

# Kansas Agricultural Experiment Station Research Reports

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## Director's report of research in Kansas 2010

Kansas State University. Agricultural Experiment Station

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# DIRECTOR'S REPORT OF RESEARCH IN KANSAS 2010

JULY 1, 2009 TO JUNE 30, 2010



KANSAS AGRICULTURAL  
EXPERIMENT STATION



## **Letter of Transmittal**

Office of the Director

To the Honorable Sam Brownback, 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, 2010. 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 2010 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 2010 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

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To minimize irrelevant items when searching for common names such as Smith, 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

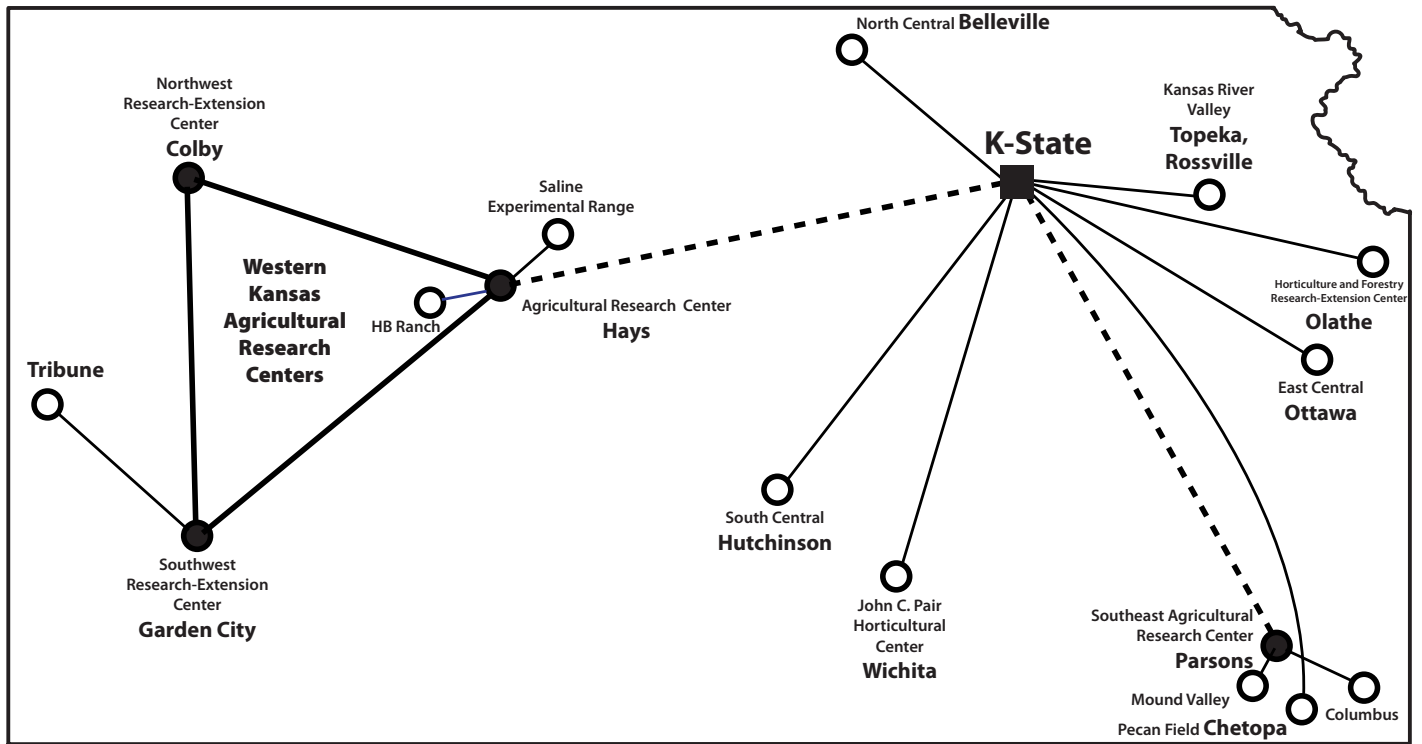
East Central - Ottawa  
Kansas River Valley - Rossville, Silver Lake  
North Central - Belleville  
Pecan Field - Chetopa  
South Central - Hutchinson

## 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 Agriculture and Rural Leadership  
Kansas Center for Agricultural Resources and the Environment  
Kansas Center for Sustainable Agriculture and Alternative Crops  
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 2010. 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](http://www.ksre.ksu.edu), and click on “About Us” in the sidebar.

# Kansas State University Agricultural Research Locations





## Station Publications

### Reports of Progress

- SRP 1015 K-State Turfgrass Research 2009  
(electronic only)
- SRP 1018 2009 Kansas Performance Tests with Winter  
Wheat Varieties
- SRP 1019 2009 Kansas Performance Tests with Corn  
Hybrids
- SRP 1020 Swine Day 2009 (electronic only)
- SRP 1021 Dairy Research 2009
- SRP 1022 2009 Kansas Performance Tests with  
Soybean Varieties
- SRP 1023 2009 Kansas Performance Tests with Grain  
Sorghum Hybrids
- SRP 1024 2009 Kansas Performance Tests with  
Sunflower Hybrids
- SRP 1025 2009 Kansas Performance Tests with Alfalfa  
Varieties
- SRP 1026 2009 National Winter Canola Variety Trial
- SRP 1027 2010 Chemical Weed Control for Field  
Crops, Pastures, Rangeland, and  
Noncropland
- SRP 1028 2009 Kansas Performance Tests with Cotton  
Varieties
- SRP 1029 Cattlemen's Day (electronic only)
- SRP 1030 Field Research 2010 (electronic only)
- SRP 1031 Kansas Fertilizer Research 2009  
(electronic only)
- SRP 1033 2010 Agricultural Research, Southeast  
Agricultural Research Center
- SRP 1034 Field Day 2010, Southwest Research-  
Extension Center

### Special Publications

- DRR09 Director's report of research in Kansas 2009  
(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](http://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' affiliations and appointments (i.e., Kansas Agricultural Experiment Station tenths).

### Administration

- 10-079-D Guidelines for exchange, increase and release of plant genetic materials developed by the Kansas Agricultural Experiment Station  
E. Minton, G. Pierzynski  
January 2010, 8 pp. (electronic only)  
[http://www.ksre.ksu.edu/library/misc2/Gen\\_Mat\\_Guidelines.pdf](http://www.ksre.ksu.edu/library/misc2/Gen_Mat_Guidelines.pdf)
- DRR09 Director's report of research in Kansas 2009  
March 2010, 47 pp. (electronic only)  
<http://www.ksre.ksu.edu/library/misc2/DRR09.pdf>

### Agricultural Economics

- 08-341-J A note on Allen-Uzawa partial elasticities of substitution: The case of the translog cost function  
A. Christev, A.M. Featherstone  
Applied Economics Letters, 16(11):1165-1169, 2009
- 08-342-J The effects of decoupling on land allocation  
T. Serra, D. Zilberman, J.M. Gil, A.M. Featherstone  
Applied Economics, 41(18):2323-2333, 2009
- 09-077-J Effects of label information on consumer willingness-to-pay for food attributes  
Z. Gao, T. Schroeder  
American Journal of Agricultural Economics, 91(3):795-809, 2009
- 09-299-J Sunkist Growers: Refreshing the brand  
M. Boland, V. Pozo, D. Sumner  
Review of Agricultural Economics, 31(3):628-639, 2009
- 10-089-J Market power and the cattle cycle  
J.M. Crespi, T. Xia, R.D. Jones  
American Journal of Agricultural Economics, 92(3):685-697, 2010

- 10-098-J Comparison of returns from legumes in endophyte-infected tall fescue for hay  
J.L. Moyer, K.C. Dhuyvetter, D. Shoup  
Forage and Grazinglands, 2009  
doi:10.1094/FG-2009-1014-01-RS
- 10-103-S Dairy Research 2009  
Multiple authors  
Coordinating author: J. Stevenson  
KS Agric. Exp. Stn. Report of Prog. 1021, December 2009
- 10-120-J Leadership development in agricultural economics: Challenges for academic units  
M.A. Boland  
Journal of Agricultural and Resource Economics, 34(3):367-382, 2009
- 10-130-D Irrigation equipment cost survey in Kansas  
J. Schlegel, L.J. Tsoodle  
Agricultural Economics Department  
Staff Paper no. 10-01, 2009, 9 pp.
- 10-153-D 2005 irrigation equipment cost survey in Kansas  
J. Schlegel, L.J. Tsoodle  
Agricultural Economics Department  
Staff Paper no. 10-02, 2009, 9 pp.
- 10-173-J An analysis of the 2002 Farm Bill's value-added producer grants program  
M.A. Boland, J.C. Crespi, D. Oswald  
Journal of Agribusiness, 27(1/2):107-123, 2009

### Publications without contribution numbers

- Consumer valuations of beef steak food safety enhancement in Canada, Japan, Mexico, and the United States  
G.T. Tonsor, T.C. Schroeder, J.M.E. Pennings, J. Mintert  
Canadian Journal of Agricultural Economics, 57(3):395-416, 2009

- Factors impacting food safety risk perceptions  
G.T. Tonsor, T.C. Schroeder, J.M.E. Pennings  
Journal of Agricultural Economics, 60(3):625-644, 2009
- Agronomy**
- 04-439-J Wind erodibility of organic soils  
D.J. Kohake, L.J. Hagen, E.L. Skidmore  
Soil Science Society of America Journal, 74:250-257, 2010
- 05-043-J Impact of M1A1 main battle tank disturbance on soil quality, invertebrates, and vegetation characteristics  
P.S. Althoff, S.J. Thien  
Journal of Terramechanics, 42:159-176, 2005
- 05-078-J Molecular mapping of a quantitative trait locus for aluminum tolerance in wheat cultivar Atlas 66  
H-X. Ma, G-H. Bai, B.F. Carver, L-L. Zhou  
Theoretical and Applied Genetics, 112:51-57, 2005
- 05-247-J Quantitative trait loci for aluminum resistance in wheat cultivar Chinese Spring  
H-X. Ma, G-H. Bai, W-Z. Lu  
Plant and Soil, 283:239-249, 2006
- 05-248-J Novel quantitative trait loci (QTL) for Fusarium head blight resistance in wheat cultivar Chokwang  
J. Yang, G-H. Bai, G.E. Shaner  
Theoretical and Applied Genetics, 111:1571-1579, 2005
- 05-336-J Main effects, epistasis, and environmental interactions of quantitative trait loci for Fusarium head blight resistance in a recombinant inbred population  
H-X. Ma, G-H. Bai, X. Zhang, W-Z. L  
Phytopathology, 96:534-541, 2006
- 05-337-J Marker-assisted characterization of Asian wheat lines for resistance to *Fusarium* head blight  
J-B. Yu, G-H. Bai, S-B. Cai, T. Ban  
Theoretical and Applied Genetics, 113(2):308-320, 2006
- 06-071-J The wind erosion prediction system: WEPS 1.0 user manual  
J. Tatarko, L.E. Wagner, S. Van Donk, L.J. Hagen, F. Fox, E.L. Skidmore, G.L. Tibke  
USDA publication, Engineering and Wind Erosion Research Unit
- 06-111-J Deletion of chromosome arms altered wheat resistance to Fusarium head blight and deoxynivalenol accumulation in Chinese Spring  
H-X. Ha, G-H. Bai, B.S. Gill, L.P. Hart  
Plant Disease, 90:1545-1549, 2006
- 06-294-J Quantitative trait loci for aluminum resistance in wheat  
L-L. Zhou, G-H. Bai, H. Xiang, B.F. Carver  
Molecular Breeding, 19(2):153-161, 2007
- 07-070-J Quantitative trait loci for Fusarium head blight resistance in a recombinant inbred population of Wangshuibai/Wheaton  
J-B. Yu, G-H. Bai, W-C. Zhou, Y-H. Dong, F.L. Kolb  
Phytopathology, 98(1):87-94, 2008
- 07-250-J Consumption of mycorrhizal and saprophytic fungi by Collembola in grassland soils  
J.L. Jonas, G.W.T. Wilson, P.M. White, A. Joern  
Soil Biology and Biochemistry, 39:2594-2602, 2007
- 08-106-J Erosion by wind: Modeling  
L.J. Hagen  
In: Encyclopedia of soil science, R. Lal (Ed.).  
London: Taylor & Francis, pp. 1-4, 2010

- 08-170-J New Fusarium head blight-resistant sources from Asian wheat germplasm  
J-B. Yu, G-H. Bai, S-B. Cai, Y. Hong, T. Ban  
Crop Science, 48(3):1090-1097, 2008
- 08-171-J Diverse origins of aluminum-resistant sources in wheat  
S-W. Hu, G-H. Bai, B.F. Carver, D. Zhang  
Theoretical and Applied Genetics, 118(1):29-41, 2008
- 08-172-J Quantitative trait loci for aluminum resistance in a Chinese wheat landrace FSW  
S. Cai, G-H. Bai, D. Zhang  
Theoretical and Applied Genetics, 117(1):49-56, 2008
- 08-216-J Quantitative trait loci for resistance to pre-harvest sprouting in US hard white winter wheat Rio Blanco  
S. Liu, S. Cai, R. Graybosch, C. Chen, G-H. Bai  
Theoretical and Applied Genetics, 117(5):691-699, 2008
- 08-354-J Molecular markers for wheat leaf rust resistance gene *Lr41*  
X-C. Sun, G-H. Bai, B.F. Carver, R. Bowden  
Molecular Breeding, 23(2):311-321, 2009
- 08-385-J Registration of K1639-2 soybean germplasm resistant to soybean cyst nematode and soybean aphid  
W.T. Schapaugh, J. Meng, T. Todd, J. Reese, J. Diaz-Montano, C.M. Smith  
Journal of Plant Registrations, 4(1):67-69, 2010
- 09-045-J Nonmetric multidimensional scaling corrects for population structure in association mapping with different sample types  
C. Zhu, J. Yu  
Genetics, 182:875-888, 2009
- 09-065-J Estimating the saltation and suspension components from field wind erosion  
L.J. Hagen, S. Van Pelt, B. Sharratt  
Aeolian Research, 1:147-153, 2010
- 09-066-J Wheat – *thinopyrum intermedium* recombinants resistant to *wheat streak mosaic virus* and *triticum mosaic virus*  
B. Friebe, L.L. Qi, D.L. Wilson, Z.J. Chang, D.L. Seifers, T.J. Martin, A.K. Fritz, B.S. Gill  
Crop Science, 49:1221-1226, 2009
- 09-069-J Response of soil microbial and invertebrate communities to tracked vehicle disturbance in tallgrass prairie  
P.S. Althoff, T.C. Todd, S.J. Thien, M.A. Callahan, Jr., P.M. White  
Applied Soil Ecology, 43(1):122-130, 2009
- 09-072-J Mineralogy and morphological properties of buried polygenetic paleosols formed in late quaternary sediments on upland landscapes of the central plains, USA  
D.R. Presley, P.E. Hartley, M.D. Ransom  
Geoderma, 154:508-517, 2010
- 09-080-J Effect of postemergence mesotrione application timing on grain sorghum  
M.J.M. Abit, K. Al-Khatib, D.L. Regehr, M.M. Classen, P.W. Stahlman, P.W. Geier, B.W. Gordon, R.S. Currie, B.L.S. Olson  
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- 09-129-B Effects of ultraviolet-B radiation and its interactions with climate change factors on agricultural crop growth and yield  
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In: UV radiation in global climate change measurements, modeling and effects on ecosystems, W. Gao, D.L. Schmoltdt, J.R. Slusser (Eds.). London: Springer-Verlag, Beijing: Tsinghua University Press, pp. 395-436, 2010
- 09-152-J No-till induced increase in organic carbon reduces maximum bulk density of soils  
H. Blanco-Canqui, L.R. Stone, A.J. Schlegel, D.J. Lyon, M.F. Vigil, M.M. Mikha, P.W. Stahlman, C.W. Rice  
Soil Science Society of America Journal, 73:1871-1879, 2009

- 09-165-J Groundnut yield response and economic benefits of fungicide and phosphorus application in farmer-managed trials in northern Ghana  
J.B. Naab, S.S. Seini, K.O. Gyasi, G.Y. Mahama, P.V.V. Prasad, K.J. Boote, J.W. Jones  
*Experimental Agriculture*, 45:385-399, 2009
- 09-170-J Regional study of no-till impacts on near-surface aggregate properties that influence soil erodibility  
H. Blanco-Canqui, M.M. Mikha, J.G. Benjamin, L.R. Stone, A.J. Schlegel, D.J. Lyon, M.F. Vigil, P.W. Stahlman  
*Soil Science Society of America Journal*, 73:1361-1368, 2009
- 09-222-J Wheat and sorghum residue removal for expanded uses increases sediment and nutrient loss in runoff  
H. Blanco-Canqui, R.J. Stephenson, N.O. Nelson, D.R. Presley  
*Journal of Environmental Quality*, 38(6):2365-2372, 2009
- 09-226-J Mapping quantitative trait loci for long coleoptile in Chinese wheat landrace Wangshuibai  
J-B. Yu, G-H. Bai, W-C. Zhou  
*Crop Science*, 50(1):43-50, 2010
- 09-247-J Enhancement in leaf photosynthesis and upregulation of Rubisco in the C<sub>4</sub> sorghum plant at elevated growth carbon dioxide and temperature occur at early stages of leaf ontogeny  
P.V.V. Prasad, J.C.V. Vu, K.J. Boote, L.H. Allen, Jr.  
*Functional Plant Biology*, 36:761-769, 2009
- 09-254-J Mapping quantitative trait loci for quality factors in an inter-class cross of US and Chinese wheat  
X. Sun, F. Marza, H. Ma, B.F. Carver, G. Bai  
*Theoretical and Applied Genetics*, 120(5):1041-1051, 2010
- 09-260-J Tillage and crop rotation phase effects on soil physical properties in the west-central Great Plains  
L.R. Stone, A.J. Schlegel  
*Agronomy Journal*, 102:483-491, 2010
- 09-309-J Allelic diversities in rice starch biosynthesis lead to a diverse array of rice eating and cooking qualities  
Z. Tian, Q. Qian, Q. Liu, M. Yan, X. Liu, C. Yan, G. Liu, Z. Gao, S. Tang, D. Zeng, Y. Wang, J. Yu, M. Gu, J. Li  
*Proceedings of the National Academy of Sciences*, 106:21760-21765, 2009
- 09-338-J An improved method for screening *Fusarium* stalk rot resistance in grain sorghum [*Sorghum bicolor* (L.) Moench]  
T. Tesso, N. Ochanda, L. Claflin, M. Tuinstra  
*African Journal of Plant Science*, 3(11):254-262, 2009
- 09-353-J Genetic diversity and population structure analysis of accessions in the US historic sweet sorghum collection  
M.L. Wang, C. Zhu, N.A. Barkley, Z. Chen, J.E. Erpelding, S.C. Murray, M.R. Tuinstra, T. Tesso, G.A. Pederson, J. Yu  
*Theoretical and Applied Genetics*, 120:13-23, 2009
- 09-367-J Soil response to long-term cropping systems on an Argiustoll in the Central Great Plains  
H. Blanco-Canqui, L.R. Stone, P.W. Stahlman  
*Soil Science Society of America Journal*, 74:602-611, 2009
- 09-373-J The genetic architecture of maize flowering time  
E.S. Buckler, J.B. Holland, P. Bradbury, C. Acharya, P. Brown, C. Browne, E. Ersoz, S. Flint-Garcia, A. Garcia, J.C. Glaubitz, M.M. Goodman, C. Hajres, K. Guill, D.E. Kroon, S. Larsson, N. Lepak, H. Li, S.E. Mitchell, G. Pressoir, J. Peiffer, M. Oropeza Rosas, T.R. Rocheford, M.C. Romay, S. Romero, S. Salvo, H. Sanchez Villeda, H. Sofia da Silva, Q. Sun, F. Tian, N. Upadyayula, D. Ware, H. Yates, J. Yu, Z. Zhang, S. Kresovich, M.M. McMullen  
*Science*, 325:714-718, 2009

- 09-378-J Variation explained in mixed model association mapping  
G. Sun, C. Zhu, S. Yang, W. Song, M.H. Kramer, H.P. Piepho, J. Yu  
*Heredity*, 105:333-340, 2010
- 09-379-J Forage yield and quality of hard red and hard white winter wheat across cutting dates  
J.D. Holman, C.R. Thompson, R.L. Hale, A.J. Schlegel  
*Agronomy Journal*, 102(2):759-773, 2010
- 10-008-S 2009 Kansas Performance Tests with Winter Wheat Varieties  
Multiple authors  
Coordinating author: J. Lingenfelser  
KS Agric. Exp. Stn. Report of Prog. 1007, August 2009
- 10-040-J Planning for deficit irrigation  
N.L. Klocke, R.S. Currie, L.R. Stone, D.A. Bolton  
*Journal of Applied Engineering in Agriculture*, 26(3):405-412, 2010
- 10-041-J Technical note: Scheduling for deficit irrigation - Crop yield predictor  
N.L. Klocke, L.R. Stone, S. Briggemann, D.A. Bolton  
*Journal of Applied Engineering in Agriculture*, 26(3):413-418, 2010
- 10-066-J K, Cl, and N fertilization affects grain sorghum production and stalk rot  
D.W. Sweeney, D.J. Jardine, J.L. Moyer, D.A. Whitney  
*Crop Management*, 2010  
doi:10.1094/CM-2010-0126-01-RS
- 10-079-D Guidelines for exchange, increase and release of plant genetic materials developed by the Kansas Agricultural Experiment Station  
E. Minton, G. Pierzynski  
January 2010, 8 pp. (electronic only)  
[http://www.ksre.ksu.edu/library/misc2/Gen\\_Mat\\_Guidelines.pdf](http://www.ksre.ksu.edu/library/misc2/Gen_Mat_Guidelines.pdf)
- 10-133-S 2010 Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland  
Multiple authors  
Coordinating author: D. Peterson  
KS Agric. Exp. Stn. Report of Prog. 1027, January 2010
- 10-135-S 2009 National Winter Canola Variety Trial  
Multiple authors  
Coordinating author: M. Stamm  
KS Agric. Exp. Stn. Report of Prog. 1026, January 2010
- 10-151-S 2009 Kansas Performance Tests with Corn Hybrids  
Multiple authors  
Coordinating author: J. Lingenfelser  
KS Agric. Exp. Stn. Report of Prog. 1019, November 2009
- 10-159-J Evaluation and characterization of sorghum biomass as feedstock for sugar production  
K. Theerarattananoon, X. Wu, S. Staggenborg, J. Prophet, R. Madl, D. Wang  
*Transactions of the ASABE*, 53(2):509-525, 2010
- 10-160-S 2009 Kansas Performance Tests with Grain Sorghum Hybrids  
Multiple authors  
Coordinating author: J. Lingenfelser  
KS Agric. Exp. Stn. Report of Prog. 1023, December 2009
- 10-167-S 2009 Kansas Performance Tests with Soybean Varieties  
Multiple authors  
Coordinating author: J. Lingenfelser  
KS Agric. Exp. Stn. Report of Prog. 1022, December 2009
- 10-190-J Effect of probe deflection on dual-probe heat-pulse thermal conductivity measurements  
G.J. Kluitenberg, T. Kamai, J.A. Vrugt, J.W. Hopmans  
*Soil Science Society of America Journal*, 74(5):1537-1540, 2010

10-212-S Field Research 2010  
Multiple authors  
Coordinating author: J. Shroyer  
KS Agric. Exp. Stn. Report of Prog.  
1030, April 2010

10-213-S Kansas Fertilizer Research 2009  
Multiple authors  
Coordinating author: D. Ruiz-Diaz  
KS Agric. Exp. Stn. Report of Prog.  
1031, April 2010

10-220-S 2009 Kansas Performance Tests with  
Sunflower Hybrids  
Multiple authors  
Coordinating author: J. Lingenfelter  
KS Agric. Exp. Stn. Report of Prog.  
1024, January 2010

10-221-S 2009 Kansas Performance Tests with  
Alfalfa Varieties  
Multiple authors  
Coordinating author: J. Lingenfelter  
KS Agric. Exp. Stn. Report of Prog.  
1025, January 2010

10-257-S Agricultural Research 2010  
Multiple authors  
KS Agric. Exp. Stn. Report of Prog.  
1033, April 2010

10-262-J Mixed linear model approach adapted  
for genome-wide association studies  
Z. Zhang, E. Ersoz, C-Q. Lai, R.J.  
Todhunter, H.K. Tiwari, M.A. Gore,  
P.J. Bradbury, J. Yu, D.K. Arnett, J.M.  
Ordovas, E.S. Buckler  
Nature Genetics, 42:355-360, 2010

10-293-S Field Day 2010, Southwest Research  
Extension Center  
Multiple authors  
KS Agric. Exp. Stn. Report of Prog.  
1034, June 2010

10-319-S 2009 Kansas Performance Tests with  
Cotton Varieties  
Multiple authors  
Coordinating author: S. Staggenborg  
KS Agric. Exp. Stn. Report of Prog.  
1028, May 2010

10-330-J Potential availability of fertilized  
selenium in field capacity and  
submerged soils as measured by an  
isotopic dilution technique  
L. Premarathna, M.J. McLaughlin, J.K.  
Kirby, G.M. Hettiarachchi, D. Beak, S.  
Stacey, D.J. Chittleborough  
Soil Science Society of America  
Journal, 74(5):1589-1596, 2010

Publications without contribution numbers

Top-dress applications of UAN  
fertilizer with herbicides on wheat  
Multiple authors  
Coordinating author: P.W. Stahlman  
KS Agric. Exp. Stn. MF2903, 2009

**Anatomy and Physiology**

09-212-J Testosterone upregulates anion  
secretion across porcine vas deferens  
epithelia in vitro  
F. Pierucci-Alves, C.L. Duncan, B.D.  
Schultz  
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