolte, N.A. Sproul, M.D. Thomas
Proceedings of the Western Section of the American Society of Animal Science, 60:350-353, 2009

Relationship between ultrasonically-measured beef cow carcass traits and lifetime productivity
L.A. Pacheco, J.R. Jaeger, J. Minick-Bormann, KC Olson
Proceedings of the Western Section of the American Society of Animal Science, 60:37-39, 2009

Methods for evaluating microbial flora in muscle foods
D.Y.C. Fung
In: Handbook of muscle foods analysis, L.M.L. Nollet, F. Toldra (Eds.). Boca Raton, FL: CRC Press, pp. 563-591, 2009

Preliminary study on rapid culture of *Escherichia coli* O157:H7
W. Lai, D.Y.C. Fung, B.A. Crozier-Dodson
Journal of Food Science (China), 30(7):145-147, 2009

Apparel, Textiles, and Interior Design

Publications without contribution numbers

Modeling retail manager role in an apparel classroom to improve student engagement
M.L.A. LeHew
Proceedings of the International Textile and Apparel Association Annual Conference Schaumburg, IL, 2008

Identifying environmentally conscious apparel acquisition behaviors among eco-conscious consumers
K.Y. Hiller Connell, M.S. Sontag
Proceedings of the International Textile and Apparel Association Annual Conference Schaumburg, IL, 2008

Researcher highlights: Conclusions, implications, and recommendations for future studies
J. Hawley
In: Research methods for the fashion industry, J. Flynn, I. Foster (Eds.). New York: Fairchild, 2009

Sustainable solutions
S. Haar, J. Falsken, M. LeHew
Juried Design Showcase, American Association of Family and Consumer Sciences, 2009, pp. 20-23

Measuring customer-based brand equity: Empirical evidence from the sportswear market in China
X. Tong, J. Hawley
Journal of Product and Brand Management, 18(4):262-271, 2009

Creating brand equity in the Chinese clothing market: The effect of selected marketing activities on brand equity dimensions
X. Tong, J. Hawley
Journal of Fashion Marketing and Management, 13(4):566-581, 2009

Biochemistry

05-096-J Loss of protein kinase C-gamma in knockout mice and increased retinal sensitivity to hyperbaric oxygen
V. Yevseyenkov, S. Das, D. Lin, L. Willard, H. Davidson, A. Sitaramayya, F. Giblin, L. Dang, D. Takemoto
Archives of Ophthalmology, 127(4):500-506, 2009

05-139-J Structures of the human pyruvate dehydrogenase complex cores: A highly conserved catalytic center with flexible N-terminal domains
X. Yu, Y. Hiromasa, J.K. Stoops, T.E. Roche, Z.H. Zhou
Structure, 16:104-114, 2008

07-210-J Domain organization and phylogenetic analysis of the chitinase-like family of proteins in three species of insects
Q. Zhu, Y. Arakane, D. Banerjee, R.W. Beeman, K. J. Kramer, S. Muthukrishnan
Insect Biochemistry and Molecular Biology, 38:452-66, 2008

07-211-J Characterization of recombinant chitinase-like proteins of *Drosophila melanogaster* and *Tribolium castaneum*
Q. Zhu, Y. Arakane, R.W. Beeman, K. J. Kramer, S. Muthukrishnan
Insect Biochemistry and Molecular Biology, 38:467-77, 2008

07-218-J Characterization and expression of the β -N-acetylhexosaminidase gene family of *Tribolium castaneum*
D.G. Hogenkamp, Y. Arakane, K.J. Kramer, R.W. Beeman, S. Muthukrishnan
Insect Biochemistry and Molecular Biology, 38:478-89, 2008

- 07-304-B Impacts on agroecosystems of transgenic insect and herbicide resistance in cotton
L.C. Davis
In: Genetics and genomics of cotton, A.H. Patterson (Ed.). New York, NY: Springer, pp. 451-480, 2009
- 08-012-J Centrosome/spindle pole-associated protein regulates cytokinesis via promoting the recruitment of MyoGEF to the central spindle
M. Asiedu, D. Wu, F. Matsumura, Q. Wei
Molecular Biology of the Cell, 20:1428-1440, 2009
- 08-072-J Walker-A threonine couples nucleotide occupancy with the chaperone activity of the AAA+ ATPase ClpB
M. Nagy, H.C. Wu, Z. Liu, S. Kedzierska-Meiszowska, M. Zolkiewski
Protein Science, 18:287-293, 2009
- 08-076-J Epithelial barrier modulation by a channel forming peptide
S. Somasekharan, R. Brandt, T. Iwamoto, J.M. Tomich, B.D. Schultz
Journal of Membrane Biology, 222(1):17-30, 2008
- 08-224-J Total, membrane, and immunogenic proteomes of macrophage- and tick cell-derived *Ehrlichia chaffeensis* evaluated by LC-MS/MS and MALDI-TOF methods
G.M. Seo, C. Cheng, J. Tomich, R.R. Ganta
Infection and Immunity, 76(11):4823-4832, 2008
- 08-226-J Hypoxia-regulated activity on PKC ϵ in the lens
V. Akoyev, S. Das, S. Jena, L. Grauer, D.J. Takemoto
Investigative Ophthalmology & Visual Science, 50(3):1271-1282, 2009
- 08-296-J Phosphorylation of MyoGEF on Thr-574 Plk1 promotes MyoGEF localization to the central spindle
M. Asiedu, D. Wu, F. Matsumura, Q. Wei
Journal of Biological Chemistry, 293:28392-28400, 2008
- 08-298-J Molecular and functional analyses of amino acid decarboxylases involved in cuticle tanning in *Tribolium castaneum*
Y. Arakane, J. Lomakin, R.W. Beeman, S. Muthukrishnan, S.H. Gehrke, M.R. Kanost, K.J. Kramer
Journal of Biological Chemistry, 284:16584-16594, 2009
- 08-345-J The role of Delta-like 1 shedding in muscle cell self-renewal and differentiation
D. Sun, H. Li, A. Zolkiewska
Journal of Cell Science, 121:3815-3823, 2008
- 08-372-J Chitin synthases are required for survival, fecundity and egg hatch in the red flour beetle, *Tribolium castaneum*
Y. Arakane, C.A. Specht, K.J. Kramer, R.W. Beeman, S. Muthukrishnan
Insect Biochemistry and Molecular Biology, 38:959-962, 2008
- 08-388-J Functional analysis of four neuropeptides, EH, ETH, CCAP and bursicon, and their receptors in adult ecdysis behavior of the red flour beetle, *Tribolium castaneum*
Y. Arakane, B. Li, S. Muthukrishnan, R.W. Beeman, K.J. Kramer, Y. Park
Mechanisms of Development, 125:984-995, 2008
- 09-093-J Heat tolerance and expression of protein synthesis elongation factors, EF-Tu and EF-1 α , in spring wheat
U. Bukovnik, J. Fu, M. Bennett, P.V.V. Prasad, Z. Ristic
Functional Plant Biology, 36:234-241, 2009
- 09-105-J Expressed sequence tags from larval gut of the European corn borer (*Ostrinia nubilalis*): Exploring candidate genes potentially involved in *Bacillus thuringiensis* toxicity and resistance
C. Khajuria, Y.C. Zhu, M-S. Chen, L.L. Buschman, R.A. Higgins, J. Yao, A.L.B. Crespo, B.D. Siegfried, S. Muthukrishnan, K.Y. Zhu
BMC Genomics, 10:286, 2009
- 09-131-J Analysis of functions of the chitin deacetylase gene family in *Tribolium castaneum*
Y. Arakane, K. Begum, R. Dixit, Y. Park, C.A. Specht, K.J. Kramer, H. Merzendorfer, S. Muthukrishnan, R. Beeman
Insect Biochemistry and Molecular Biology, 39:355-365, 2009
- 09-136-J Myosin-interacting guanine exchange factor (MyoGEF) regulates the invasion activity of MDA-MB-231 breast cancer cells through activation of RhoA and RhoC
D. Wu, M. Asiedu, Q. Wei
Oncogene, 28:2219-2230, 2009

- 09-138-J NC-1059, a channel-forming peptide that modulates drug delivery across in vitro corneal epithelium
J. Martin, P. Malreddy, T. Iwamoto, L. Freeman, H. Davidson, J.M. Tomich, B.D. Schultz
Investigative Ophthalmology & Visual Science, 50(7):3337-3345, 2009
- 09-155-J Loss of Purkinje cells in the PKC γ H101Y transgenic mouse
Y. Zhang, A. Snider, L. Willard, D.J. Takemoto, D. Lin
Biochemical and Biophysical Research Communications, 378:524-528, 2009
- 09-163-J Atomistic details of the disordered stated of KID and pKID. Implications in coupled binding and folding
D. Ganguly, J. Chen
Journal of the American Chemical Society, 131:5214-5223, 2009
- 09-164-J Intrinsically disordered p53 extreme C-Terminus binds to S100B($\beta\beta$) through "fly-casting"
J. Chen
Journal of the American Chemical Society, 131:2089-2089, 2009
- Publications without contribution numbers
- Protection of retinal cells from ischemia by a novel gap junction inhibitor
S. Das, D. Lin, S. Jena, A. Shi, S. Battina, D. Hua, R. Allbaugh, D. Takemoto
Biochemical and Biophysical Research Communications, 373:504-508, 2008
- A fratricidal mechanism is responsible for eDNA release and contributes to biofilm development of *Enterococcus faecalis*
V.C. Thomas, Y. Hiromasa, N. Harms, L. Thurlow, J. Tomich, L. Hancock
Molecular Microbiology, 72(4):1022-1036, 2009
- Biological and Agricultural Engineering**
- 07-190-J Estimated particulate emissions by wind erosion from the Indian Harbor confined disposal facility
L.J. Hagen, P.R. Schroeder, L. Thai
Practice Periodical of Hazardous Toxic & Radioactive Waste Management, 13(1):20-28, 2009
- 08-028-J Modeling runoff and sediment yields from combined in-field crop practices using the Soil and Water Assessment Tool
D. Maski, K.R. Mankin, K.A. Janssen, P. Tuppad, G.M. Pierzynski
Journal of Soil and Water Conservation, 63(4):193-203, 2008
- 08-164-J Assessing fermentation quality of grain sorghum for fuel ethanol production using rapid visco-analyzer
R. Zhao, S. Bean, X. Wu, D. Wang
Cereal Chemistry, 85(2):830-836, 2008
- 08-176-J Nozzle type effect on soybean canopy penetration
R.E. Wolf, N.P. Daggupati
Applied Engineering in Agriculture, 25(1):23-30, 2009
- 08-182-J Thermal properties of ration components as affected by moisture content and water activity during freezing
J. Li, P. Chinachoti, D. Wang, L.M. Hallberg, X.S. Sun
Journal of Food Science, 73:425-430, 2008
- 08-237-J Source specific fecal bacteria modeling using source and water assessment tool model
P.B. Parajuli, K.R. Mankin, P.L. Barnes
Bioresource Technology, 100:953-963, 2009
- 08-249-J Comparison of AnnAGNPS and SWAT model simulation results in USDA-CEAP agricultural watersheds in south-central Kansas
P.B. Parajuli, N.O. Nelson, L.D. Frees, K.R. Mankin
Hydrological Processes, 23:748-763, 2009
- 08-277-J Improved water resistance of soy protein adhesive at isoelectric point
D. Wang, X.S. Sun, G. Yang, Y. Wang
Transactions of the ASABE, 52(1):173-177, 2009
- 08-284-J Applicability of targeting vegetative filter strips to abate fecal bacteria and sediment yield using SWAT
P.B. Parajuli, K.R. Mankin, P.L. Barnes
Agricultural Water Management, 95:1189-1200, 2008

- 08-316-J Small-scale mashing procedure for predicting ethanol yield of sorghum grain
R. Zhao, S. Bean, D. Wang, S.H. Park, T.J. Schober, J.D. Wilson
Journal of Cereal Science, 49(2):230-238, 2009
- 08-355-J Application of acetate buffer in pH adjustment of mash and its influence on fuel ethanol fermentation
R. Zhao, S.R. Bean, B.A. Crozier-Dodson, D.Y.C. Fung, D. Wang
Journal of Industrial Microbiology and Biotechnology, 36(1):75-85, 2009
- 09-071-J Comparison of waxy vs. nonwaxy wheats in fuel ethanol fermentation
R. Zhao, X. Wu, B.W. Seabourn, S.R. Bean, Y.C. Shi, J.D. Wilson, R. Madi, D. Wang
Cereal Chemistry, 86(2):145-156, 2009
- 09-110-J Predicting the concentration and specific gravity of biodiesel-diesel blends using near-infrared spectroscopy
M. Coronado, W. Yuan, D. Wang, F. Dowell
Applied Engineering in Agriculture, 25(2):217-221, 2009
- 09-153-S 2009 Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland
Multiple authors.
Coordinating author: D. Peterson
KS Agric. Exp. Stn. Report of Prog. 1007, January 2009
- 09-241-A Keys to successful adoption of SDI: Minimizing problems and ensuring longevity
D.H. Rogers, F.R. Lamm
Proceedings of the 21st Annual Central Plains Irrigation Conference and Exposition Colby, KS, 2009, pp. 140-151
- 09-242-A Using the K-State center pivot sprinkler and SDI economic comparison spreadsheet – 2009
F.R. Lamm, D.M. O'Brien, D.H. Rogers, T.J. Dumler
Proceedings of the 21st Annual Central Plains Irrigation Conference and Exposition Colby, KS, 2009, pp. 177-187
- 09-292-S Field Day 2009, Southwest Research-Extension Center
Multiple authors.
Coordinating author: R. Currie
KS Agric. Exp. Stn. Report of Prog. 1014, June 2009
- 09-305-A Estimating forage mass by continuous height measurement of a moving plate
J.L. Moyer, R.R. Price, M.D. Schrock
Proceedings of the 2009 Annual Conference of the American Forage and Grassland Council
Grand Rapids, MI, 2009
- 09-317-A Dripline flushing velocities in SDI
J. Puig-Bargués, F.R. Lamm, T.P. Trooien, G.A. Clark
Proceedings of the 2009 ASABE Annual International Meeting
Reno, NV, 2009, 17 pp., Paper no. 096457
- Publications without contribution numbers
- An apparatus for measuring forage mass
J.L. Moyer, D.W. Sweeney, K.W. Kelley, M.D. Schrock, R.R. Price
Proceedings of the XXI International Grassland Congress/VIII International Rangeland Congress
Hohhot, China, Volume II, p. 61, 2008
- Feed pellet and corn durability and breakage during repeated elevator handling.
J.M. Boac, M.E. Casada, R.G. Maghirang
Applied Engineering in Agriculture, 24(5):637-643, 2008
- Smoke dissipation by solid particles and charged water spray in enclosed spaces
R.G. Maghirang, E.B. Razote
Fire Safety Journal, 44(4):668-671, 2009
- Relative chargeability of nanostructured and conventional particles by tribocharging
S.C. Pjesky, R.G. Maghirang
Particulate Science and Technology, 27(2):193-20, 2009
- Biology**
- 05-329-J Centimeter-scale stream substratum heterogeneity and metabolic rates
K.C. Wilson, W.K. Dodds
Hydrobiologia, 623(1):53-62, 2009

- 06-217-J Linking benthic algal biomass to stream substratum topography
J.N. Murdock, W. Dodds
Journal of Phycology, 43(3):449-460, 2007
- 06-296-J Ammonium uptake and mineralization in prairie streams: Chamber incubation and short-term nutrient addition experiments
J.M. O'Brien, W.K. Dodds
Freshwater Biology, 53(1):102-112, 2008
- 07-050-J Defining the immune response to *Ehrlichia* species using murine models
S.K. Chapes, R.R. Ganta
Veterinary Parasitology, 158:344-359, 2008
- 07-156-J Invasion of stream fishes into low trophic positions
K.B. Gido, N.R. Franssen
Ecology of Freshwater Fish, 16:457-464, 2007
- 08-001-J Subcellular localized chemical imaging of benthic algal nutritional content via HgCdTe array FT-IR
J.N. Murdock, W.K. Dodds, D.L. Wetzel
Vibrational Spectroscopy, 48:179-188, 2008
- 08-087-J Effect of inducing or inhibiting apoptosis on Sindbis virus replication in mosquito cells
H. Wang, C.D. Blair, K.E. Olson, R.J. Clem
Journal of General Virology, 89:2651-2661, 2008
- 08-128-J Macrophage cell lines use CD81 in cell growth regulation
W.J. Mordica, K.M. Woods, R.J. Clem, L. Passarelli, S.K. Chapes
In Vitro Cellular & Developmental Biology-Animal, 45:213-225, 2009
- 08-130-J Connectivity of the American agricultural landscape: Assessing the national risk of crop pest and disease
M.L. Margosian, K.A. Garrett, J.M.S. Hutchinson, K.A. With
BioScience, 59:141-151, 2009
- 08-137-J Grassland establishment under varying resource availability: A test of positive and negative feedback
S.G. Baer, J.M. Blair
Ecology, 89:1859-1871, 2008
- 08-275-J Movement behavior in response to landscape structure: The role of functional grain
S. Romero, J.F. Campbell, J.R. Nechols, K.A. With
Landscape Ecology, 24:39-51, 2009
- 08-289-J Evolution and function of the P35 family of apoptosis inhibitors
J.C. Means, R.J. Clem
Future Virology, 3:383-391, 2008
- 08-301-J Soil aggregation and carbon sequestration are tightly correlated with the abundance of arbuscular mycorrhizal fungi: Results from long-term field experiments
G.W.T. Wilson, C.W. Rice, M.C. Rillig, A. Springer, D.C. Harnett
Ecology Letters, 12:452-461, 2009
- 08-351-J Eutrophication of U.S. freshwaters: Analysis of potential economic damages
W.K. Dodds, W.W. Bouska, J.L. Eitzmann, T.J. Pilger, K.L. Pitts, J.T. Schloesser, A.J. Riley, D. Thornbrugh
Environmental Science & Technology, 43(1):12-19, 2009
- 08-400-J Nitrogen cycling and metabolism in the thalweg of a prairie river
W.K. Dodds, J.J. Beaulieu, J.J. Eichmiller, J.R. Fischer, N.R. Franssen, D.A. Gudder, A.S. Makinster, M.J. McCarthy, J.N. Murdock, J.M. O'Brien, J.L. Tank, R.W. Sheibley
Journal of Geophysical Research-Biogeosciences, 113(G4), G04029, 2008
doi:10.1029/2008JG000696
- 09-023-J Shifts in bone marrow cell phenotypes caused by space flight
M.T. Ortega, M.J. Pecaut, D.S. Gridley, L.S. Stodieck, V.L. Ferguson, S.K. Chapes
Journal of Applied Physiology, 106:548-555, 2009
- 09-037-J The caspase inhibitor P35 is required for the production of robust baculovirus virions in *Trichoplusia ni* TN-368 cells
B. Bryant, R.J. Clem
Journal of General Virology, 90:654-661, 2009
- 09-038-J Effects of haying on small mammals in mixed grass prairie of central Kansas
G.A. Kaufman, D.W. Kaufman
Transactions of the Kansas Academy of Science, 111:275-282, 2008
- 09-039-J Spaceflight effects on T lymphocyte distribution, function and gene expression
D.S. Gridley, J.M. Slater, X. Luo-Owen, A. Rizvi, S.K. Chapes, L.S. Stodieck, V.L. Ferguson, M.J. Pecaut
Journal of Applied Physiology, 106:194-202, 2009

- 09-050-J Effects of spaceflight on innate immune function and antioxidant gene expression
F.P. Baqai, D.S. Gridley, J.M. Slater, X. Luo-Owen, L.S. Stodieck, V. Ferguson, S.K. Chapes, M.J. Pecaut
Journal of Applied Physiology, 106:1935-1942, 2009
- 09-051-J Conversion of grassland to coniferous woodland has limited effects on soil nitrogen cycle processes
D.C. McKinley, C.W. Rice, J.M. Blair
Soil Biology & Biochemistry, 40:2627-2633, 2008
- 09-059-J Comparing ecosystem goods and services provided by restored and native lands
W.K. Dodds, K.C. Wilson, R.L. Rehmeier, G.L. Knight, S. Wiggam, J.A. Falke, H.J. Dalgleish, K.N. Bertrand
BioScience, 58(9):837-845, 2008
- 09-094-J Molecular characterization of *Ehrlichia* interactions with tick cells and macrophages
R.R. Ganta, L. Peddireddi, G. Seo, C. Cheng, S.K. Chapes
Frontiers in Bioscience, 14:3259-3573, 2009
- 09-126-J *Enterococcus faecalis* with the gelatinase phenotype regulated by the *fsr* operon and with biofilm-forming capacity are common in the agricultural environment
L. Macovei, A. Ghosh, V.C. Thomas, L.E. Hancock, S. Mahmood, L. Zurek
Environmental Microbiology, 11:1540-1547, 2009
- 09-171-J Convergence of fish communities from the littoral zone of reservoirs
K.B. Gido, J.F. Schaefer, J.A. Falke
Freshwater Biology, 54:1163-1177, 2009
- 09-253-J Emerging plant diseases: What are our best strategies for management?
K.A. Garrett, J. Jumpponen, L. Gomez
Controversies in Science and Technology, Volume 3, 2009
- Publications without contribution numbers
- Increasing shallow groundwater CO₂ and limestone weathering, Konza Prairie, USA.
G.L. Macpherson, J.A. Roberts, J.M. Blair, M.A., Townsend, D.A. Fowle, K.R. Beisner
Geochimica et Cosmochimica Acta, 72:5581-5599, 2008
- Impacts of management legacies on litter decomposition in response to reduced precipitation in a tallgrass prairie
H.E. Reed, J.M. Blair, D. Wall, T.R. Seastedt
Applied Soil Ecology, 42:79-85, 2009
- Fish productivity
K.B. Gido, C. Hargrave
In: Encyclopedia of inland waters, volume 3, G.E. Likens (Ed.). Oxford: Elsevier, pp. 473-481, 2009
- Heteroduplex molecules cause sexing errors in a standard molecular protocol for avian sexing
A.E. Casey, K.L. Jones, B.K. Sandercock, S.M. Wisely
Molecular Ecology Resources, 9:61-65, 2009
- Phylogeography of the North American red fox: Vicariance in Pleistocene forest refugia
A.B. Aubry, M.J. Statham, B. Sacks, J. Perrine, S.M. Wisely
Molecular Ecology, 18:2668-2686, 2009
- Polymorphic microsatellite markers for the striped skunk, *Mephitis mephitis*, and other mephitids
J. Drago, K. Coan, K. Moore, S. Henke, R. Fleischer, S.M. Wisely
Molecular Ecology Resources, 9:383-385, 2009
- ### Chemical Engineering
- 04-235-J Downstream process synthesis for biochemical production of butanol, ethanol, and acetone from grains: Generation of optimal and near-optimal flowsheets with conventional operating units
J. Liu, L.T. Fan, P. Seib, F. Friedler, B. Bertok
Biotechnology Progress, 20(5):1518-1527, 2004
- 04-326-J Stochastic modeling and simulation of the formation of carbon molecular sieves by carbon deposition
L.T. Fan, A. Argoti, W.P. Walawender, S.T. Chou
Industrial & Engineering Chemistry Research, 44(7):2343-2348, 2005

Publications without contribution numbers

Solution of separation network synthesis problems by the P-graph methodology
I. Heckl, F. Friedler, L.T. Fan
Proceedings of the 19th European Symposium on Computer Aided Process Engineering – ESCAPE 19
Cracow, Poland, 2009, pp. 641-646

Civil Engineering

04-085-J Estimation of soil-water characteristics using liquid limit state
S.-G. Sung, I.-M. Lee, G.-C. Cho, L.N. Reddi
Geotechnique, 55(7):569-573, 2006

Clinical Sciences

07-288-J Effect of rumen-degradable intake protein supplementation on urea kinetics and microbial use of recycled urea in steers consuming low-quality forage
T.A. Wickersham, E.C. Titgemeyer, R.C. Cochran, E.E. Wickersham, D.P. Gnad
Journal of Animal Science, 86(11):3079-3088, 2008

07-289-J Effect of frequency and amount of rumen-degradable intake protein supplementation on urea kinetics and microbial use of recycled urea in steers consuming low-quality forage
T.A. Wickersham, E.C. Titgemeyer, R.C. Cochran, E.E. Wickersham, E.S. Moore
Journal of Animal Science, 86(11):3089-3099, 2008

08-093-J Associations between the presence and magnitude of *Escherichia coli* O157 in feces at harvest and contamination of preintervention beef carcasses
J.T. Fox, D.G. Renter, M.W. Sanderson, A.L. Nutsch, X. Shi, T.G. Nagaraja
Journal of Food Protection, 71:1761-1767, 2008

08-094-J Potential associations between fecal shedding of *Salmonella* in feedlot cattle treated for apparent respiratory disease and subsequent adverse health outcomes
M.J. Alam, D.G. Renter, S.E. Ives, D.U. Thomson, M.W. Sanderson, L.C. Hollis, T.G. Nagaraja
Veterinary Research, 40:02, 2009

09-056-J Effects of concurrent metaphylaxis with chlortetracycline and tulathromycin on high-risk cattle health and performance
J. Wallace, C.D. Reinhardt, D.U. Thomson
Bovine Practitioner, 43(1):14-17, 2009

09-138-J NC-1059, a channel-forming peptide that modulates drug delivery across in vitro corneal epithelium
J. Martin, P. Malreddy, T. Iwamoto, L. Freeman, H. Davidson, J.M. Tomich, B.D. Schultz
Investigative Ophthalmology & Visual Science, 50(7):3337-3345, 2009

09-262-S Roundup 2009
Multiple authors.
Coordinating author: K. Harmoney
KS Agric. Exp. Stn. Report of Prog. 1016, April 2009

Publications without contribution numbers

Molecular cloning and characterization of equine Toll-like receptor 9
Y.W. Zhang, E.G. Davis, F. Blecha, M.J. Wilkerson
Veterinary Immunology and Immunopathology, 124:209-219, 2008

Evaluation of two-dimensional accelerometers to monitor beef cattle behavior post-castration
B.J. White, J.F. Coetzee, D.R. Renter, A. Babcock, D.U. Thomson, D. Anderson
American Journal of Veterinary Research, 69(9):1005-1012, 2008

Effects of a commercially available vaccine against *Salmonella enterica* serotype Newport on milk production, somatic cell count, and shedding of *Salmonella* organisms in female dairy cattle with no clinical signs of salmonellosis
D.R. Hermesch, D.U. Thomson, G.H. Loneragan, D.G. Renter, B.J. White
American Journal of Veterinary Research, 69(9):1229-1234, 2008

Effects of long- or short-term exposure to a calf identified as persistently infected with bovine viral diarrhea virus on feedlot performance of freshly weaned, transport-stressed, beef heifers
N.A. Elam, D.U. Thomson, J.F. Gleghorn
Journal of Animal Science, 86:1917-1924, 2008

Effects of improper ear notch sample handling on the reliability of an antigen capture enzyme linked immunosorbant bovine viral diarrhea virus assay
R.A. Funk, D.U. Thomson, B.J. White, D.G. Renter, R.L. Rust
Bovine Practitioner, 41(1):45-49, 2008

The diagnostic reliability of pooled ear-notch antigen capture immunosorbant assay testing for bovine viral diarrhea persistently infected individuals and economic determination of optimum pool size
R.A. Funk, D.U. Thomson, D.G. Renter, B.J. White, S. Guillosoou
Bovine Practitioner, 41(1):93-97, 2008

Plasma concentrations of substance P and cortisol in beef calves after castration or simulated castration
J.F. Coetzee, B.V. Lubbers, S.E. Toerber, R. Gehring, D.U. Thomson, B.J. White, M.D. Apley
American Journal of Veterinary Research, 69(6):751-762, 2008

Analgesic efficacy of sodium salicylate in an amphotericin B-induced synovitis/arthritis model
J.L. Kotschwar, J.F. Coetzee, D.E. Anderson, R. Gehring, B. KuKanich, M.D. Apley
Journal of Dairy Science, 92(8):3731-3743, 2009

Pharmacokinetics bioavailability of suladiazine and trimethoprim following intravenous, intramuscular and oral administration in ostriches (*Struthio camelus*)
E.A. Abu-Basha, R. Gehring, T.M. Hantash, A.F. Al-Shunnaq, N.M. Idkaidek
Journal of Veterinary Pharmacology and Therapeutics, 32(3):258-263, 2009

Pharmacokinetics of ketamine and its metabolite norketamine administered at a sub-anesthetic dose together with xylazine to calves prior to castration
R. Gehring, J.F. Coetzee, J. Tarus-Sang, M.D. Apley
Journal of Veterinary Pharmacology and Therapeutics, 32(2):124-128, 2009

Tail tip necrosis in a confined cattle feeding operation
D.U. Thomson, W. Taylor, T. Noffsinger, J.A. Christopher, B.W. Wileman, J. Ragsdale
Bovine Practitioner, 43(1):18-22, 2009

Feedlot health and performance effects associated with the timing of respiratory disease treatment
A.H. Babcock, B.J. White, S.S. Dritz, D.U. Thomson, D.G. Renter
Journal of Animal Science, 87:314-327, 2009

Beef cattle welfare in the United States: Current and future directions
D.U. Thomson
Journal of Applied Animal Welfare Science, 12(2):159-160, 2009

Comparison between plasma substance P and cortisol concentrations following castration in beef calves
B. Lubbers, J. Coetzee, S. Toerber, R. Gehring, D. Thomson, B. White, M. Apley
Journal of Applied Animal Welfare Science, 12(2):154-155, 2009

Effects of a siderophore receptor and porin proteins-based vaccination on fecal shedding of *Escherichia coli* O157:H7 in experimentally inoculated cattle
A.B. Thornton, D.U. Thomson, G.H. Loneragan, J.T. Fox, D. Burkhardt, D.A. Emery, T.G. Nagaraja
Journal of Food Protection, 72(4):866-869, 2009

Communications

No KAES numbered manuscripts published during fiscal year 2009.

Diagnostic Medicine/Pathobiology

04-115-J Associations between management, climate, and *Escherichia coli* O157:H7 in the faeces of feedlot cattle in the Midwestern USA
J.M. Sargeant, M.W. Sanderson, R.A. Smith, D.D. Griffin
Preventative Veterinary Medicine, 66:175-206, 2004

- 05-096-J Loss of protein kinase C-gamma in knockout mice and increased retinal sensitivity to hyperbaric oxygen
V. Yevseyenkov, S. Das, D. Lin, L. Willard, H. Davidson, A. Sitaramayya, F. Giblin, L. Dang, D. Takemoto
Archives of Ophthalmology, 127(4):500-506, 2009
- 06-082-J The Us9 gene of bovine herpesvirus 1 (BHV-1) effectively complements a Us9-null strain of BHV-5 for anterograde transport, neurovirulence, and neuroinvasiveness in a rabbit model
S.I. Chowdhury, S. Mahmood, J. Simon, A. Al-Mubarak, Y. Zhou
Journal of Virology, 80:4396-4405, 2006
- 06-188-J Effects of steroidal implantation and ractopamine-HCl on nitrogen retention, blood metabolites and skeletal muscle gene expression in Holstein steers
D.K. Walker, E.C. Titgemeyer, E.K. Sissom, K.R. Brown, J.J. Higgins, G.A. Andrews, B.J. Johnson
Journal of Animal Physiology and Animal Nutrition, 91(9-10):439-447, 2007
- 06-302-J Glycoprotein E (gE) specified by bovine herpesvirus type 5 (BHV-5) enables trans-neuronal virus spread and neurovirulence without being a structural component of enveloped virions
A. Al-Mubarak, J. Simon, C. Coats, J.D. Okemba, M.D. Burton, S.I. Chowdhury
Journal of Virology, 365(2):398-409, 2007
- 07-050-J Defining the immune response to *Ehrlichia* species using murine models
S.K. Chapes, R.R. Ganta
Veterinary Parasitology, 158:344-359, 2008
- 07-091-J Envelope protein Us9 is required for the anterograde transport of bovine herpesvirus-1 (BHV-1) from trigeminal ganglia to nose and eye upon reactivation
N.B. Butchi, C. Jones, S. Perez, A. Doster, S.I. Chowdhury
Journal of NeuroVirology, 13:384-388, 2007
- 07-266-J Determining the accuracy of gestation feed drops
J.D. Schneider, M.D. Tokach, S.S. Dritz, J.L. Nelssen, J.M. DeRouchey, R.D. Goodband
Journal of Swine Health and Production, 16(6):298-303, 2008
- 08-008-J Determining an optimum lysine:calorie ratio for barrows and gilts in a commercial finishing facility
R.G. Main, S.S. Dritz, M.D. Tokach, R.D. Goodband, J.L. Nelssen
Journal of Animal Science, 86:2190-2207, 2008
- 08-009-J Effects of feeding growing pigs less or more than their estimated lysine requirement in early and late finishing on overall performance
R.G. Main, S.S. Dritz, M.D. Tokach, R.D. Goodband, J.L. Nelssen, J.M. DeRouchey
The Professional Animal Scientist, 24(1):76-87, 2008
- 08-018-J Effects of mucin and its carbohydrate constituents on *Escherichia coli* O157 growth in batch culture fermentations with ruminal or fecal microbial inoculum
J.T. Fox, J.S. Drouillard, X. Shi, T.G. Nagaraja
Journal of Animal Science, 87:1304-1313, 2009
- 08-021-J Factors affecting the permissiveness of porcine alveolar macrophages for porcine reproductive and respiratory syndrome virus
N. Gaudreault, R.R.R. Rowland, C.R. Wyatt
Archives of Virology, 154:133-136, 2009
- 08-064-J Bovine herpesvirus type 1 (BHV-1) anterograde neuronal transport from trigeminal ganglia to nose and eye requires glycoprotein E
M.C.S. Brum, C. Coats, B.R. Sangena, A. Doster, C. Jones, S.I. Chowdhury
Journal of NeuroVirology, 15:196-201, 2009
- 08-084-J Effects of ractopamine HCl dose and treatment period on pig performance in a commercial finishing facility
R.G. Main, S.S. Dritz, M.D. Tokach, R.D. Goodband, J.L. Nelssen, J.M. DeRouchey
Journal of Swine Health and Production, 17:134-139, 2009
- 08-093-J Associations between the presence and magnitude of *Escherichia coli* O157 in feces at harvest and contamination of preintervention beef carcasses
J.T. Fox, D.G. Renter, M.W. Sanderson, A.L. Nutsch, X. Shi, T.G. Nagaraja
Journal of Food Protection, 71:1761-1767, 2008

- 08-094-J Potential associations between fecal shedding of *Salmonella* in feedlot cattle treated for apparent respiratory disease and subsequent adverse health outcomes
M.J. Alam, D.G. Renter, S.E. Ives, D.U. Thomson, M.W. Sanderson, L.C. Hollis, T.G. Nagaraja
Veterinary Research, 40:02, 2009
- 08-207-J Modulation of CD163 receptor expression and replication of porcine reproductive and respiratory syndrome virus in porcine macrophages
J.B. Patton, R.R. Rowland, D. Yoo, K.O. Chang
Virus Research, 140:161-71, 2009
- 08-208-J Leader of the capsid protein in feline calicivirus promotes the replication of Norwalk virus in cell culture
K.O. Chang, D.W. George, J.B. Patton, K.Y. Green, S.V. Sosnovtsev
Journal of Virology, 82(19):9306-9317, 2008
- 08-224-J Total, membrane, and immunogenic proteomes of macrophage- and tick cell-derived *Ehrlichia chaffeensis* evaluated by LC-MS/MS and MALDI-TOF methods
G.M. Seo, C. Cheng, J. Tomich, R.R. Ganta
Infection and Immunity, 76(11):4823-4832, 2008
- 08-225-B Laboratory maintenance of *Ehrlichia chaffeensis* and *Ehrlichia canis* and recovery of organisms for molecular biology and proteomics studies
C. Cheng, R.R. Ganta
Current Protocols in Microbiology, 3A.1.1-3A.1.20, 2008
- 08-270-J Niche marketing production practices for beef cattle in the United States and prevalence of foodborne pathogens
J.T. Fox, S. Reinstein, M.E. Jacob, T.G. Nagaraja
Foodborne Pathogens and Disease, 5(5):559-569, 2008
- 08-271-J Antimicrobial susceptibility of foodborne pathogens in organic or natural production systems: An overview
M.E. Jacob, J.T. Fox, S. Reinstein, T.G. Nagaraja
Foodborne Pathogens and Disease, 5(6):721-730, 2008
- 08-273-J A bovine herpesvirus type 1 mutant virus specifying a carboxyl-terminal truncation of glycoprotein E is defective in anterograde neuronal transport in rabbits and calves
Z.F. Liu, M.C.S. Brum, A. Doster, C. Jones, S.I. Chowdhury
Journal of Virology, 82:7432-7442, 2008
- 08-295-J Competitive exclusion *Escherichia coli* cultures on *E. coli* O157 growth in batch culture ruminal or fecal microbial fermentation
J.T. Fox, J.S. Drouillard, T.G. Nagaraja
Foodborne Pathogens and Disease, 6(2):193-199, 2009
- 08-364-J Transcriptional characterization of macrophage- and tick cell-specific differentially expressed *Ehrlichia chaffeensis* p28-Omp genes
L. Peddireddi, C. Cheng, R.R. Ganta
BMC Microbiology, 9:99, 2009
- 08-371-J Evaluation of feeding dried distiller's grains with solubles and dry-rolled corn on the fecal prevalence of *Escherichia coli* O157:H7 and *Salmonella* spp. in cattle
M.E. Jacob, J.T. Fox, J.S. Drouillard, D.G. Renter, T.G. Nagaraja
Foodborne Pathogens and Disease, 6(2):145-153, 2009
- 09-036-J Antimicrobial susceptibility profiles of *Salmonella enterica* serotypes recovered from pens of commercial feedlot cattle using different types of composite samples
M.J. Alam, D.G. Renter, E.V. Taylor, D.M. Mina, R.A. Moxley, D.R. Smith
Current Microbiology, 58(4):354-359, 2009
- 09-047-B Insects as vectors for food-borne pathogens
L. Zurek, J.R. Gorham
In: Wiley handbook of science and technology for homeland security, J.G. Voeller (Ed.). John Wiley and Sons, Inc., 16 pp., 2008
- 09-074-S Swine Day 2008
Multiple authors.
Coordinating author: R. Goodband
KS Agric. Exp. Stn. Report of Prog. 1001, November 2008
- 09-094-J Molecular characterization of *Ehrlichia* interactions with tick cells and macrophages
R.R. Ganta, L. Peddireddi, G. Seo, C. Cheng, S.K. Chapes
Frontiers in Bioscience, 14:3259-3573, 2009

- 09-126-J Enterococcus faecalis with the gelatinase phenotype regulated by the *fsr* operon and with biofilm-forming capacity are common in the agricultural environment
L. Macovei, A. Ghosh, V.C. Thomas, L.E. Hancock, S. Mahmood, L. Zurek
Environmental Microbiology, 11:1540-1547, 2009
- 09-155-J Loss of Purkinje cells in the PKC γ H101Y transgenic mouse
Y. Zhang, A. Snider, L. Willard, D.J. Takemoto, D. Lin
Biochemical and Biophysical Research Communications, 378:524-528, 2009
- Publications without contribution numbers
- Effects of feeding L-carnitine to gilts through day 70 of gestation on litter traits and the expression of insulin-like growth factor system components and L-carnitine concentration in foetal tissues
K.R. Brown, R.D. Goodband, M.D. Tokach, S.S. Dritz, J.L. Nelssen, J.E. Minton, J.J. Higgins, X. Lin, J. Odle, J.C. Woodworth, B.J. Johnson
Journal of Animal Physiology and Animal Nutrition, 92:660-667, 2008
- Molecular cloning and characterization of equine Toll-like receptor 9
Y.W. Zhang, E.G. Davis, F. Blecha, M.J. Wilkerson
Veterinary Immunology and Immunopathology, 124:209-219, 2008
- Molecular identification and functional expression of porcine Toll-like receptor (TLR) 3 and TLR7
Y. Sang, J. Yang, C.R. Ross, R.R.R. Rowland, F. Blecha
Veterinary Immunology and Immunopathology, 125:162-167, 2008
- Toll-like receptor (TLR) 3 activation decreases porcine arterivirus infection
Y. Sang, C. Ross, R.R.R. Rowland, F. Blecha
Viral Immunology, 21:303-314, 2008
- Primary care physicians and pandemic influenza: An appraisal of the 1918 experience and an assessment of contemporary planning
J. Lauer, J. Kastner, A. Nutsch
Journal of Public Health Management and Practice, 14:379-386, 2008
- Evaluation of two-dimensional accelerometers to monitor beef cattle behavior post-castration
B.J. White, J.F. Coetzee, D.R. Renter, A. Babcock, D.U. Thomson, D. Anderson
American Journal of Veterinary Research, 69(9):1005-1012, 2008
- Effects of a commercially available vaccine against *Salmonella enterica* serotype Newport on milk production, somatic cell count, and shedding of *Salmonella* organisms in female dairy cattle with no clinical signs of salmonellosis
D.R. Hermesch, D.U. Thomson, G.H. Loneragan, D.G. Renter, B.J. White
American Journal of Veterinary Research, 69(9):1229-1234, 2008
- Effects of improper ear notch sample handling on the reliability of an antigen capture enzyme linked immunosorbant bovine viral diarrhea virus assay
R.A. Funk, D.U. Thomson, B.J. White, D.G. Renter, R.L. Rust
Bovine Practitioner, 41(1):45-49, 2008
- The diagnostic reliability of pooled ear-notch antigen capture immunosorbant assay testing for bovine viral diarrhea persistently infected individuals and economic determination of optimum pool size
R.A. Funk, D.U. Thomson, D.G. Renter, B.J. White, S. Guillosoy
Bovine Practitioner, 41(1):93-97, 2008
- Rat umbilical cord stem cells completely abolish rat mammary carcinomas with no evidence of metastasis or recurrence 100 days post-tumor cell inoculation
C. Ganta, D. Chiyo, R. Ayuzawa, M. Pyle, G. Andrews, M. Weiss, M. Tamura, D. Troyer
Cancer Research, 69(5):1815-1820, 2009
- Feedlot health and performance effects associated with the timing of respiratory disease treatment
A.H. Babcock, B.J. White, S.S. Dritz, D.U. Thomson, D.G. Renter
Journal of Animal Science, 87:314-327, 2009

Effects of a siderophore receptor and porin proteins-based vaccination on fecal shedding of *Escherichia coli* O157:H7 in experimentally inoculated cattle
A.B. Thornton, D.U. Thomson, G.H. Loneragan, J.T. Fox, D. Burkhardt, D.A. Emery, T.G. Nagaraja
Journal of Food Protection, 72(4):866-869, 2009

Entomology

07-277-J Protein digestion in larvae of the red oak borer *Enaphalodes rufulus*
D.J. Crook, S. Prabhakar, B. Oppert
Journal of Physiological Entomology, 34:152-157, 2009

07-316-J Effects of fine grain-habitat complexity on egg parasitism by three species of *Trichogramma*
M.J. Grieshop, P.W. Flinn, J.R. Nechols, J.F. Campbell
Biological Control, 45:328-336, 2008

08-077-J Survival and reproduction of *Rhyzopertha dominica* (F.) (Coleoptera: Bostrichidae) on flora associated with native habitats in Kansas
F. Jia, M.D. Toews, J.F. Campbell, S.B. Ramaswamy
Journal of Stored Products Research, 44:366-372, 2008

08-145-J A novel *Tenebrio molitor* cadherin is a functional receptor for *Bacillus thuringiensis* CRY3Aa toxin
J. Fabrick, C. Oppert, M.D. Lorenzen, B. Oppert, J.L. Jurat-Fuentes, K. Morris
Journal of Biological Chemistry, 284:18401-18410, 2009

08-231-J Differential heat shock tolerance and expression of heat inducible-proteins in two stored-product psocids
R.N.C. Guedes, K.Y. Zhu, G.P. Opit, J.E. Throne
Journal of Economic Entomology, 101:1974-1982, 2008

08-240-J Control of *Rhyzopertha dominica* in stored rough rice through a combination of diatomaceous earth and varietal resistance
Y. Chanbang, F.H. Arthur, G.E. Wilde, J.E. Throne
Insect Science, 15:455-460, 2008

08-275-J Movement behavior in response to landscape structure: The role of functional grain
S. Romero, J.F. Campbell, J.R. Nechols, K.A. With
Landscape Ecology, 24:39-51, 2009

08-307-B Chapter 14: Isolation of nucleic acids from insects
K.Y. Zhu
In: Handbook of nucleic acid purification, D. Liu (Ed.). New York: CRC Press, pp. 297-315, 2009

08-310-J Sexual characteristics in a midwestern USA population of *Cotinis nitida* Linnaeus (Coleoptera: Scarabaeidae) and consequences for determining gender
M.A. Pszczolkowski, K. Hampton and D. Johnson
The Coleopterist Bulletin, 62(4):527-534, 2008

08-315-J Acute lethal and behavioral sublethal responses of two stored-product psocids to surface insecticides
R.N.C. Guedes, J.F. Campbell, F.H. Arthur, G.P. Opit, K.Y. Zhu, J.E. Throne
Pest Management Science, 64:1314-1322, 2008

08-317-J Comparing chemical and biological control strategies for twospotted spider mites (Acari: Tetranychidae) in commercial greenhouse production of bedding plants
G.P. Opit, J. Perret, K. Holt, J.R. Nechols, D.C. Margolies, K.A. Williams
Journal of Economic Entomology, 102:336-346, 2009

08-353-J Identification of the wheat curl mite as the vector of Triticum mosaic virus
D.L. Seifers, T.J. Martin, T.L. Harvey, J.P. Fellers, J.P. Michaud
Plant Disease, 93(1):25-29, 2009

08-368-J From gene expression to phenotype in insects: Non-microarray approaches for transcriptome analysis
D.L. Huestis, J.L. Marshall
Bioscience, 59:373-384, 2009

08-386-J Geographic distributions of *Idh-1* alleles in a cricket are linked to differential enzyme kinetic performance across thermal environments
D.L. Huestis, B. Oppert, J.L. Marshall
BMC Evolutionary Biology, 9:113, 2009

- 08-388-J Functional analysis of four neuropeptides, EH, ETH, CCAP and bursicon, and their receptors in adult ecdysis behavior of the red flour beetle, *Tribolium castaneum*
Y. Arakane, B. Li, S. Muthukrishnan, R.W. Beeman, K.J. Kramer, Y. Park
Mechanisms of Development, 125:984-995, 2008
- 08-395-J A new species of *Draseria* Hubner (Lepidoptera: Noctuidae: Catocalinae: Melipotini) from Arizona
J. Metlevski, G. Zolnerowich
Journal of the Lepidopterists' Society, 63:1-10, 2009
- 09-006-S 2008 Kansas Performance Tests with Winter Wheat Varieties
Multiple authors.
Coordinating author: J. Lingenfelter
KS Agric. Exp. Stn. Report of Prog. 999, July 2008
- 09-021-J Residual efficacy of pyriproxyfen and hydroprone applied to wood, metal and concrete for controlling stored-product insects
F.H. Arthur, S. Liu, B. Zhao, T.W. Phillips
Pest Management Science, 65:791-797, 2009
- 09-047-B Insects as vectors for food-borne pathogens
L. Zurek, J.R. Gorham
In: *Wiley handbook of science and technology for homeland security*, J.G. Voeller (Ed.). John Wiley and Sons, Inc., 16 pp., 2008
- 09-086-J Virulence analysis of Hessian fly populations from Texas, Oklahoma, and Kansas
M. Chen, E. Echegaray, R.J. Whitworth, H. Wang, P.E. Sloderbeck, A. Knutson, K.L. Giles, T.A. Royer
Journal of Economic Entomology, 102(2):774-780, 2009
- 09-091-J Resistance to Russian wheat aphid biotype 2 in CIMMYT synthetic hexaploid wheat lines
P. Sotelo, S. Starkey, P. Voothuluru, G.E. Wilde, C.M. Smith
Journal of Economic Entomology, 102(3):1255-1261, 2009
- 09-105-J Expressed sequence tags from larval gut of the European corn borer (*Ostrinia nubilalis*): Exploring candidate genes potentially involved in *Bacillus thuringiensis* toxicity and resistance
C. Khajuria, Y.C. Zhu, M-S. Chen, L.L. Buschman, R.A. Higgins, J. Yao, A.L.B. Crespo, B.D. Siegfried, S. Muthukrishnan, K.Y. Zhu
BMC Genomics, 10:286, 2009
- 09-107-S 2008 Kansas Performance Tests with Corn Hybrids
Multiple authors.
Coordinating author: J. Lingenfelter
KS Agric. Exp. Stn. Report of Prog. 1000, November 2008
- 09-109-S 2008 Kansas Performance Tests with Grain Sorghum Hybrids
Multiple authors.
Coordinating author: J. Lingenfelter
KS Agric. Exp. Stn. Report of Prog. 1004, December 2008
- 09-114-J Plant spacing and weed control affect sunflower stalk insects and the girdling behavior of *Dectes texanus* (Coleoptera: Cerambycidae)
J.P. Michaud, P.W. Stahlman, J.L. Jyoti, A.K. Grant
Journal of Economic Entomology, 102:1044-1053, 2009
- 09-120-J Feeding behavior of Russian wheat aphid (Hemiptera: Aphididae) biotype 2 in response to wheat genotypes exhibiting antibiosis and tolerance resistance
S. Lazzari, S. Starkey, J. Reese, A. Ray-Chandler, R. McCubrey, C.M. Smith
Journal of Economic Entomology, 102(3):1291-1300, 2009
- 09-126-J *Enterococcus faecalis* with the gelatinase phenotype regulated by the *fsr* operon and with biofilm-forming capacity are common in the agricultural environment
L. Macovei, A. Ghosh, V.C. Thomas, L.E. Hancock, S. Mahmood, L. Zurek
Environmental Microbiology, 11:1540-1547, 2009

- 09-131-J Analysis of functions of the chitin deacetylase gene family in *Tribolium castaneum*
Y. Arakane, K. Begum, R. Dixit, Y. Park, C.A. Specht, K.J. Kramer, H. Merzendorfer, S. Muthukrishnan, R. Beeman
Insect Biochemistry and Molecular Biology, 39:355-365, 2009
- 09-147-J Impact of land management practices on carabids (Coleoptera: Carabidae) and other arthropods on the Western High Plains of North America
H.N. Davis, R.S. Currie, B.W. French, L.L. Buschman
Southwestern Entomologist, 34:43-59, 2009
- 09-292-S Field Day 2009, Southwest Research-Extension Center
Multiple authors.
Coordinating author: R. Currie
KS Agric. Exp. Stn. Report of Prog. 1014, June 2009
- Publications without contribution numbers
- Why is *Coccinella septempunctata* so successful?
I. Hodek, J.P. Michaud
European Journal of Entomology, 105:1-12, 2008
- A comparative study of cannibalism and predation in seven species of flour beetle
T. Alabi, J.P. Michaud, L. Arnaud, E. Haubruge
Ecological Entomology, 33:716-726, 2008
- Chemical cues mediating aphid location by natural enemies
E. Hatano, G. Kunert, J.P. Michaud & W.W. Weisser
European Journal of Entomology, 105:797-806, 2008
- Implications of cytoplasmic male-sterility systems for development and deployment of pest resistant hybrids in cereals
M.K. Dhillon, H.C. Sharma, C.M. Smith
CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources, 3(068), 2008
- Comparison of categories of resistance in wheat and barley genotypes against biotype 2 of the Russian wheat aphid, *Diuraphis noxia* (Kurdjumov)
S. Ennahli, M. El Bouhssini, S. Grando, R. Anathakrishnan, T. Niide, L. Starkus, S. Starkey, C.M. Smith
Arthropod-Plant Interactions, 3:45-53, 2009
- Advances in breeding for host plant resistance
C.M. Smith
In: Integrated Pest Management, E.B. Radcliffe, W.D. Hutchison, R.F. Cancelado (Eds.). Cambridge University Press, pp. 235-246, 2009
- Seasonal cycles of assortative mating and reproductive behaviour in polymorphic populations of *Harmonia axyridis* in China
S.U. Wang, J.P. Michaud, R. Zhang, F. Zhang, S. Liu
Ecological Entomology, 34:483-494, 2009
- Mechanisms of organophosphate resistance in a field population of oriental migratory locust, *Locusta migratoria manilensis* (Meyen)
M.L. Yang, J.Z. Zhang, K.Y. Zhu, T. Xuan, X.J. Liu, Y.P. Guo, E.B. Ma
Archives of Insect Biochemistry and Physiology, 71:3-15, 2009
- Selective and irreversible inhibitors of aphid acetylcholinesterases: Steps toward human-safe insecticides
Y.-P. Pang, S.K. Singh, Y. Gao, T.L. Lassiter, R.K. Mishra, K.Y. Zhu, S. Brimijoin
PLoS ONE, 4:e4349, 2009
- Comparison of phenolic acids in organically and conventionally grown pac choi (*Brassica rapa* L. Chinensis group).
X. Zhao, J.R. Nechols, K.A. Williams, W. Wang, E.E. Carey
Journal of the Science of Food and Agriculture, 89:940-946, 2009
- ### Grain Science and Industry
- 04-067-J Ultrasound affects spermatophore transfer, larval numbers, and larval weight of *Plodia interpunctella* (Hübner) (Lepidoptera: Pyralidae)
B. Subramanyam, F. Huang, R. Taylor
Journal of Stored Products Research, 39:413-422, 2003

- 04-138-J Par-baking technology
Y.Y. Pai, C.E. Walker
AIB Technical Bulletin, XXVI, 6:1-12, 2004
- 04-235-J Downstream process synthesis for biochemical production of butanol, ethanol, and acetone from grains: Generation of optimal and near-optimal flowsheets with conventional operating units
J. Liu, L.T. Fan, P. Seib, F. Friedler, B. Bertok
Biotechnology Progress, 20(5):1518-1527, 2004
- 04-238-J Effect of wheat bran phytase subjected to different conditioning temperatures on phosphorus utilization by broiler chicks based on body weight and toe ash measurements
W.B. Cavalcanti, K.C. Behnke
International Journal of Poultry Science, 3(3):215-219, 2004
- 04-314-J The analysis of stress relaxation data of some viscoelastic foods using a texture analyzer
H. Singh, A. Rockall, C.R. Martin, O.K. Chung, G.L. Lookhart
Journal of Texture Studies, 37(4):383-392, 2006
- 04-379-J Physical characterization of coupled poly (lactic acid)/starch/maleic anhydride blends plasticized by acetyl triethyl citrate
J-F. Zhang, X. Sun
Journal of Applied Polymer Science, 4(11):1053-1060, 2004
- 04-437-J Polymerization of glutenin during grain development in near-isogenic wheat lines differing at *Glu-D1* and *Glu-B1* in greenhouse and field
H.A. Naeem, F. MacRitchie
Journal of Cereal Science, 41:7-12, 2005
- 05-002-J Effect of composition of feed model systems on pellet quality: A mixture experimental approach. I
W.B. Cavalcanti, K.C. Behnke
Cereal Chemistry, 82:455-461, 2005
- 05-003-J Effect of composition of feed model systems on pellet quality: A mixture experimental approach. II
W.B. Cavalcanti, K.C. Behnke
Cereal Chemistry, 82:462-467, 2005
- 05-020-J Nonenzymatic preparative-scale synthesis of dityrosine and 3-bromotyrosine
M. Tilley, R.E. Benjamin, P. Srivarin, K.A. Tilley
Analytical Biochemistry, 334(1):193-195, 2004
- 05-040-J Expansion capacity of doughs: Methodology and applications
S. Gandikota, F. MacRitchie
Journal of Cereal Science, 42:157-163, 2005
- 05-118-J The physical and biochemical determinants of maize hardness and extrudate properties
K-M. Lee, S. Bean, S. Alavi, T. Herrman
Cereal Chemistry, 54:4260-4269, 2006
- 06-218-J Phase and state transitions in the granular starches studied by dynamic differential scanning calorimetry
Y. Liu, Y.-C. Shi
Starch/Staerke, 58(9):433-442, 2006
- 06-297-J Response of storage molds to different initial moisture contents of maize (corn) at 25°C, and effect on respiration rate and nutrient composition
C. Reed, S.M. Doyungan, B. Ioerger, A. Getchell
Journal of Stored Products Research, 43(4):443-458, 2007
- 07-052-J Two- and multi-step annealing of cereal starches in relation to gelatinization
Y.-C. Shi
Journal of Agricultural and Food Chemistry, 56:1097-1104, 2008
- 07-066-J Hard winter wheat and flour properties in relation to breadmaking quality of straight-dough bread: Flour particle size and bread crumb grain
Z.S. Xiao, M.S. Caley, S.H. Park, O.K. Chung, P.A. Seib
Cereal Chemistry, 83:465-471, 2006
- 07-130-J Reliability of InGaAs focal plane array imaging of wheat germination at early stages
H. Koc, V.W. Smail, D.L. Wetzel
Journal of Cereal Science, 48:394-400, 2008
- 07-150-B Biomedical applications of infrared microspectroscopy and imaging by various means
D.L. Wetzel
In: Modern concepts in biomedical vibrational spectroscopy, P. Lasch, J. Kneipp (Eds.). Blackwell Publishing, pp. 39-72, 2008

- 07-194-J The beneficial use of cereal and cereal components in probiotic foods
B.P. Lamsal, J.M. Faubion
Food Reviews International, 25(2):103-114, 2009
- 07-237-J Pre-cooked fiber-enriched wheat flour obtained by extrusion: Rheological and functional properties
H. Gajula, S. Liu, S. Alavi, T. Herald, R. Madl, S.R. Bean, M. Tilley
International Journal of Food Properties, 12:27-44, 2009
- 07-253-J Effect of heat stress on wheat proteins during kernel development in wheat near-isogenic lines differing at *Glu-D1*
H.A. Naeem, F. MacRitchie, S. Irmak, G.L. Lookhart
Journal of Cereal Science, 48:513-516, 2008
- 07-315-J Imaging local chemical microstructure of germinated wheat with synchrotron infrared microspectroscopy.
H. Koc, D.L. Wetzel
Spectroscopy, 22(10):24-32, 2007
- 08-001-J Subcellular localized chemical imaging of benthic algal nutritional content via HgCdTe array FT-IR
J.N. Murdock, W.K. Dodds, D.L. Wetzel
Vibrational Spectroscopy, 48:179-188, 2008
- 08-003-J Discrimination of isogenic wheat by InSb focal plane array chemical imaging
H. Dogan, V.W. Smail, D.L. Wetzel
Vibrational Spectroscopy, 48:189-195, 2008
- 08-006-J Determination of endosperm protein secondary structure in hard wheat breeding lines using synchrotron infrared microspectroscopy
E.S. Bonwell, T.L. Fisher, A.K. Fritz, D. Wetzel
Vibrational Spectroscopy, 48:76-81, 2008
- 08-022-J Physical and milling characteristics of wheat kernels after enzyme and acid treatments
B.P. Lamsal, J.H. Yoo, E. Haque, J.M. Faubion
Cereal Chemistry, 85:642-647, 2008
- 08-053-J Evaluation of influent medium composition and concentration in a batch reactor for effective startup of the UASB reactors
P.V. Vadlani, K.B. Ramachandran
Journal of Environmental Engineering, 134:1023-1028, 2008
- 08-105-J Correlating dough elastic recovery during dough sheeting with flour analyses and rheological properties
D.Q. Ren, C.E. Walker, J.M. Faubion
Journal of the Science of Food and Agriculture, 88:2581-2588, 2008
- 08-126-J Effects of plasticizers on the structure and properties of starch-clay nanocomposite films
X.Z. Tang, S. Alavi, T.J. Herald
Carbohydrate Polymers, 74:552-558, 2008
- 08-182-J Thermal properties of ration components as affected by moisture content and water activity during freezing
J. Li, P. Chinachoti, D. Wang, L.M. Hallberg, X.S. Sun
Journal of Food Science, 73:425-430, 2008
- 08-188-J Modified wheat starches increase bread yield
R.A. Miller, C.C. Maningat, R.C. Hosney
Cereal Chemistry, 85:713-715, 2008
- 08-197-J Soy protein-fortified expanded extrudates: Baseline study using normal corn starch
N.J.E. de Mesa, S. Alavi, N. Singh, Y-C. Shi, H. Dogan, Y. Sang
Journal of Food Engineering, 90:262-270, 2009
- 08-251-J Structure and functional properties of sorghum starches differing in amylose content
Y. Sang, S. Bean, P.A. Seib, J. Pedersen, Y-C. Shi
Journal of Agricultural and Food Chemistry, 56:6680-6685, 2008
- 08-272-B Crops and their processing
C.E. Walker, J. Li
In: Baking science and technology, 4th ed., E. Pyler (Ed.). Kansas City, MO: Sosland, pp. 567-600, 2008
- 08-277-J Improved water resistance of soy protein adhesive at isoelectric point
D. Wang, X.S. Sun, G. Yang, Y. Wang
Transactions of the ASABE, 52(1):173-177, 2009
- 08-299-J Effect of sodium bisulfate on properties of soybean glycinin
X.S. Sun, L. Zhang
Journal of Agricultural and Food Chemistry, 56:11192-11197, 2008

- 08-333-B Overview of wheat classification and trade
K.L. McFall, M. Fowler
In: Wheat: Science and trade, B. Carver (Ed.). Ames, IA: Wiley-Blackwell, pp. 439-454, 2009
- 08-392-J Effect of enzymatic tempering of wheat kernels on milling and baking performance
J. Yoo, B.P. Lamsal, E. Haque, J.M. Faubion, Cereal Chemistry, 86:122-126, 2009
- 09-006-S 2008 Kansas Performance Tests with Winter Wheat Varieties
Multiple authors.
Coordinating author: J. Lingenfelter
KS Agric. Exp. Stn. Report of Prog. 999, July 2008
- 09-022-B Wheat starch: Production, properties, modification, and uses
C.C. Maningat, P.A. Seib, S.D. Bassi, K.S. Woo, G.D. Lasater
In: Starch: Chemistry and Technology, 3rd ed., J.N. Bemiller, R. Whistler (Eds.). Academic Press, pp. 441-491, 2009
- 09-055-J White pan bread and sugar-snap cookies containing wheat starch phosphate, a cross-linked resistant starch
L.L. Yeo, P.A. Seib
Cereal Chemistry, 86:210-220, 2009
- 09-071-J Comparison of waxy vs. nonwaxy wheats in fuel ethanol fermentation
R. Zhao, X. Wu, B.W. Seabourn, S.R. Bean, Y.C. Shi, J.D. Wilson, R. Madi, D. Wang
Cereal Chemistry, 86(2):145-156, 2009
- 09-074-S Swine Day 2008
Multiple authors.
Coordinating author: R. Goodband
KS Agric. Exp. Stn. Report of Prog. 1001, November 2008
- 09-158-J Imminent cardiac risk assessment via optical intravascular biochemical analysis
D.L. Wetzel, L.H. Wetzel, M.D. Wetzel, R.A. Lodder
The Analyst, 134:1099-1106, 2009

- 09-176-J Fourier transform infrared (FT-IR) microspectroscopic census of single starch granules for octenyl succinate ester modification
Y. Bai, Y-C. Shi, D.L. Wetzel
Journal of Agricultural and Food Chemistry, 57:6443-6448, 2009
- 09-272-J Thermodynamic and microscopy studies of urea-soy protein composites
K. Venkateshan, X.S. Sun
Polymer Preprints, American Chemical Society, 50(2):71-72, 2009

Horticulture, Forestry, and Recreation Resources

- 04-246-J Summary lecture versus web-based method for instruction of site planning for protected environment structures
M. Spaw, K.A. Williams, L.A. Brannon
NACTA Journal, 48(4):45-50, 2004
- 06-075-J Nitrous oxide fluxes in turfgrass: Effects of nitrogen fertilization rates and types
D. Bremer
Journal of Environmental Quality, 35:1678-1685, 2006
- 06-110-B The role of interpretation in international tourism
T. Cable
In: The history of heritage interpretation in the United States, T. Merriman, L. Brochu (Eds). Fort Collins, CO: National Association for Interpretation, 2006
- 06-170-J The common roots of environmental education and interpretation
T. Cable, L. Cadden
Journal of Interpretation Research, 11(2):39-46, 2007
- 07-197-J Phosphorus sources and management in organic production systems
N.O. Nelson, R.R. Janke
HortTechnology, 17:442-454, 2007
- 07-273-J A preliminary investigation on exercise intensities of gardening tasks in older adults
S-A. Park, C.A. Shoemaker, M.D. Haub
Perceptual and Motor Skills, 107:974-980, 2008
- 08-221-J Rooting characteristics and canopy responses to drought of turfgrasses including hybrid bluegrasses
K. Su, D.J. Bremer, S.J. Keeley, J.D. Fry
Agronomy Journal, 100:949-956, 2008

- 08-248-J Secondary metabolism and antioxidants are involved in environmental adaptation and stress tolerance in lettuce
M. Oh, H.N. Trick, C.B. Rajashekar
Journal of Plant Physiology, 166(2):180-191, 2009
- 08-317-J Comparing chemical and biological control strategies for twospotted spider mites (Acari: Tetranychidae) in commercial greenhouse production of bedding plants
G.P. Opit, J. Perret, K. Holt, J.R. Nechols, D.C. Margolies, K.A. Williams
Journal of Economic Entomology, 102:336-346, 2009
- 08-326-J Physical and psychological health conditions of older adults classified as gardeners or nongardeners
S-A. Park, C.A. Shoemaker, M.D. Haub
HortScience, 44(1):206-210, 2009
- 08-327-J Observing body position of older adults while gardening for health benefits and risks
S-A. Park, C.A. Shoemaker
Activities, Adaptations, and Aging, 33:31-38, 2009
- 08-380-J Phosphate sorption of calcined materials used as components of soilless root media characterized in laboratory studies
R.A. Ogutu, K.A. Williams, G.M. Pierzynski
HortScience, 44(2):431-437, 2009
- 08-396-J Assessing intellectual development of horticulture undergraduates using the Perry scheme and learning environment preferences instrument
C.C. Lavis, K.A. Williams, S.J. Thein
NACTA Journal, 52(4):25-31, 2008
- 09-012-J Mowing and drought effects on a hybrid bluegrass compared with a Kentucky bluegrass
K. Su, D.J. Bremer, S.J. Keeley, J.D. Fry
International Turfgrass Society Research Journal, 11:871-882, 2009
- 09-018-J Membrane polar lipid changes in zoysiagrass rhizomes and their potential role in freezing tolerance
Q. Zhang, J. Fry, C. Rajashekar, D. Bremer, M. Engelke
Journal of the American Society for Horticultural Science, 134:322-328, 2009
- 09-019-J Cold acclimation of *Zoysia japonica* and *Z. matrella* and changes in rhizome abscisic acid levels
Q. Zhang, J. Fry, X. Pan, C. Rajashekar, D. Bremer, M. Engelke, X. Wang
International Turfgrass Society Research Journal, 11:883-892, 2009
- 09-020-J Establishment rate and lateral spread of *Festuca arundinacea* cultivars
R. St. John, J. Fry, D. Bremer, S. Keeley
International Turfgrass Society Research Journal, 11:481-487, 2009
- 09-040-T Kentucky coffeetree
W.A. Geyer, J. Row
USDA Plant Fact Sheet, 2008, available at: <http://plants.usda.gov/java/factSheet>
- 09-041-T Kentucky coffeetree
W.A. Geyer, J. Row
USDA Plant Guide, 2008, available at: <http://plants.usda.gov/java/factSheet>
- 09-042-T Chokecherry
W.A. Geyer, J. Row
USDA Plant Fact Sheet, 2008, available at: <http://plants.usda.gov/java/factSheet>
- 09-049-T Northern catalpa
W.A. Geyer, P.J. Broyles
USDA Plant Fact Sheet, 2008, available at: <http://plants.usda.gov/java/factSheet>
- 09-052-T Southern catalpa
W.A. Geyer, P.J. Broyles
USDA Plant Fact Sheet, 2008, available at: <http://plants.usda.gov/java/factSheet>
- 09-053-T Southern catalpa
W.A. Geyer, P.J. Broyles, J. Row
USDA Plant Guide, 2008, available at: <http://plants.usda.gov/java/factSheet>
- 09-054-T Northern catalpa
W.A. Geyer, P.J. Broyles
USDA Plant Guide, 2008, available at: <http://plants.usda.gov/java/factSheet>
- 09-085-T Native thinking
W. Reid
Pecan South, 41(6):708, 2008
- 09-128-J Summer production of lettuce, and microclimate in high tunnel and open field plots in Kansas
X. Zhao, E.E. Carey
HortTechnology, 19:113-119, 2009

- 09-146-J Horticultural crop production in high tunnels in the United States: A snapshot
E.E. Carey, L. Jett, W.J. Lamont Jr., T.T. Nennich, M.D. Orzolek, K.A. Williams
HortTechnology, 19:37-43, 2009
- 09-167-J Application of two microbial teas did not affect collard or spinach yield
S.J.B. Knewton, J.J. Griffin, E.E. Carey
HortScience, 44:73-78, 2009
- 09-205-T The rhythm of the seasons
W. Reid
Pecan South, 41(10):708, 2008
- 09-211-T Establishment rate and lateral spread of tall fescue cultivars
R. St. John, J. Fry, D. Bremer, S. Keeley
Golf Course Management, Feb. 2009, 113-118
- 09-221-A A "vision" seminar as part of the new faculty recruiting process
J.F. Leslie, S.L. Warren
Proceedings of the 2009 Academic Chairpersons Conference
Orlando, FL, 2009
- 09-336-S Turfgrass Research 2009
Multiple authors.
Coordinating author: J. Fry
KS Agric. Exp. Stn. Report of Prog. 1015, July 2009
- 09-249-J The use of a "vision" seminar in new faculty recruiting
J.F. Leslie, S.L. Warren
The Department Chair, 20:12-14, 2009

Publications without contribution numbers

- Sensory analysis of calcium-biofortified lettuce
S. Park, M. Elless, J. Park, A. Jenkins, W. Lim, E. Chambers IV, K. Hirschi
Plant Biotechnology Journal, 7(1):106-117, 2009
- Comparison of phenolic acids in organically and conventionally grown pac choi (*Brassica rapa* L. Chinensis group).
X. Zhao, J.R. Nechols, K.A. Williams, W. Wang, E.E. Carey
Journal of the Science of Food and Agriculture, 89:940-946, 2009

Hospitality Management and Dietetics

Publications without contribution numbers

- The effects of relational benefits on customers' perception of favorable inequity, affective commitment, and repurchase intention in full-service restaurants
W. Kim, C. Ok
Journal of Hospitality & Tourism Research, 33(2):227-244, 2009
- Antecedents of service employee's organizational citizenship behaviors in full-service restaurant in Korea
W. Kim, C. Ok, M.J. Lee
Cornell Hospitality Quarterly, 50(2):180-197, 2009

Human Nutrition

- 05-096-J Loss of protein kinase C-gamma in knockout mice and increased retinal sensitivity to hyperbaric oxygen
V. Yevseyenkov, S. Das, D. Lin, L. Willard, H. Davidson, A. Sitaramayya, F. Giblin, L. Dang, D. Takemoto
Archives of Ophthalmology, 127(4):500-506, 2009
- 07-273-J A preliminary investigation on exercise intensities of gardening tasks in older adults
S-A. Park, C.A. Shoemaker, M.D. Haub
Perceptual and Motor Skills, 107:974-980, 2008
- 08-096-J A lexicon for texture and flavor characteristics of fresh and processed tomatoes
P. Hongsoongnern, E. Chambers IV
Journal of Sensory Studies, 23:583-599, 2008
- 08-326-J Physical and psychological health conditions of older adults classified as gardeners or nongardeners
S-A. Park, C.A. Shoemaker, M.D. Haub
HortScience, 44(1):206-210, 2009
- 09-014-J Descriptive sensory analysis of toothpaste flavor and texture using two sampling methods: Brushing versus spoon tasting
C.A. Hightower, E. Chambers IV
Journal of Sensory Studies, 24:301-316, 2009

09-015-J Effects of oral rinsing on the perception of residual cooling and burn in highly mentholated toothpaste
S. Suwonsichon, E. Chambers IV, D.H. Chambers, G.A. Miliken
Journal of Sensory Studies, 24:290-300, 2009

09-017-J Potential mechanisms of cancer prevention by weight control
Y. Jiang, W. Wang
Biophysical Reviews and Letters, 3(3):421-437, 2008

09-155-J Loss of Purkinje cells in the PKC γ H101Y transgenic mouse
Y. Zhang, A. Snider, L. Willard, D.J. Takemoto, D. Lin
Biochemical and Biophysical Research Communications, 378:524-528, 2009

Publications without contribution numbers

Protection of retinal cells from ischemia by a novel gap junction inhibitor
S. Das, D. Lin, S. Jena, A. Shi, S. Battina, D. Hua, R. Allbaugh, D. Takemoto
Biochemical and Biophysical Research Communications, 373:504-508, 2008

Rat cardiomyocytes express a classical epithelial beta-defensin
Linde, G. Lushington, F. Blecha, T. Melgarejo
American Journal of Animal and Veterinary Sciences, 3(1):1-6, 2008

Comparisons of thickened beverages using line spread measurements
J. Budke, J. Mertz Garcia, E. Chambers IV
Journal of the American Dietetic Association, 108(9):1532-1535, 2008

Assessing mitochondria biogenesis
D. Medeiros
Methods, 46:288-294, 2008

Transcriptional coactivators PGC-1 α and PGC-1 β control overlapping programs required for perinatal maturation of the heart
L. Lai, T. Leone, C. Zechner, P. Schaeffer, S. Kelly, D. Flanagan, D. Medeiros, A. Kovacs, D. Kelly
Genes & Development, 22:1948-1961, 2008

Sensory analysis of calcium-biofortified lettuce
S. Park, M. Elless, J. Park, A. Jenkins, W. Lim, E. Chambers IV, K. Hirschi
Plant Biotechnology Journal, 7(1):106-117, 2009

Plant Pathology

04-244-J Meeting the challenge of disease management in perennial grain cropping systems
C.M. Cox, K.A. Garrett, W.W. Bockus
Renewable Agriculture and Food Systems, 20:15-24, 2005

05-108-J Recombination events generating a novel Rp1 race specificity
S.M. Smith, S.H. Hulbert
Molecular Plant-Microbe Interactions, 18(3):220-228, 2005

06-161-J Genetic structure of atmospheric populations of *Gibberella zeae*
D.G. Schmale, J.F. Leslie, K.A. Zeller, A.A. Saleh, E.J. Shields, G.C. Bergstrom
Phytopathology, 96:1021-1026, 2006

07-003-J A new *Fusarium* lineage within the *Gibberella fujikuroi* species complex is the main causal agent of mango malformation disease in Brazil
C.S. Lima, L.A. Pfenning, S.S. Costa, M.A. Campos, J.F. Leslie
Plant Pathology, 58:33-42, 2009

07-116-J Genetic structure of *Fusarium verticillioides* populations isolated from maize in Argentina
M.M. Reynoso, S.N. Chulze, K.A. Zeller, A.M. Torres, J.F. Leslie
European Journal of Plant Pathology, 123:207-215, 2009

07-208-J Population structure of *Fusarium fujikuroi* from California rice and water grass
L.L. Carter, J.F. Leslie, R.K. Webster
Phytopathology, 98:992-998, 2008

07-255-J Recurrent deletions of puroindoline genes at the grain *Hardness* locus in four independent lineages of polyploid wheat
W. Li, L. Huang, B. Gill
Plant Physiology, 146:200-212, 2008

- 07-305-J Evolution of new disease specificity at a simple resistance locus in a crop-weed complex: Reconstitution of the *Lr21* gene in wheat
L. Huang, S. Brooks, W. Li, J. Fellers, J.C. Nelson, B. Gill
Genetics, 182:595-602, 2008
- 08-049-J Spatial aggregation in *Fusarium pseudograminearum* populations from the Australian grain belt
A.R. Bently, M.G. Milgroom, J.F. Leslie, B.A. Summerell, L.W. Burgess
Plant Pathology, 58:23-32, 2009
- 08-051-J VCG and AFLP analyses identify the same groups in the causal agents of mango malformation in Brazil
C.S. Lima, J.H.A. Montiero, N.C. Crespo, S.S. Costa, J.F. Leslie, L.H. Pfenning
European Journal of Plant Pathology, 123:17-26, 2009
- 08-086-J Genetics and genomics of wheat domestication-driven evolution
B.S. Gill, W.L. Li, S. Sood, V. Kuraparthy, B. Friebe, K.J. Simons, Z. Zhang, J.D. Faris
Israeli Journal of Plant Science, 55(3-4):223-229, 2008
- 08-098-J Limiting temperatures for urediniospore germination are low in a systemic rust fungus of tallgrass prairie
J. Worapong, S.P. Dendy, Z. Tang, D.J. Awi, K.A. Garrett
Mycologia, 101:390-394, 2009
- 08-130-J Connectivity of the American agricultural landscape: Assessing the national risk of crop pest and disease
M.L. Margosian, K.A. Garrett, J.M.S. Hutchinson, K.A. With
BioScience, 59:141-151, 2009
- 08-132-J Comparisons of damage to native and exotic tallgrass prairie plants by natural enemies
X. Han, S.P. Dendy, K.A. Garrett, L. Fang, M.D. Smith
Plant Ecology, 198:197-210, 2008
- 08-229-B FISH on plant chromosomes
P. Zhang, B. Friebe
In: *Fluorescence in situ hybridization (FISH) - Application guide*, T. Liehr (Ed.). Berlin Heidelberg: Springer-Verlag, pp. 365-394, 2008
- 08-248-J Secondary metabolism and antioxidants are involved in environmental adaptation and stress tolerance in lettuce
M. Oh, H.N. Trick, C.B. Rajashekar
Journal of Plant Physiology, 166(2):180-191, 2009
- 08-259-J Mechanisms and rates of birth and death of dispersed duplicated genes during the evolution of a multigene family in diploid and tetraploid wheats
E.D. Akhunov, A.R. Akhunova, J. Dvorak
Molecular Biology and Evolution, 24:539-550, 2007
- 08-306-J Development of a PCR assay and marker assisted transfer of leaf rust and stripe rust resistance genes *Lr57* and *Yr40* into hard red winter wheats
V. Kuraparthy, S. Sood, D.R. See, B.S. Gill
Crop Science, 49:120-126, 2009
- 08-308-B Climate change and plant disease risk
K.A. Garrett
In: *Global climate change and extreme weather events: Understanding the potential contributions to the emergence, reemergence and spread of infectious disease*. Washington, DC: National Academy Press, pp.143-155, 2008
- 08-323-J The origin of a “zebra” chromosome in wheat suggests nonhomologous recombination as a novel mechanism for new chromosome evolution and step changes in chromosome number
P. Zhang, W. Li, B. Friebe, B.S. Gill
Genetics, 179:1169-1177, 2008
- 08-332-J Impacts of global change on diseases of agricultural crops and forest trees
S. Chakraborty, J. Luck, G. Hollaway, A. Freeman, R. Norton, K.A. Garrett, K. Percy, A. Hopkins, C. Davis, D.F. Karnosky
CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources, Vol. 3, no. 054, 2008
- 08-339-J Molecular cytogenetic characterization of alien introgressions with gene *Fhb3* for resistance to *Fusarium* head blight disease of wheat
L.L. Qi, M.O. Pumphrey, B. Friebe, P.D. Chen, B.S. Gill
Theoretical and Applied Genetics, 117:1155-1166, 2008

- 08-353-J Identification of the wheat curl mite as the vector of Triticum mosaic virus
D.L. Seifers, T.J. Martin, T.L. Harvey, J.P. Fellers, J.P. Michaud
Plant Disease, 93(1):25-29, 2009
- 08-358-A A rice centromeric sequence is conserved between wheat and rice, as well as between monocots and dicots
L.L. Qi, B. Friebe, B.S. Gill
Proceedings of the 11th International Wheat Genetics Symposium
Brisbane, Queensland, Australia, 2008
- 08-359-A Analysis of the functional relationships of gametocidal genes
B. Friebe, B.S. Gill
Proceedings of the 11th International Wheat Genetics Symposium
Brisbane, Queensland, Australia, 2008
- 08-378-J Multiple-trait quantitative trait locus mapping with incomplete phenotypic data
Z. Guo, J.C. Nelson
BMC Genetics, 9:82, 2008
doi:10.1186/1471-2156-9-82
- 08-389-J Selective advance for accelerated development of recombinant inbred QTL mapping populations
P. Boddhireddy, J. Jannink, J.C. Nelson
Crop Science, 49:1284-1294, 2009
- 08-403-J *Fusarium graminearum*: When species concepts collide
J.F. Leslie, R.L. Bowden
Cereal Research Communications, 36 (Supplement B):609-615, 2008
- 08-404-J Methods for detecting chromosome rearrangements in *Gibberella zeae*
R.L. Bowden, I. Fuentes-Bueno, J.F. Leslie, J. Lee, Y. Lee
Cereal Research Communications, 36 (supplement B):603-608, 2008
- 09-006-S 2008 Kansas Performance Tests with Winter Wheat Varieties
Multiple authors.
Coordinating author: J. Lingensfelder
KS Agric. Exp. Stn. Report of Prog. 999, July 2008
- 09-027-D Annual wheat newsletter, Volume 54
W.J. Raupp (Ed.)
Plant Pathology Department Report, 2008, 244 pp.
- 09-030-J Discovery and mapping single feature polymorphisms in wheat using Affymetrix arrays
A.N. Bernardo, P.J. Bradbury, H-X. Ma, S-W Hu, R.L. Bowden, E.S. Buckler, G-H. Bai
BCM Genomics, 2009
doi:10.1186/1471-2164-10-251
- 09-033-J Lesion mimic associates with adult plant resistance to leaf rust infection in wheat
T. Li, G. Bai
Molecular Plant-Microbe Interactions, 119:13-21, 2009
- 09-063-J Cellular and molecular aspects of rhabdovirus interactions with insect and plant hosts
E-D. Ammar, C-W. Tsai, A.E. Whitfield, M.G. Redinbaugh, S.A. Hogenhout
Annual Review of Entomology, 54:447-468, 2009
- 09-082-J Evidence that prohexadione-calcium induces structural resistance to fire blight infection
M.J. McGrath, J.M. Koczan, M.M. Kennelly, G.W. Sundin
Phytopathology, 99:591-596, 2009
- 09-087-J Fungal phyllosphere communities are altered by indirect interactions among trophic levels
J.L. Perez, J.V. French, K.R. Summy, A.D. Baines, C.R. Little
Microbial Ecology, 57:766-774, 2009
- 09-088-J Variation in *tomato spotted wilt virus* titer in *Frankliniella occidentalis* and its association with frequency of transmission
D. Rotenberg, N. Krishna Kumar, D. Ullman, M. Montero-Astua, D. Willis, T. German, A. Whitfield
Phytopathology, 99:404-410, 2009
- 09-102-J Genetic diversity and fitness of *Fusarium graminearum* populations from rice in Korea
J. Lee, I-Y. Chang, S-H. Yun, J.F. Leslie, Y-W. Lee
Applied and Environmental Microbiology, 75:3289-3295, 2009
- 09-103-J Non-additive expression of homoeologous genes is established upon polyploidization in hexaploid wheat
M. Pumphrey, J. Bai, D. Laudencia-Chinguanco, O. Anderson, B.S. Gill
Genetics, 181:1147-1157, 2009

- 09-107-S 2008 Kansas Performance Tests with Corn Hybrids
Multiple authors.
Coordinating author: J. Lingenfelser
KS Agric. Exp. Stn. Report of Prog. 1000, November 2008
- 09-109-S 2008 Kansas Performance Tests with Grain Sorghum Hybrids
Multiple authors.
Coordinating author: J. Lingenfelser
KS Agric. Exp. Stn. Report of Prog. 1004, December 2008
- 09-111-J Qgene 4.0, an extensible java QTL-analysis platform
R. Joehanes, J.C. Nelson
Bioinformatics, 24:2788-2789, 2008
- 09-116-B Plant pathogens as indicators of climate change
K.A. Garrett, N. Nita, E.D. De Wolf, L. Gomez, A.H. Sparks
In: Climate change, T. Letcher (Ed.). Elsevier, pp. 425-437, 2009
- 09-174-J The ER chaperone MoLHS1 is involved in asexual development and rice infection by the blast fungus *Mangaporthe oryzae*
M. Yi, M-H. Chi, C.H. Khang, S-Y. Park, S. Kang, B. Valent, Y-H. Lee
The Plant Cell, 21:681-695, 2009
- 09-175-B Cellular and molecular analyses of biotrophic invasion in rice blast disease
P. Kankanala, G. Mosquera, C.H. Khang, G. Valdovinos-Ponce, B. Valent
In: Advances in genetics, genomics and control of rice blast disease, G.L. Wang, B. Valent (Eds.). New York: Springer Science and Business Media, pp. 83-91, 2009
- 09-186-T Reaction of selected winter wheat varieties and breeding lines to powdery mildew in Kansas, 2007
E.D. De Wolf, R.L. Bowden, J. Long
Plant Disease Management Reports. Report 2:CF002, 2008
doi:10.1094/PDMR02
- 09-187-D Preliminary 2008 Kansas wheat disease loss estimates
J.A. Appel, E. De Wolf, W.W. Bockus, R.L. Bowden, T. Todd
Kansas Cooperative Plant Disease Survey Report, 2008
http://www.ksda.gov/includes/document_center/plant_protection/Plant%20Disease%20Reports/2008KSWheatDiseaseLossEstimates.pdf
- 09-188-D Introductions and overview of Ug99 workshop
E.D. De Wolf
UG99 Surveillance Workshop Final Report, St. Paul, MN, 2008
- 09-190-J A comparative analysis of detection techniques used in US regulatory programs to determine presence of *Phytophthora ramorum* in *Camellia japonica* 'Nuccio's Gem' in an infested nursery in southern California
R. Bulluck, P. Shiel, P. Berger, D. Kaplan, G. Parra, W. Li, L. Levy, J. Keller, M. Reddy, N. Sharma, M. Dennis, J. Stack, J. Pierzynski, J. O'Mara, C. Webb, L. Finley, K. Lamour, J. McKemy, M. Palm
Plant Health Progress, 2006
doi:10.1094/PHP-2006-1016-01-RS
- 09-192-J Individual-based approach to modeling hyphal growth of a biocontrol fungus in soil
G.R. Knudsen, J.P. Stack, S.O. Schuhmann, K. Orr, C. LaPaglia
Phytopathology, 96:1108-1115, 2006
- 09-193-B Plant biosecurity infrastructure for disease surveillance and diagnostics
J.P. Stack, J. Fletcher
In: Institute of medicine. Global infectious disease surveillance and detection: Assessing the challenges - finding the solutions. Washington, DC: National Academy Press, pp. 95-106, 2007
- 09-194-B Crop biosecurity: Definitions and role in food safety and food security
M.L. Gullino, J. Fletcher, J.P. Stack
In: Crop biosecurity: Assuring our global food supply, M.L. Gullino, J. Fletcher, A. Gamliel, P.J. Stack (Eds.). New York: Springer, pp. 1-10, 2008

- 09-195-B Crop and food biosecurity research: Luxury or need?
M.L. Gullino, A. Gamliel, J. Fletcher, J.P. Stack
In: Crop biosecurity: Assuring our global food supply, M.L. Gullino, J. Fletcher, A. Gamliel, P.J. Stack (Eds.). New York: Springer, pp. 121-124, 2008
- 09-196-B Crop biosecurity: Local, national, regional, and global perspectives
A. Gamliel, M.L. Gullino, J.P. Stack
In: Crop biosecurity: Assuring our global food supply, M.L. Gullino, J. Fletcher, A. Gamliel, P.J. Stack (Eds.). New York: Springer, pp. 37-61, 2008
- 09-197-B The need for diagnostic tools and infrastructure
F. Tinivella, M.L. Gullino, J.P. Stack
In: Crop biosecurity: Assuring our global food supply, M.L. Gullino, J. Fletcher, A. Gamliel, P.J. Stack (Eds.). New York: Springer, pp. 63-71, 2008
- 09-198-B The need for secure communications networks and global connectivity
J.P. Stack, W. Baldwin
In: Crop biosecurity: Assuring our global food supply, M.L. Gullino, J. Fletcher, A. Gamliel, P.J. Stack (Eds.). New York: Springer, pp. 103-109, 2008
- 09-199-B Challenges to crop biosecurity
J.P. Stack
In: Crop biosecurity: Assuring our global food supply, M.L. Gullino, J. Fletcher, A. Gamliel, P.J. Stack (Eds.). New York: Springer, pp. 15-23, 2008
- 09-200-J Using *Pseudomonas* spp. for integrated biological control
V.O. Stockwell, J.P. Stack
Phytopathology, 97:244-249, 2007
- 09-201-B Crop biosecurity: Assuring our global food supply
M.L. Gullino, A. Gamliel, J. Fletcher, J.P. Stack (Eds.). New York: Springer, 148 pp, 2008
- 09-202-J Early detection of Asian soybean rust using PCR
K.H. Lamour, L. Finnely, K.L. Snover-Clift, J.P. Stack, J. Pierzynski, R. Hammerschmidt, J.L. Jacobs, J.M. Byrne, P.F. Harmon, A.M. Vitoreli, G.C. Wisler, C.L. Harmon, L. Levy, K.A. Zeller, C.L. Stone, D.G. Luster, R.D. Frederick
Plant Health Progress, 2006
doi:10.1094/PHP-2006-0524-01-RS
- 09-204-B Agricultural biosecurity: Threats and impacts for plant pathogens
J. Fletcher, J.P. Stack
In: Institute of medicine. Global infectious disease surveillance and detection: Assessing the challenges - finding the solutions. Washington, DC: National Academy Press, pp. 86-94, 2007
- 09-221-A A "vision" seminar as part of the new faculty recruiting process
J.F. Leslie, S.L. Warren
Proceedings of the 2009 Academic Chairpersons Conference
Orlando, FL, 2009
- 09-223-J Genome sequence and rapid evolution of the rice pathogen *Xanthomonas oryzae* pv. *oryzae* PXO99
S.L. Salzberg, D.D. Sommer, M.C. Schatz, A.M. Phillippy, P.D. Rabinowicz, S. Tsuge, A. Furutani, H. Ochiai, A.L. Delcher, D. Kelley, R. Madupu, D. Puiu, D. Radune, M. Shumway, C. Trapnell, G. Aparna, G. Jha, A. Pandey, P.B. Patil, H. Ishihara, D.F. Meyer, B. Szurek, V. Verdier, R. Koebnik, J.M. Dow, R.P. Ryan, H. Hirata, S. Tsuyumu, S.Won Lee, Y.S. Seo, M. Sriariyanum, P.C. Ronald, R.V. Sonti, M.A. Van Sluys, J.E. Leach, F.F. White, A.J. Bogdanove
BMC Genomics, 9:204, 2008
doi:10.1186/1471-2164-9-204
- 09-224-J Acquisition and evolution of plant pathogenesis-associated gene clusters and candidate determinants of tissue-specificity in *xanthomonas*
H. Lu, P. Patil, M.A. Van Sluys, F.F. White, R.P. Ryan, J.M. Dow, P. Rabinowicz, S.L. Salzberg, J.E. Leach, R. Sonti, V. Brendel, A.J. Bogdanove
PLoS One, 3:e3828, 2008

- 09-233-J *Pseudomonas syringae* effector AvrPto blocks innate immunity by targeting receptor kinases
T. Xiang, N. Zong, Y. Zou, Y. Wu, J. Zhang, W. Xing, Y. Li, X. Tang, L. Zhu, J. Chai, J-M. Zhou
Current Biology, 18:74-80, 2008
- 09-234-J Firefly luciferase complementation imaging assay for protein-protein interactions in plants
H. Chen, Y. Zou, Y. Shang, H. Lin, Y. Wang, R. Cai, X. Tang, J-M. Zhou
Plant Physiology, 146:368-376, 2007
- 09-249-J The use of a “vision” seminar in new faculty recruiting
J.F. Leslie, S.L. Warren
The Department Chair, 20:12-14, 2009
- 09-253-J Emerging plant diseases: What are our best strategies for management?
K.A. Garrett, J. Jumpponen, L. Gomez
Controversies in Science and Technology, Volume 3, 2009
- 09-255-A Purifying selection and gene conversion in polyploid wheat evolution
E.D. Akhunov, A.R. Akhunova, O.D. Anderson, J.A. Anderson, N. Blake, M.T. Clegg, D. Derr-Coleman, E.J. Conley, C.C. Crossman, K.R. Deal, J. Dubcovsky, B.S. Gill, Y.Q. Gu, J. Hadam, H.Y. Heo, N. Huo, G.R. Lazo, M.C. Luo, Y.Q. Ma, D.E. Matthews, P.E. McGuire, P. Morrell, C.O. Qualset, J. Renfro, S. Reynolds, D. Tabanao, L.E. Talbert, C. Tian, D. Toleno, M. Warburton, F.M. You, W. Zhang, J. Dvorak
Proceedings of the 11th International Wheat Genetics Symposium
Brisbane, Queensland, Australia, 2008
- 09-256-J Analysis of gene-derived SNP marker polymorphism in US Wheat (*Triticum aestivum* L.) cultivars
S. Chao, W. Zhang, E. Akhunov, J. Sherman, Y. Ma, M-C. Luo, J. Dubcovsky
Molecular Breeding, 23:23-33, 2009
- 09-264-S 2009 Agricultural Research
Multiple authors.
Coordinating author: L. Lomas
KS Agric. Exp. Stn. Report of Prog. 1013, April 2009
- 09-336-S Turfgrass Research 2009
Multiple authors.
Coordinating author: J. Fry
KS Agric. Exp. Stn. Report of Prog. 1015, July 2009
- ### Statistics
- 02-296-J Source of dietary lipid may modify the immune response in stressed feeder cattle
T.B. Farran, J.S. Drouillard, D.A. Blasi, J.E. Minton, T.H. Elsasser, C.D. Reinhardt, J.J. Higgins
Journal of Animal Science, 86(6):1382-1394, 2008
- 04-111-J Comparison of genotype and cultural practices to control iron deficiency chlorosis in soybean
J.E. Lingenfelter, W.T. Schapaugh, J.P. Schmidt, J.J. Higgins
Communications in Soil Science and Plant Analysis, 36:1047-1062, 2005
- 04-211-J Carbon and nitrogen mineralization as affected by drying and wetting cycles
M.M. Mikha, C.W. Rice, G.A. Milliken
Soil Biology & Biochemistry, 37:339-347, 2005
- 05-162-J Effects of ascorbic acid, rosemary, and Origanox™ in preventing bone marrow discoloration in beef lumbar vertebrae in aerobic and anaerobic packaging systems
J.P. Grobbel, M.E. Dikeman, E.J. Yancey, J.S. Smith, D.H. Kropf, G.A. Milliken
Meat Science, 72(1):47-56, 2006
- 06-188-J Effects of steroidal implantation and ractopamine-HCl on nitrogen retention, blood metabolites and skeletal muscle gene expression in Holstein steers
D.K. Walker, E.C. Titgemeyer, E.K. Sissom, K.R. Brown, J.J. Higgins, G.A. Andrews, B.J. Johnson
Journal of Animal Physiology and Animal Nutrition, 91(9-10):439-447, 2007
- 06-322-J Growth characteristics, blood metabolites, and insulin-like growth factor system components in maternal tissues from gilts fed L-carnitine through day seventy of gestation
K.R. Brown, R.D. Goodband, M.D. Tokach, S.S. Dritz, J.L. Nelssen, J.E. Minton, J.J. Higgins, J.C. Woodworth, B.J. Johnson
Journal of Animal Science, 85(7):1687-1694, 2007

- 08-129-J Effects of different packaging atmospheres and injection-enhancement on beef tenderness, sensory attributes, desmin degradation, and display color
J.P. Grobbel, M.E. Dikeman, M.C. Hunt, G.A. Milliken
Journal of Animal Science, 86:2697-2710, 2008
- 08-319-J Effects of implanting and feeding zilpaterol hydrochloride on performance, carcass characteristics, and subprimal beef yields of fed cows
S. Neill, J.A. Unruh, T.T. Marston, J.R. Jaeger, M.C. Hunt, J.J. Higgins
Journal of Animal Science, 87:704-710, 2009
- 09-084-J Effect of energy supplementation of stocker cattle grazing smooth bromegrass pastures on grazing and subsequent finishing performance and carcass traits
L.W. Lomas, J.L. Moyer, G.A. Milliken
The Professional Animal Scientist, 25:65-73, 2009
- 09-086-J Virulence analysis of Hessian fly populations from Texas, Oklahoma, and Kansas
M. Chen, E. Echegaray, R.J. Whitworth, H. Wang, P.E. Sloderbeck, A. Knutson, K.L. Giles, T.A. Royer
Journal of Economic Entomology, 102(2):774-780, 2009
- 09-168-S Beef Cattle Research 2009
Multiple authors.
Coordinating authors: J. Drouillard, E.A.E. Boyle
KS Agric. Exp. Stn. Report of Prog. 1010, March 2009
- 09-262-S Roundup 2009
Multiple authors.
Coordinating author: K. Harmoney
KS Agric. Exp. Stn. Report of Prog. 1016, April 2009
- Agricultural Research Center–Hays**
- 08-024-J Nitrogen concentration and application timing affect imazomox efficacy in winter wheat
P.W. Geier, P.W. Stahlman
Crop Protection, 28:573-576, 2009
- 08-217-J Preemergence herbicide efficacy and phytotoxicity in grain sorghum
P.W. Geier, P.W. Stahlman, D.L. Regehr, B.L. Olson
Weed Technology, 23:197-201, 2009
- 08-253-J Surface boundary layer of cattle feedlots: Implications for air emissions measurement
K.A. Baum, J.M. Ham, N.A. Brunsell, P.I. Coyne
Agricultural and Forest Meteorology, 148:1882-1893, 2008
- 08-319-J Effects of implanting and feeding zilpaterol hydrochloride on performance, carcass characteristics, and subprimal beef yields of fed cows
S. Neill, J.A. Unruh, T.T. Marston, J.R. Jaeger, M.C. Hunt, J.J. Higgins
Journal of Animal Science, 87:704-710, 2009
- 08-322-J Dose responses of five broadleaf weeds to Saflufenacil
P.W. Geier, P.W. Stahlman, L.D. Charvat
Weed Technology, 23:313-316, 2009
- 08-338-J Evaluating YieldTracker forecasts for maize in western Kansas
P.I. Coyne, R.M. Aiken, S.J. Maas, F.R. Lamm
Agronomy Journal, 101(3):671-680, 2009
- 08-353-J Identification of the wheat curl mite as the vector of Triticum mosaic virus
D.L. Seifers, T.J. Martin, T.L. Harvey, J.P. Fellers, J.P. Michaud
Plant Disease, 93(1):25-29, 2009
- 08-366-J Effects of vitamin A supplementation and weaning age on serum and liver retinol concentrations, carcass traits, and lipid composition in market beef cattle
A.M. Arnett, M.E. Dikeman, M.J. Daniel, KC Olson, J.R. Jaeger, J. Perrett
Meat Science, 81:596-606, 2009
- 09-006-S 2008 Kansas Performance Tests with Winter Wheat Varieties
Multiple authors.
Coordinating author: J. Lingenfelter
KS Agric. Exp. Stn. Report of Prog. 999, July 2008

- 09-073-J Effects of prepartum whole fuzzy cottonseed or whole raw soybean supplementation on response to timed artificial insemination by suckled mature beef cows following ovulation synchronization
M.D. Thomas, KC Olson, J.S. Stevenson, J.R. Jaeger, J.W. Bolte, N.A. Sproul, D.R. Linden, L.A. Pacheco
The Professional Animal Scientist, 25:41-48, 2009
- 09-107-S 2008 Kansas Performance Tests with Corn Hybrids
Multiple authors.
Coordinating author: J. Lingenfelser
KS Agric. Exp. Stn. Report of Prog. 1000, November 2008
- 09-109-S 2008 Kansas Performance Tests with Grain Sorghum Hybrids
Multiple authors.
Coordinating author: J. Lingenfelser
KS Agric. Exp. Stn. Report of Prog. 1004, December 2008
- 09-114-J Plant spacing and weed control affect sunflower stalk insects and the girdling behavior of *Dectes texanus* (Coleoptera: Cerambycidae)
J.P. Michaud, P.W. Stahlman, J.L. Jyoti, A.K. Grant
Journal of Economic Entomology, 102:1044-1053, 2009
- 09-153-S 2009 Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland
Multiple authors.
Coordinating author: D. Peterson
KS Agric. Exp. Stn. Report of Prog. 1007, January 2009
- 09-180-S 2008 Kansas Performance Tests with Sunflower Hybrids
Multiple authors.
Coordinating author: J. Lingenfelser
KS Agric. Exp. Stn. Report of Prog. 1006, January 2009
- 09-209-S Kansas Fertilizer Research 2008
Multiple authors.
Coordinating author: D. Ruiz Diaz
KS Agric. Exp. Stn. Report of Prog. 1012, April 2009
- 09-225-S 2009 Agronomy Field Research
Multiple authors.
Coordinating author: J. Shroyer
KS Agric. Exp. Stn. Report of Prog. 1017, April 2009
- 09-262-S Roundup 2009
Multiple authors.
Coordinating author: K. Harmony
KS Agric. Exp. Stn. Report of Prog. 1016, April 2009
- Publications without contribution numbers
- Weed population dynamics after six years under glyphosate- and conventional herbicide-based weed control strategies
P. Westra, R.G. Wilson, S.D. Miller, P.W. Stahlman, G.W. Wicks, P.L. Chapman, J. Withrow, D. Legg, C. Alford, T.A. Gaines
Crop Science, 48:1170-1177, 2008
- Why is *Coccinella septempunctata* so successful?
I. Hodek, J.P. Michaud
European Journal of Entomology, 105:1-12, 2008
- A comparative study of cannibalism and predation in seven species of flour beetle
T. Alabi, J.P. Michaud, L. Arnaud, E. Haubruge
Ecological Entomology, 33:716-726, 2008
- Chemical cues mediating aphid location by natural enemies
E. Hatano, G. Kunert, J.P. Michaud, W.W. Weisser
European Journal of Entomology, 105:797-806, 2008
- Seasonal cycles of assortative mating and reproductive behaviour in polymorphic populations of *Harmonia axyridis* in China
S.U. Wang, J.P. Michaud, R. Zhang, F. Zhang, S. Liu
Ecological Entomology, 34:483-494, 2009
- Better sunflower demonstration site results
P. Stahlman
In: Raising the bar with better sunflower agronomy, S. Knights, M. Cribb, R. Richards, L. Serafin (Eds.). Australian Government, Grains Research Development Corporation, pp. 10-13, 2009

Microhistological characterization of the botanical composition of diets grazed by beef cows in the Kansas Flint Hills during winter

G.J. Eckerle, KC Olson, J.R. Jaeger, W.H. Fick, L.A. Pacheco, K. Walburger
Proceedings of the Western Section of the American Society of Animal Science, 60:399-402, 2009

Beef calf performance and carcass characteristics following rumen-protected choline supplementation of cows during the peripartum period

J.R. Jaeger, KC Olson, S.R. Goodall, J.W. Bolte
Proceedings of the Western Section of the American Society of Animal Science, 60:59-62, 2009

Beef cow performance following rumen-protected choline supplementation during the peripartum period

J.R. Jaeger, KC Olson, S.R. Goodall, J.W. Bolte
Proceedings of the Western Section of the American Society of Animal Science, 60:280-283, 2009

Comparison of a modified 5-day co-synch plus CIDR protocol with co-synch plus CIDR in mature beef cows

S.K. Johnson, J.R. Jaeger, K.R. Harmony, J.W. Bolte
Proceedings of the Western Section of the American Society of Animal Science, 60:254-256, 2009

Effects of early lactation on DM digestion, and ruminal dynamics of primiparous beef heifers fed low-quality, warm-season grass hay

D.R. Linden, KC Olson, J.R. Jaeger, L.W. Murray, D.E. Anderson, L.A. Pacheco, K.E. Holcomb, J.W. Bolte, N.A. Sproul, M.D. Thomas
Proceedings of the Western Section of the American Society of Animal Science, 60:346-349, 2009

Effects of advancing gestation on DM digestion, and ruminal dynamics of primiparous beef heifers fed low-quality, warm-season grass hay

D.R. Linden, KC Olson, J.R. Jaeger, L.W. Murray, D.E. Anderson, L.A. Pacheco, K.E. Holcomb, J.W. Bolte, N.A. Sproul, M.D. Thomas
Proceedings of the Western Section of the American Society of Animal Science, 60:350-353, 2009

Relationship between ultrasonically-measured beef cow carcass traits and lifetime productivity

L.A. Pacheco, J.R. Jaeger, J. Minick-Bormann, KC Olson
Proceedings of the Western Section of the American Society of Animal Science, 60:37-39, 2009

Crop residue removal impacts on soil productivity and environmental quality

H. Blanco-Canqui, R. Lal
Critical Reviews in Plant Sciences, 28:139-163, 2009

Extent of soil water repellency under long-term no-till soils

H. Blanco-Canqui, R. Lal
Geoderma, 149:171-180, 2009

Corn stover removal for expanded uses reduces soil fertility and structural stability

H. Blanco-Canqui, R. Lal
Soil Science Society of America Journal, 73:418-426, 2009

Crop residue management and soil carbon dynamics

H. Blanco-Canqui, R. Lal
In: Soil carbon sequestration and the greenhouse effect, 2nd ed., SSSA Special Publication 57, R. Lal, R.F. Follett (Eds.). Madison, WI: ASA – CSSA – SSSA, pp. 291-309, 2009

Registration of 'Mace' hard red winter wheat

R.A. Graybosch, C.J. Peterson, P.S. Baenziger, D.D. Baltensperger, L.A. Nelson, Y. Jin, J. Kolmer, B. Seabourn, R. French, G. Hein, T.J. Martin, B. Beecher, T. Schwarzacher, P. Heslop-Harrison
Journal of Plant Registrations, 3:51-56, 2009

Northwest Research–Extension Center

- | | |
|---|---|
| <p>08-217-J Preemergence herbicide efficacy and phytotoxicity in grain sorghum
P.W. Geier, P.W. Stahlman, D.L. Regehr, B.L. Olson
Weed Technology, 23:197-201, 2009</p> <p>08-338-J Evaluating YieldTracker forecasts for maize in western Kansas
P.I. Coyne, R.M. Aiken, S.J. Maas, F.R. Lamm
Agronomy Journal, 101(3):671-680, 2009</p> <p>08-362-J Soil water evaporation and crop residues
N.L. Klocke, R.S. Currie, R.M. Aiken
Transactions of the ASABE, 52:103-110, 2009</p> <p>09-006-S 2008 Kansas Performance Tests with Winter Wheat Varieties
Multiple authors.
Coordinating author: J. Lingenfelser
KS Agric. Exp. Stn. Report of Prog. 999, July 2008</p> <p>09-095-J Corn yield and water use characteristics as affected by tillage, plant density and irrigation
F.R. Lamm, R.M. Aiken, A.A. Abou Kheira
Transactions of the ASABE, 52(1):133-143, 2009</p> <p>09-107-S 2008 Kansas Performance Tests with Corn Hybrids
Multiple authors.
Coordinating author: J. Lingenfelser
KS Agric. Exp. Stn. Report of Prog. 1000, November 2008</p> <p>09-108-S 2008 Kansas Performance Tests with Soybean Varieties
Multiple authors.
Coordinating author: J. Lingenfelser
KS Agric. Exp. Stn. Report of Prog. 1003, December 2008</p> <p>09-109-S 2008 Kansas Performance Tests with Grain Sorghum Hybrids
Multiple authors.
Coordinating author: J. Lingenfelser
KS Agric. Exp. Stn. Report of Prog. 1004, December 2008</p> | <p>09-180-S 2008 Kansas Performance Tests with Sunflower Hybrids
Multiple authors.
Coordinating author: J. Lingenfelser
KS Agric. Exp. Stn. Report of Prog. 1006, January 2009</p> <p>09-225-S 2009 Agronomy Field Research
Multiple authors.
Coordinating author: J. Shroyer
KS Agric. Exp. Stn. Report of Prog. 1017, April 2009</p> <p>09-240-A Corn irrigation macromanagement at the boundaries: Initiating and terminating the irrigation season
F.R. Lamm, A.A.A. Kheira
Proceedings of the 21st Annual Central Plains Irrigation Conference and Exposition Colby, KS, 2009, pp. 40-60</p> <p>09-241-A Keys to successful adoption of SDI: Minimizing problems and ensuring longevity
D.H. Rogers, F.R. Lamm
Proceedings of the 21st Annual Central Plains Irrigation Conference and Exposition Colby, KS, 2009, pp. 140-151</p> <p>09-242-A Using the K-State center pivot sprinkler and SDI economic comparison spreadsheet – 2009
F.R. Lamm, D.M. O’Brien, D.H. Rogers, T.J. Dumler
Proceedings of the 21st Annual Central Plains Irrigation Conference and Exposition Colby, KS, 2009, pp. 177-187</p> <p>09-243-A A look at twenty years of SDI research in Kansas
F.R. Lamm
Proceedings of the 21st Annual Central Plains Irrigation Conference and Exposition Colby, KS, 2009, pp. 152-176</p> <p>09-262-S Roundup 2009
Multiple authors.
Coordinating author: K. Harmony
KS Agric. Exp. Stn. Report of Prog. 1016, April 2009</p> <p>09-292-S Field Day 2009, Southwest Research-Extension Center
Multiple authors.
Coordinating author: R. Currie
KS Agric. Exp. Stn. Report of Prog. 1014, June 2009</p> |
|---|---|

- 09-316-A Effect of emitter spacing on soil water redistribution, corn yield and water productivity under subsurface drip irrigation (SDI)
G.P. Arbat, F.R. Lamm, A.A.A. Kheira
Proceedings of the 2009 ASABE Annual International Meeting
Reno, NV, 2009, 17 pp., Paper no. 096578
- 09-317-A Dripline flushing velocities in SDI
J. Puig-Bargués, F.R. Lamm, T.P. Trooien, G.A. Clark
Proceedings of the 2009 ASABE Annual International Meeting
Reno, NV, 2009, 17 pp., Paper no. 096457
- 09-318-A Unique challenges with subsurface drip irrigation
F.R. Lamm
Proceedings of the 2009 ASABE Annual International Meeting
Reno, NV, 2009, 25 pp., Paper no. 095927
- 09-319-A Twenty years of progress with SDI in Kansas
F.R. Lamm, D.H. Rogers, M. Alam, D.M. O'Brien, T.P. Trooien
Proceedings of the 2009 ASABE Annual International Meeting
Reno, NV, 2009, 23 pp., Paper no. 095923
- 09-320-A Evaluation of old subsurface drip irrigation systems in Texas
J. Enciso-Medina, W.L. Muller, F.R. Lamm
Proceedings of the 2009 ASABE Annual International Meeting
Reno, NV, 2009, 17 pp., Paper no. 095725
- Publications without contribution numbers
- Growth and yield response to simulated hail damage in guar
J.W. Sij, J.P. Ott, B.L.S. Olson, T.A. Baughman
Agronomy Journal, 97:1636-1639, 2005
- Stalk persistence of interseeded wheat and rye cover crops treated at two growth stages and six rates of glyphosate
J.W. Sij, B.L.S. Olson, J.P. Ott, T.A. Baughman.
Texas Journal of Agriculture and Natural Resources, 19:93-101, 2006
- Tolerance of three wheatgrass cultivars to sulfosulfuron herbicide
J.W. Sij, B.L.S. Olson, J.P. Ott, D.P. Malinowski
Texas Journal of Agriculture and Natural Resources, 20:32-41, 2007
- Comparison of a modified 5-day co-synch plus CIDR protocol with co-synch plus CIDR in mature beef cows
S.K. Johnson, J.R. Jaeger, K.R. Harmony, J.W. Bolte
Proceedings of the Western Section of the American Society of Animal Science, 60:254-256, 2009
- Skip-row planting patterns stabilize corn grain yields in the central Great Plains
D.J. Lyon, A.D. Pavlista, G.W. Hergert, R.N. Klein, C.A. Shapiro, S. Knezevic, S.C. Mason, L.A. Nelson, D.D. Baltensperger, R.W. Elmore, M.F. Vigil, A.J. Schlegel, B.L. Olson, R.M. Aiken
Crop Management, 2009
doi:10.1094/CM-2009-0224-02-RS
- Southeast Agricultural Research Center**
- 08-260-J Long-term responses in the yield of eastern gamagrass [*Tripsacum dactyloides* (L.) L.] to nitrogen fertilizer under two harvest regimes in the United States
J.L. Moyer, D.W. Sweeney
Grass and Forage Science, 63:390-397, 2008
- 08-265-J Fertilizer management for short-season corn grown in reduced, strip-till, and no-till systems on claypan soil
D.W. Sweeney, G.L. Kilgore, K.W. Kelley
Crop Management, 2008
doi:10.1094/CM-2008-072J-01-RS
- 08-300-J Influence of tillage, row spacing-population system, and glyphosate herbicide timing on soybean production in the eastern Great Plains
K.W. Kelley, D.W. Sweeney
Crop Management, 2008
doi:10.1094/CM-2008-1114-01-RS
- 09-006-S 2008 Kansas Performance Tests with Winter Wheat Varieties
Multiple authors.
Coordinating author: J. Lingensfelder
KS Agric. Exp. Stn. Report of Prog. 999, July 2008

- 09-084-J Effect of energy supplementation of stocker cattle grazing smooth bromegrass pastures on grazing and subsequent finishing performance and carcass traits
L.W. Lomas, J.L. Moyer, G.A. Milliken
The Professional Animal Scientist, 25:65-73, 2009
- 09-107-S 2008 Kansas Performance Tests with Corn Hybrids
Multiple authors.
Coordinating author: J. Lingenfelser
KS Agric. Exp. Stn. Report of Prog. 1000, November 2008
- 09-108-S 2008 Kansas Performance Tests with Soybean Varieties
Multiple authors.
Coordinating author: J. Lingenfelser
KS Agric. Exp. Stn. Report of Prog. 1003, December 2008
- 09-109-S 2008 Kansas Performance Tests with Grain Sorghum Hybrids
Multiple authors.
Coordinating author: J. Lingenfelser
KS Agric. Exp. Stn. Report of Prog. 1004, December 2008
- 09-180-S 2008 Kansas Performance Tests with Sunflower Hybrids
Multiple authors.
Coordinating author: J. Lingenfelser
KS Agric. Exp. Stn. Report of Prog. 1006, January 2009
- 09-186-T Reaction of selected winter wheat varieties and breeding lines to powdery mildew in Kansas, 2007
E.D. De Wolf, R.L. Bowden, J. Long
Plant Disease Management Reports. Report 2:CF002, 2008
doi:10.1094/PDMR02
- 09-209-S Kansas Fertilizer Research 2008
Multiple authors.
Coordinating author: D. Ruiz Diaz
KS Agric. Exp. Stn. Report of Prog. 1012, April 2009
- 09-264-S 2009 Agricultural Research
Multiple authors.
Coordinating author: L. Lomas
KS Agric. Exp. Stn. Report of Prog. 1013, April 2009
- 09-305-A Estimating forage mass by continuous height measurement of a moving plate
J.L. Moyer, R.R. Price, M.D. Schrock
Proceedings of the 2009 Annual Conference of the American Forage and Grassland Council
Grand Rapids, MI, 2009
- Publications without contribution numbers
- An apparatus for measuring forage mass
J.L. Moyer, D.W. Sweeney, K.W. Kelley, M.D. Schrock, R.R. Price
Proceedings of the XXI International Grassland Congress/VIII International Rangeland Congress
Hohhot, China, Volume II, p. 61, 2008
- Southwest Research–Extension Center**
- 04-140-J Soil fertility in dryland agriculture
A.J. Schlegel, C.A. Grant
In: Dryland agriculture, Agronomy monograph 23, G.A. Peterson et al. (Eds.).
Madison, WI: American Society of Agronomy, pp. 141-194, 2006
- 08-165-J Impact of irrigation and hail on Palmer amaranth (*Amaranthus palmeri*) in corn
R.S. Currie, N.L. Klocke
Weed Technology, 22:448-452, 2008
- 08-228-J Economics of reduced-till, no-till and opportunity cropping in western Kansas
R.O. Burton, Jr., R.P. Smith, A.J. Schlegel
Journal of the American Society of Farm Managers and Rural Appraisers, 72:164-176, 2009
- 08-362-J Soil water evaporation and crop residues
N.L. Klocke, R.S. Currie, R.M. Aiken
Transactions of the ASABE, 52:103-110, 2009
- 09-006-S 2008 Kansas Performance Tests with Winter Wheat Varieties
Multiple authors.
Coordinating author: J. Lingenfelser
KS Agric. Exp. Stn. Report of Prog. 999, July 2008
- 09-107-S 2008 Kansas Performance Tests with Corn Hybrids
Multiple authors.
Coordinating author: J. Lingenfelser
KS Agric. Exp. Stn. Report of Prog. 1000, November 2008

- | | | | |
|----------|--|---|---|
| 09-108-S | 2008 Kansas Performance Tests with Soybean Varieties
Multiple authors.
Coordinating author: J. Lingenfelter
KS Agric. Exp. Stn. Report of Prog. 1003, December 2008 | 09-250-S | 2008 National Winter Canola Variety Trial
Multiple authors.
Coordinating author: M. Stamm
KS Agric. Exp. Stn. Report of Prog. 1009, April 2009 |
| 09-109-S | 2008 Kansas Performance Tests with Grain Sorghum Hybrids
Multiple authors.
Coordinating author: J. Lingenfelter
KS Agric. Exp. Stn. Report of Prog. 1004, December 2008 | 09-292-S | Field Day 2009, Southwest Research-Extension Center
Multiple authors.
Coordinating author: R. Currie
KS Agric. Exp. Stn. Report of Prog. 1014, June 2009 |
| 09-121-J | Grazing effects on yield and quality of hard red and hard white winter wheat
J. Holman, C. Thompson, R. Hale, A. Schlegel
Agronomy Journal, 101(4):775-788, 2009 | Publications without contribution numbers | |
| 09-140-J | Selection before backcross during exotic germplasm introgression
N. Ochanda, J. Yu, P.J. Bramel, A. Menkir, M.R. Tuinstra, M.D. Witt
Field Crops Research, 112:37-42, 2009 | Skip-row planting patterns stabilize corn grain yields in the central Great Plains
D.J. Lyon, A.D. Pavlista, G.W. Hergert, R.N. Klein, C.A. Shapiro, S. Knezevic, S.C. Mason, L.A. Nelson, D.D. Baltensperger, R.W. Elmore, M.F. Vigil, A.J. Schlegel, B.L. Olson, R.M. Aiken
Crop Management, 2009
doi:10.1094/CM-2009-0224-02-RS | |
| 09-147-J | Impact of land management practices on carabids (Coleoptera: Carabidae) and other arthropods on the Western High Plains of North America
H.N. Davis, R.S. Currie, B.W. French, L.L. Buschman
Southwestern Entomologist, 34:43-59, 2009 | Crop selections and water allocations for limited irrigation
N.L. Klocke, L.R. Stone, T.J. Dumler, S. Briggeman
Proceedings of the Central Plains Irrigation Conference and Exposition
Colby, KS, 2009, pp. 61-65 | |
| 09-209-S | Kansas Fertilizer Research 2008
Multiple authors.
Coordinating author: D. Ruiz Diaz
KS Agric. Exp. Stn. Report of Prog. 1012, April 2009 | Water savings from crop residue management
N.L. Klocke, R.S. Currie, T.J. Dumler
Proceedings of the Central Plains Irrigation Conference and Exposition
Colby, KS, 2009, pp. 74-80 | |
| 09-225-S | 2009 Agronomy Field Research
Multiple authors.
Coordinating author: J. Shroyer
KS Agric. Exp. Stn. Report of Prog. 1017, April 2009 | Irrigation scheduling for deficit irrigation
N.L. Klocke, L.R. Stone, D.A. Bolton
Proceedings of the EWRI-ASCE Conference
Kansas City, MO, 2009 | |
| 09-242-A | Using the K-State center pivot sprinkler and SDI economic comparison spreadsheet – 2009
F.R. Lamm, D.M. O'Brien, D.H. Rogers, T.J. Dumler
Proceedings of the 21st Annual Central Plains Irrigation Conference and Exposition
Colby, KS, 2009, pp. 177-187 | | |

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