

RESUME

Name: Carl Reed

Specialty Areas

Management of stored grain at the commercial level
Aeration
Fumigation
Assessment of grain condition
Stored grain IPM
Grain storage under tropical conditions

Educational Background

1986 Kansas State University	(Ph.D.)	Grain Science
1975 Michigan State University	(M.S.)	Agronomy
1971 Michigan State University	(B.A.)	Liberal Arts

Affiliations

American Society of Agricultural Engineers
Entomological Society of America
Grain Elevator and Processing Society

Teaching Experience

On-Campus

Since 1992, member of graduate faculty certified to direct doctoral dissertations
Taught graduate course (GRSC 710) 1996 - 1998
Taught undergraduate course (GRSC 651) 1997 - 1998
Since 1980, have presented sessions in at least 10 international short courses per year

U. S. Industry

Since 1995, have presented research summaries and basic training in more than one hundred seminars and workshops:

Fumigation Recertification Workshops
Grain Aeration Workshops
Grain Grading Workshops
Pest Control and Grain Quality Maintenance Workshops

International Industry

Since 1980, have conducted training sessions in 30 countries (see list below)

Publications

Textbook

Reed, C. **2006**. MANAGING STORED GRAIN to preserve quality and value. AACC International, St. Paul, MN. 235 pp.

Refereed Journal Publications Scientists are judged by their contribution to their fields via articles published in special journals. The journals contain only articles that conform to rigid rules of style and format and that have passed critical reviews by qualified scientists.

On Insect Control in Stored Grain

F. H. Arthur, D. W. Hagstrum, P. W. Flinn, C. R. Reed, and T. W. Phillips. **2006**. Insect populations in grain residues associated with commercial Kansas grain elevators. *J. Stored Products Res.* 42:226-239.

P. W. Flinn, D. W. Hagstrum, C. Reed, and T. W. Phillips. **2004**. Simulation model of *Rhyzopertha dominica* population dynamics in concrete grain bins. *J. Stored Product Res.* 40:39-45.

C. R. Reed, D. W. Hagstrum, P. W. Flinn, and R. F. Allen. **2003**. Wheat in bins and discharge spouts and grain residues on floors of empty bins in concrete grain elevators as habitats for stored-grain beetles and their natural enemies. *J. Econ. Entomol.* 96:996-1004.

P. W. Flinn, D. W. Hagstrum, C. Reed, and T. W. Phillips. **2003**. USDA/ARS stored-grain areawide integrated pest management program. *Pest Manag. Science* 59:614-618.

Hagstrum, D., Reed, C., and P. Kenkel. **1999**. Management of stored wheat insect pests. *Integ. Pest Manag. Reviews* 4:127-142.

Reed, C., Pedersen, J. and C. Cuperus. **1993**. Efficacy and cost effectiveness of grain protectants applied to farm-stored wheat at harvest and later. *J. Econ. Entomol.* 86:1590 - 1598.

Reed, C., Wright, V., Mize, T., Pedersen, J. and J. Brockschmidt Evans. **1991**. Pitfall traps and grain samples as indicators of insects in farm-stored wheat. *J. Econ. Entomol.* 84(4): 1381 - 1387.

Reed, C., Anderson, K., Brockschmidt, J., Wright, V. and J. Pedersen. **1990**. Cost and effectiveness of chemical insect control measures in farm-stored Kansas wheat. *J. Kansas Entomol. Soc.* 63:351 - 360.

Reed, C., Wright, V., Pedersen, J. and L. Wongo. **1989**. Wheat quality deterioration caused by insects and molds during the first months of storage on farms and in country elevators in Kansas. *J. Kansas Entomol. Soc.* 62(4): 563 - 574.

Reed, C., Wright, V., Pedersen, J. and K. Andersen. **1989**. Effects of insect infestation of farm-stored wheat on its sale price at country and terminal elevators. *J. Econ. Entomol.* 82(4): 1254 - 1261.

Reed, C. and J. Pedersen. **1988**. Wheat kernel damage produced before harvest. *AOM Bulletin.* Dec. pp 5353 - 5355.

Reed, C. and G. Milliken. **1988**. Bulk density changes effected by insect-produced dust in sound wheat,

grain sorghum and corn. Trans. ASAE 31(1): 221 - 225.

Reed, C. **1987**. Precision and accuracy of the standard volume weight method of estimating dry weight losses in wheat, grain sorghum and maize, and a comparison with the thousand grain mass method in wheat containing fine material. J. Stored Prod. Res. 23(4): 223 - 231.

Meagher, R., Reed, C. and R. Mills. **1982**. Development of *Sitophilus zeamais* and *Tribolium castaneum* in whole, cracked, and ground pearl millet. J. Kansas Entomol. Soc. 55(1): 91 - 94.

On Aeration of Grain

Reed, C., Trigo-Stockli, D., Blasi, D., and F. Fairchild. **2000**. Storage of pelleted wheat middlings in farm bins. Animal Feed Science and Tech. 88: 47-58.

Reed, C. and F. Arthur. **1998**. Conditioning practices and their effects on quality of corn stored on Kansas farms. Appl. Eng. Agric. 14: 623-630.

Reed, C. and J. Harner. **1998**. Thermostatically controlled aeration for insect control in stored hard red winter wheat. Appl. Eng. Agric. 14: 501-505.

Reed, C., and J. Harner. **1998**. Cooling of stored wheat in multiple or single cycles using automatic aeration controllers. Appl. Eng. Agric. 14: 497-500.

On Grain Fumigation

Reed, C. **2001**. Influence of environmental, structural, and behavioral factors on the presence of phosphine in worker areas during fumigation in grain elevators. J. Agric. Safety and Health 7:21-34.

Reed, C. and H. Pan. **2000**. Loss of phosphine from unsealed bins of wheat at six combinations of grain temperature and moisture content. J. Stored Products Research 36: 263-279.

On Grain Molds and Their Control

C. Reed, S. Doyungan, B. Ioerger, and A. Getchell. 2007. Response of storage molds to different initial moisture contents of maize (corn) stored at 25°C, and effect on respiration rate and nutrient composition. J. Stored Products Research 43:443 – 458.

D. M. Trigo-Stockli, M. O. Cortez-Rocha, R. I. Sanchez-Martinez, C. R. Reed. **2002**. Fumonisin B1 levels in 1995 and 1996 Kansas Corn. Bull. Environ. Contam. Toxicol. 68:720-724.

C. R. Reed, B. P. Ioerger, S. M. Doyungan, D. Trigo-Stockli. **2002**. Storage of exported U. S. corn and grain sorghum in tropical climates. Appl. Eng. Agric. 18:707-715.

M. O. Cortez-Rocha, D. M. Trigo-Stockli, D. L. Wetzel, C. R. Reed. **2002**. Effect of extrusion processing on fumonisin B1 and hydrolyzed fumonisin B1 in contaminated, alkali-cooked corn. Bull. Environ. Contam. Toxicol. 69:471-478.

D. M. Trigo-Stockli, M. O. Cortez-Rocha, R. I. Sanchez-Marines, C. R. Reed. **2002**. Fumonisin B₁ Levels in 1995 and 1996 Kansas Corn. Bull. Environ. Contam. Toxicol. 68:720-724.

Extension Publications

Reed, C. **2001**. U. S. Corn: Storage in Tropical Climates. (A manual in English and Spanish.) U.S. Grains Council, Washington, D. C. 52 pp.

Reed, C. **2001**. U. S. Grain Sorghum: Storage in Tropical Climates. (A manual in English and Spanish.) U.S. Grains Council, Washington, D. C. 24 pp.

Reed, C., Trigo-Stockli, D., Blasi, D. and F. Fairchild. **1998**. Summer storage of pelleted wheat middlings. IN: D. Blasi, ED: Wheat middlings, composition, feeding value, and storage guidelines. MF-2353. Ag. Exper. Station Manhattan, KS

C. Reed. **1998**. Grain fumigation techniques for grain elevators. Video presentation. KSU SV-420

C. Reed. **1998**. Fumigation safety and records for grain elevators. Video presentation. KSU SV-421.

Reed, C., Trigo-Stockli, D., Blasi, D. and F. Fairchild. **1998**. Characteristics of pelleted wheat middlings that affect summer storage. 1998 Cattlemans= Day Report of Progress 804. KSU SRP 804. pp. 129 - 131.

Reed, C., Herrman, T., Higgins, R. and J. Harner. **1995**. SAM, An Integrated Pest Control Strategy for Farm-Stored Wheat. KSU MF-2113.

Reed, C, Herrman, T., Higgins, R. and J. Harner. **1995**. Questions and answers about aeration controllers. KSU MF-2090.

Reed, C. **1995**. Maintaining the Quality of Farm-Stored Grain Under Loan. Cooperative Extension Service Publication distributed through the Kansas Farm Service Agency.

Reed, C. **1994**. Aerating Farm-Stored Wheat. Video Presentation. KSU SV-230.

Reed, C. and F. Worman. **1993**. Quality maintenance and marketing of wheat stored on farms and in elevators in Kansas. Agric. Exper. Station Bull. 660. Kansas State University, Manhattan, 56 p.

Reed, C. and J. Pedersen. **1987**. Farm-stored wheat in Kansas. Agric. Exper. Station Bull. 652. Kansas State University, Manhattan, 32 p.

Patents: Advanced Crossflow Aeration (2002)

International Overseas Experience

2005 – present

Guatemala Plant visits and seminar on contracting and storage of U. S. corn

Morocco Plant visits and seminar on contracting and storage of U. S. corn

Mexico (2 trips) Develop expertise within Mexican grain handling and feed milling companies to evaluate grain quality according to the FGIS system.

Morocco Plant visits to explain quality factors.

Egypt Training for Central Laboratory employees and industry representatives on storage of U. S. corn.

Turkey Seminar on U. S. grain grading and storage of U. S. corn and soybeans

2000 – 2004

Jordan Plant visits and seminar on storage of U. S. corn

Mexico: (2 trips) Evaluate FGIS project to develop expertise in U. S. grain grading within Mexican companies importing U. S. corn and sorghum.

Peru: Present seminar on characteristics, handling and storage of U. S. corn.

China: Present seminar on grading of wheat and grain quality maintenance in storage.

Morocco: Present seminar on storage of U. S. corn and grain sorghum under semi-tropical conditions.

Venezuela: Present seminars (in Spanish) on grain grading and end use value and a comparison of U. S. and Canadian grain grading systems.

Malaysia: Present two seminars on handling and storage of imported U. S. corn under tropical conditions.

Indonesia: Present a seminar on handling and storage of imported U. S. corn under tropical conditions.

Philippines: Present a seminar on handling and storage of imported U. S. corn and grain sorghum under tropical conditions.

Mexico: Present seminar (in Spanish) on handling and storage of imported U. S. corn, grain sorghum, and soybeans under tropical conditions.

Mexico: Conduct research on sorghum storage.

Taiwan: Conduct research on corn storage.

Mexico: Present seminar (in Spanish) on handling and storage of imported U. S. corn and grain sorghum under tropical conditions.

Costa Rica: Discussions to develop a Central American Training Center in Grain Storage.

Mexico: Present seminar (in Spanish) on wheat storage and pest control for flourmills.

1995 - 1999

Colombia: Present seminars (in Spanish) on storage of U. S. corn

Venezuela: Present seminars (in Spanish) on storage of U. S. corn

Turkey: Present sessions on soybean grading and utilization

Taiwan: Feed mill visits and discussion of U. S. corn quality

Dominican Republic: Feed mill visits and discussion of U. S. corn quality

Costa Rica: Discussions and plant visits related to research on U. S. corn quality

Guatemala: Present session (in Spanish) on Grain Storage and Mycotoxin Testing

Malaysia: Plant visits and on-site consultancies to feed millers

Malaysia/Indonesia: Present grain storage seminars and plant visits to feed millers

Jordan: Present grain quality and storage seminars and plant visits for flour millers

1990 - 1994

El Salvador: Grain storage and elevator operations consultancies (3 visits) for "El Salvador Basic Grains and Edible Beans market Project"

Zambia, Malawi, Mali, Chad: Study on "National Food Security Stock Reserves"

Guatemala: Assist INCAP in "Review of Food Aid Losses"

Pakistan: Review research and program development for "Storage Technology and Transfer Project"

El Salvador: Present sessions (in Spanish) in Seminar "Tropical Storage of Grains"

Bolivia: Presented short course (in Spanish) "Food Aid Management"

Dominican Republic: Presented multiple sessions (in Spanish) in short course "Food Aid Management"

Iraq: Presented sessions in seminar "Quality Maintenance in Storage, Milling, and Baking"

1985 - 1989

Guatemala: Review and revise "Food Handling Control Manuals for Food Aid Products"

Pakistan: Review research plans and implementation (2 visits) for "Storage Technology Development and Transfer Project"

Costa Rica: Review research plans for "On-Farm Loss Assessment Project"

Chad: Assess needs and present seminar (2 visits) for "Food Aid Storage Project"
Belize: Assess needs for developing "Improvement of Basic Grains Handling Project"
Cyprus: Consult with manufactures of grain handling automation and control products for middle east region
Iraq: Present sessions in seminar "Quality Maintenance of U. S. Wheat"
Jordan: Present sessions in Seminar "Wheat Storage for Flour Mills"
Phillippines: Present sessions in Seminar "Wheat Storage and Milling"

1979 - 1984

Guatemala: Review on-farm grain storage assistance project and present seminar (in Spanish) for extension agents
Costa Rica: Assist planning of research on "Analysis of the Postharvest Systems for Grains and Pulses"
Honduras: Review grain storage facilities (2 visits) for "Plant Operations, Equipment Maintenance, and Grain Storage Practices of IHMA"
Bolivia: Review wheat storage facilities and practices at flour mills
Costa Rica: Present seminar and on-site training for Peace Corps Volunteers