

## MICHAEL CZARICK III

**Department:** Bio & Ag Engineering  
**Present Rank:** Senior Public Service Associate  
**Date of Appt.:** July 1998  
**Assignment:** 100% Extension

### EDUCATION

Master of Science Degree in Agricultural Engineering, December 1986.  
The University of Georgia, Athens, Georgia.  
Thesis: Negative Air Ionization in Swine Nurseries.

Bachelor of Science Degree, Agricultural Engineering, June 1983.

### PROFESSIONAL APPOINTMENT

**July, 1985 - Present:** Extension Engineer, The University of Georgia Cooperative Extension Service. Responsibilities include: conducting state-wide educational programs in the areas of poultry and swine housing, conducting applied research on commercial poultry farms, disseminating information to the poultry industry in the form of articles, newsletters, professional papers, and video tape. Areas of specialty: poultry house environmental management and control, poultry structures, energy conservation, swine housing and environmental control.

**August, 1983 - June, 1985:** Research & Teaching Assistant, University of Georgia Agricultural Engineering Department. Conducting research on Master's Thesis. Classes taught: Heat Transfer; Animal Environments; Energy Conversion.

### PROFESSIONAL AND PROFESSIONAL SOCIETIES ACTIVITIES

Professional meetings attended, papers given at meetings, and lectures given to professional group or institutions:

**2008** Aviagen International Poultry Management. Huntsville, AL. *Poultry House Environmental Control (full day).*

Poultry Information Exchange/World Poultry Science Association Meeting. Brisbane, Australia. *Poultry House Energy Conservation.*

International Pheasant Management Meeting. Janesville, WI. *Brooding Chicks.*

Saskatchewan Poultry Council Annual Meeting. Saskatoon, Saskatchewan.  
*Poultry House Environmental Control.*

Brazilian National Poultry Management Meeting. Chapeco, Brazil. *Basic Poultry House Environmental Control.*

USPE Broiler Management Conference. Memphis, TN. *Poultry House Energy Update.*

Georgia Poultry Federation Industry Leader Meeting. Ponte Vedra, FL.

Aviagen Latin American Poultry Management Meeting. Huntsville, AL. *Poultry House Environmental Control in Hot Climates.*

Ontario Poultry Industry Council Meeting. Kitchener, Ontario. *Poultry House Environmental Control During Cold Weather.*

Hubbard International Poultry Management Meeting. Atlanta, GA. *Poultry House Environmental Control.*

Poultry Information Exchange/World Poultry Science Association Meeting.  
Tunnel Ventilation Workshop (full day). Brisbane, Australia.

**2007** SCAD Keynote Address. Milton Y. Lecture Series. Atlanta, GA. *Poultry House Environmental Control: Past, Present and Future.*

USPE Educational Program. USPE International Poultry Exposition. Atlanta, GA.  
*Poultry House Water Usage.*

Arbor Acres International Broiler Breeder Workshop. Huntsville, AL. *Poultry House Environmental Control (full day).*

McLean County Agricultural Development Council. Owensboro, KY. *Poultry House Energy Conservation.*

Aviagen Breeder Management School. Beijing, China. *Poultry House Environmental Control (full day).*

Aviagen Breeder Management School. Tokyo, Japan. *Poultry House Environmental Control (full day).*

USPE Breeder Management Conference. Atlanta, GA. *Ventilating Breeder Houses During Cold Weather.*

Caribbean Poultry Association. Kingston, Jamaica. *Hot Weather Poultry House Environmental Control.*

Caribbean Poultry Association. Barbados. *Hot Weather Poultry House Environmental Control.*

Caribbean Poultry Association. Trinidad. *Hot Weather Poultry House Environmental Control.*

USPE Broiler Management Conference. Memphis, TN. *Poultry House Energy Conservation.*

II International Inovo Technology Conference. Lima, Peru. *Poultry House Environmental Control.*

Georgia Poultry Federation Industry Leader Meeting. Ponte Vedra, FL.

**2006** Southern Conference on Avian Diseases. Milton Dindee Keynote Address La Asociacion Colombiana de Medicos Veterinarios y Zootecnistas Especialistas En Avicultura. Athens, GA. *Poultry House Environmental Control for Hot Climates.*

Arbor Acres International Broiler Breeder Workshop. Huntsville, AL. *Poultry House Environmental Control (full day).*

International Pheasant Management Workshop. Janesville, WI. *Pheasant House Environmental Control.*

Barbadian Poultry House Environmental Control Workshop. Barbados. *The Importance of Proper Brooding Temperatures in Tropical Climates.*

Australian Poultry Information and Exchange Workshop. Surfer's Paradise, Queensland, Australia. *What's New in Poultry House Environmental Control.*

Australian Cold Weather Ventilation Workshop. Surfer's Paradise, Queensland, Australia. Eight presentations for a full day workshop.

Northwest Poultry Council Annual Convention. Welches, OR. *Tunnel Ventilated Poultry Houses.*

Aviagen Canadian Broiler Breeder Management School. Alberta, Canada. *Breeder House Environmental Control.*

Delmarva Breeder, Hatchery, and Growout Conference. Ocean City, MD.  
*Heating and Ventilating Wide Poultry Houses.*

Delmarva Breeder, Hatchery, and Growout Conference. Ocean City, MD. *Recent Innovations in Poultry Housing.*

Pennsylvania Poultry Sales and Service Conference. State College, PA. *Thermal Imaging Cameras.*

Pennsylvania Poultry Sales and Service Conference. State College, PA.  
*Preparing Turkey Houses for Cold Weather.*

European Union Poultry Veterinarian Group Annual Meeting. Antwerp, Belgium.  
*Basic Poultry House Environmental Control During Cold Weather.*

Fairchild, B.D., J.W. Worley, M. Czarick and Casey Ritz. *Effects of Heavy Application of Litter Amendment on Broiler House Ammonia Concentrations.*  
2006 ASBAE Annual Meeting. Paper No. 064187.

**2005** Turkey Technical Conference. Birmingham, England. *Turkey House Environmental Control.*

Western Poultry Disease Conference. Vancouver, British Columbia. *Minimum Ventilation During Cold Weather.*

University of Georgia International Poultry Management Short Course. Athens, Georgia. *Poultry House Environmental Control.*

Arbor Acres International Broiler Breeder Workshop. Huntsville, Alabama.  
*Poultry House Environmental Control (½ day).*

U.S. Poultry and Egg Poultry Production and Health Seminar. Memphis, Tennessee. *Wide Broiler House Design and Operation.*

**2004** ASAE Annual Meeting. Ottawa, Canada. *Poultry House Data Collection.*

AVEVEA Conference. IX Seminario Internacional De Produccion Y Patologia Aviar. Valdivia, Chile. *Poultry House Heating Systems.*

AVEVEA Conference. IX Seminario Internacional De Produccion y Patologia Aviar. Valdivia, Chile. *Poultry House Cold Weather Ventilation Systems.*

II Seminario Zuliano De Proccion Y Patologia Avair. Maracaibo, Venezuela. *Basic Poultry House Construction for Hot Weather.*

II Seminario Zuliano De Proccion Y Patologia Avair. Maracaibo, Venezuela. *Poultry House Ventilation for Hot Weather.*

Poultry Information Exchange 2004. Department of Primary Industries and Fisheries and Queensland Poultry Industries. Surfer's Paradise, Australia. *Operating Modern Broiler Houses During Cold Weather.*

Poultry Information Exchange 2004. Department of Primary Industries and Fisheries and Queensland Poultry Industries. Surfer's Paradise, Australia. *Commercial Layer House Ventilation.*

Auburn Poultry Seminar. Auburn, AL. *Poultry House Water System Sizing.*

Auburn Poultry Seminar. Auburn, AL. *Poultry House Energy Conservation.*

Arkansas Poultry Symposium. Fayetteville, AR. *A Practical Approach to Ventilation.*

Arkansas Poultry Symposium. Fayetteville, AR. *A Speed and Distribution in Tunnel Houses.*

University of Minnesota Poultry House Ventilation Workshop. St. Paul, MN. *Poultry House Environmental Control During Cold Weather.*

University of Minnesota Poultry House Ventilation Workshop. St. Paul, MN. *Poultry House Environmental Control During Hot Weather.*

Czarick, M. University of Minnesota Poultry House Ventilation Workshop. St. Paul, MN. *Poultry House Inlet System Design.*

U.S. Poultry & Egg Association Poultry Care and Handling Workshop. Atlanta, GA. *Bird Condition and Temperature During Transit.* With C.W. Ritz and A.B. Webster.

**2003** International Poultry Exposition - Educational Program. *Remote Poultry House Monitoring.* With B.D. Fairchild.

AMCA Agricultural Division Annual Meeting. *The Future of Poultry House Environmental Control.*

2003 Poultry Production and Health Seminar. *Remote Poultry Housing Monitoring Systems*. Memphis, Tennessee. With B.D. Fairchild

Louisiana Poultry Seminar. *Operating Modern Broiler Houses During Cold Weather*.

Barbadian Poultry Competitiveness Meeting. *Modern Broiler Housing*. Barbados. Trinidad Poultry Association. *Modern Broiler Housing*. Trinidad.

Tobago Poultry Association. *Modern Broiler Housing*. Tobago.

The North Atlantic Poultry Health and Management Conference. *Commercial Layer House Environmental Control*. Portsmouth, New Hampshire.

Virginia Poultry Health and Management Meeting. *Poultry House Environmental Control*. Roanoke, Virginia.

Arbor Acres International Breeder Management School. *Breeder House Ventilation*.

Arbor Acres International Breeder Management School - Field Visits and Demonstrations. *Tunnel Ventilated Breeder House Operation*.

Poultry Production and Manure Management Meeting. *Poultry House Environmental Control*. Weyers Cave, Virginia.

West Virginia Annual Poultry Festival Educational Program. *Keeping Broilers Cool During Warm Weather*. Moorefield, West Virginia.

Auburn Poultry Symposium. *Operating Modern Broiler Houses*. Auburn, Alabama.

North Carolina Broiler Breeder Symposium. *Ventilating Pullet Houses*. Statesville, North Carolina.

Iowa Turkey Federation Annual Meeting. *Ventilating Turkey Houses*. Des Moines, Iowa.

Shuring Plough Turkey Production Meeting. *The Future of Turkey House Ventilation*. Savannah, Georgia.

Nicholas Turkey Production Meeting. *Turkey House Ventilation*. South Dakota.

**2002** International Poultry Exposition - Educational Program. *Latest Innovations in Poultry Production and Processing.*

Caribbean Poultry Association Competitiveness Meeting. *Broiler House Environmental Control.*

Louisiana Poultry Seminar. *Recent Innovations in Broiler House Ventilation.*

Virginia Poultry Management and Health Seminar. *Recent Innovations in Broiler House Ventilation.*

Caribbean Poultry Association Tunnel Ventilation School. Conducted a three day workshop on tunnel ventilation. Kingston, Jamaica.

Southeast Commercial Egg Producers Forum. *Commercial Layer House Ventilation.*

X International Seminar In Avian Pathology and Production - Asociacion Czarick, M. Colombiana De Medicos Veterinarios Y Zootecnistas Especialistas En Avicultura. *Broiler House Ventilation and Broiler Health.*

Arbor Acres International Breeder Management School. *Breeder House Ventilation.*

Arbor Acres International Breeder Management School - Field Visits and Demonstrations. *Tunnel Ventilated Breeder House Operation.*

U.S. Poultry and Egg Poultry Production Meeting. Memphis, Tenn. *Poultry House Environmental Control.*

Texas Poultry Symposium. *Pullet House Ventilation.*

Texas Poultry Symposium. *Retrofitting Broiler Houses for Tunnel Ventilation.*

Alabama Broiler Workshop. *Broiler House Energy Conservation..*

VIII International Seminar on Poultry Production and Diseases. Santiago, Chile. *Controlling Air Quality in Poultry Houses.*

VIII International Seminar on Poultry Production and Diseases. Santiago, Chile. *Keeping Poultry Cool in Hot Climates.*

Shuring Plough Turkey Production Meeting. Branson, MO. *The Future of Turkey House Ventilation.*

Pronaca Broiler Production Seminar. Guadalquill, Ecuador. *Basic Poultry House Ventilation*.

Dozier, W. A., III, M. Czarick, J.L. Wilson, C. Ritz, and W. Merka. Poultry Science. 81 (suppl. 1):79. *Effects of Applying Air Velocity Under the Slats of Commercial Breeder House on Manure Characteristics*.

Dozier, W.A., III, M. Czarick, M.P. Lacy, and B.D. Fairchild. Poultry Science. 81 (supple. 1):154. *Monitoring Water Consumption on Commercial Broiler Farms: Evaluation Tool To Assess Flock Performance*.

Webster, A.B., C.W. Ritz, and M. Czarick, 2002. In: Proc. Annual Animal Handling and Stunning Conference of the American Meat Institute, Kansas City, Missouri. *Thermal Environment of Broilers From Farm to Processing Plant During Summer*.

Ritz, C.W., A. B. Webster, and M. Czarick, 2002. Poultry Science 80(Supplement 1):54. *Thermal stress and other factors affecting broiler mortality during live haul*.

Ritz, C. W., A. B. Webster, and M. Czarick III, 2002. Page 13 in: Proc. International Poultry Science Forum, Atlanta, GA, January 21, 2003. *Factors affecting broiler mortality during livehaul*.

**2001** The University of Georgia International Poultry Short Course. Athens, GA. *Minimizing Heat Stress*.

Wenger Feeds Poultry House Ventilation Training. Rheems, PA.

Egyptian National Poultry Production Seminar. *Minimizing heat stress in Broiler and Breeder Housing*.

Western Canadian Poultry Servicemen's Workshop. *Broiler House Environmental Control*.

Saudi Arabian Poultry Management Meeting. *Broiler House Environmental Control*.

Arbor Acres International Broiler-Breeder School. Glastonbury, CT.

2001 Poultry Production and Health Seminar. *Using Technology for Broiler Management*. Memphis, TN.

Alabama Broiler Industry Seminar. *Managing Modern Housing for Peak Performance*. Auburn, AL.

36<sup>th</sup> National Meeting on Poultry Health and Processing. *Performance Impacts from Management Practices*. Ocean City, MD.

XVII Latin American Poultry Congress. *Environmental Control in Modern Broiler Houses*. Guatemala City, Guatemala.

Southern Brazilian Poultry Grower Association. *Managing Broilers in Hot Climates*. Brazil.

Annual Poultry Production and Nutrient Management Symposium. *Broiler House Energy Conservation*. Harrisburg, PA.

Two-day Tunnel Ventilation Workshop for Mexican Poultry Producers (conducted the entire seminar).

**2000** The University of Georgia International Poultry Short Course. *Minimizing Heat Stress*.

Wenger Feeds Poultry House Ventilation Training. Rheems, PA.

Egyptian National Poultry Production Seminar. *Minimizing Heat Stress in Broiler and Breeder Housing*.

Western Canadian Poultry Servicemen's Workshop. *Broiler House Environmental Control*.

Saudi Arabian Poultry Management Meeting. *Broiler House Environmental Control*.

Arbor Acres International Broiler-Breeder School. Glastonbury, CT.

Delmarva Poultry Servicemen's Workshop. *The Importance of Broiler House Environmental Monitoring*.

Poultry Servicemen's Industry Workshop. Calgary, Canada. *Broiler House Environmental Control*.

16<sup>th</sup> Central American and Caribbean Poultry Congress. *Minimizing Heat Stress in Hot, Humid Climates*.

M.P. Lacy and M. Czarick. 16<sup>th</sup> Central American and Caribbean Poultry Congress. *Environmental Control for Modern Broilers.*

M.P. Lacy and M. Czarick. Dominican Republic Poultry Producers Association. *Managing Broilers in Hot Climates.*

M.P. Lacy and M. Czarick. Puerto Rican Poultry Conference. *Tunnel Ventilation and Evaporative Cooling.*

M.P. Lacy and M. Czarick. Avian Veterinary Association. *Effective Brooding and Ventilation for Broilers.*

**1999** ACAV - 2<sup>nd</sup> Simposio Tecnico Sobre Matrices De Fangos De Corte. Brazil. *Broiler breeder house ventilation.*

Association of Southeastern Poultry Scientist.

Annual Poultry Science Meeting.

M.P. Lacy and M. Czarick. 16<sup>th</sup> Latin American Poultry Congress. Lima, Peru. *Innovations and equipment.*

M.P. Lacy and M. Czarick. Mexican National Poultry Specialist. Mexico City, Mexico. *Basic rules for power-ventilating broiler houses.*

**1998** Arbor Acres International Broiler Breeder Management School.

Virginia Poultry Seminar.

Southern Mississippi Broiler Servicemen Meeting.

Annual Bachoco Poultry Technical Meeting.

University of Georgia International Poultry Management School.

Joint Russian-American Poultry Production Project.

American Association of Avian Pathologist Annual Meeting.

Georgia International Poultry Short Course.

AMCA Meeting at Southeastern Poultry and Egg Exposition.

**1995** National Swine Practitioners Meeting.

Auburn Broiler Servicemen's Seminar.

Delmarva Breeder Servicemen School.

Ranburne County Poultry Management School.

North Carolina State Broiler Supervisors' Short Course.

Arbor Acres International Production Management.

Alabama Poultry and Egg Broiler Management Seminar.

Alabama Poultry and Egg Annual Meeting.

Avian Farms International Poultry Management School.

Aerotech Open House and Ventilation Seminar.

**1994** University of Delaware Servicemen's School.

Delmarva Poultry Grower Seminar.

Avian Farms International Poultry Management School.

Arbor Acres International Poultry Management School.

University of Minnesota National Swine Servicemen's Short Course.

**1993** Ohio Poultry Servicemen's Seminar.

National Swine Practitioner's Meeting.

Alabama Poultry Servicemen's Seminar.

Arkansas Farm Bureau Meeting.

Florida Poultry Serviceman's Seminar.

Northern Alabama Contract Poultry Growers Association.

**1992** North Carolina Broiler Management Conference.

Mid-Atlantic Commercial Egg Layer Management Seminar.

National Meeting on Poultry Health and Processing. Ocean City, MD.

The Australian National Poultry Conference. April.

**1991** Korean Live Production Improvement Seminar.

North Carolina Broiler Breeder and Hatchery Management Conference.

North Carolina Broiler Management Conference.

Virginia Poultry Health and Management Seminar.

University of Florida Management of Poultry Complexes Seminar.

**1990** West Virginia Poultry Convention and Seminar.

Univasa Company Seminar. Merrida, Mexico.

**1989** Southeastern Poultry and Egg Association International Poultry Trade Show

Southeastern Poultry and Egg Association Data Processing Seminar.

North Carolina Broiler Breeder and Hatchery Management Conference.

**1988** South Carolina Poultry Housing and Ventilation Seminar

Louisiana Poultry Seminar.

Georgia Flock Supervisors' Short Course

**1987** Georgia Broiler Hatching Egg Seminar

Georgia Broiler Seminar

Georgia Poultry Servicemen's Workshop

Georgia Commercial Egg Workshop

**1986** Arkansas Poultry Symposium

Australia National Poultry Meat Industry Seminars

Current membership in professional and honorary societies/journals.

**2008** American Society of Agricultural and Biological Engineers

- 2007** American Society of Agricultural and Biological Engineers
- 2006** American Society of Agricultural and Biological Engineers
- 2005** Poultry Science Association  
American Society of Agricultural Engineers
- 2004** Journal of Applied Poultry Science  
Poultry Science Association  
American Society of Agricultural Engineers
- 2003** Journal of Applied Poultry Science  
Poultry Science Association  
American Society of Agricultural Engineers
- 2002** Journal of Applied Poultry Science  
Poultry Science Association  
American Society of Agricultural Engineers
- 2001** American Society of Agricultural Engineers  
Journal of Applied Poultry Science  
Poultry Science Association
- 2000** American Society of Agricultural Engineers  
Journal of Applied Poultry Science  
Poultry Science Association
- 1999** American Society of Agricultural Engineers  
Journal of Applied Poultry Science
- 1998** American Society of Agricultural Engineers
- 1997** American Society of Agricultural Engineers
- 1996** American Society of Agricultural Engineers
- 1995** American Society of Agricultural Engineers
- 1994** American Society of Agricultural Engineers  
Journal of Applied Poultry Science
- 1993** American Society of Agricultural Engineers  
Journal of Applied Poultry Science  
Southern Poultry Science Society
- 1992** American Society of Agricultural Engineers  
Journal of Applied Poultry Science  
Southern Poultry Science Society
- 1991** American Society of Agricultural Engineers  
Georgia Section of the American Society of Agricultural Engineers  
Southern Poultry Science Society
- 1990** American Society of Agricultural Engineers  
Georgia Section of the American Society of Agricultural Engineers
- 1989** Georgia Section of the American Society of Agricultural Engineers

Current international, national, regional, and local offices, committee membership, and other special assignments in professional societies.

**2008** ASABE S1025. Systems for Controlling Air Pollutant Emissions and Indoor Environments of Poultry, Swine and Dairy Facilities.  
SE03. Structures and Environment

**2007** ASABE S1025. Systems for Controlling Air Pollutant Emissions and Indoor Environments of Poultry, Swine, and Dairy Facilities.  
SE03. Structures and Environment

**2006** ASABE S1025. Systems for Controlling Air Pollutant Emissions and Indoor Environments of Poultry, Swine, and Dairy Facilities.  
SE03. Structures and Environment

Lead/Author revision of X379 Control of Manure Odors.

**2005** Associate Editor for Journal of Applied Poultry Science

**2004** Associate Editor for Journal of Applied Poultry Science

**2003** Associate Editor for Journal of Applied Poultry Science

**2002** American Society of Agricultural Engineers - Poultry Housing Committee  
Associate Editor for Journal of Applied Poultry Science

**2001** American Society of Agricultural Engineers - Poultry Housing Committee  
Associate Editor for Journal of Applied Poultry Science

**2000** American Society of Agricultural Engineers - Poultry Housing Committee  
Associate Editor for Journal of Applied Poultry Science

**1999** American Society of Agricultural Engineers - Poultry Housing Committee

**1998** American Society of Agricultural Engineers - SE402 Committee

**1994** American Society of Agricultural Engineers - SE301 (Environmental Physiology),  
SE404 (Swine Housing Systems)  
Journal of Applied Poultry Science, Editorial Board

**1993** American Society of Agricultural Engineers - Active in SE302, SE405, SE404,  
SE301  
Journal of Applied Poultry Science, Editorial Board

**1992** American Society of Agricultural Engineers - Chairman, SE302 (Environment of  
Animal Structures); SE 301 (Environmental Physiology); SE 404 (Swine Housing  
Systems); SE 405 (Poultry Housing Systems)

Journal of Applied Poultry Science, Editorial Board

**1991** American Society of Agricultural Engineers - Vice Chairman, SE302 (Environment of Animal Structures); SE301 (Environmental Physiology); SE404 (Swine Housing Systems); SE405 (Poultry Housing Systems)

**1990** American Society of Agricultural Engineers - Secretary, SE302 (Environment of Animal Structures); SE405 (Poultry Housing Systems)

Honors, awards, special recognition, invited presentations, study leave or specialized training at other institutions.

**2005** College of Agriculture and Environmental Science Walter B. Hill Award Nominee.

**1997** Golden Egg Award  
D.W. Brooks Award

**1993** ANR Specialist of the Quarter - September

External reviewer of grants, manuscripts, panels and programs

**2008** Journal of Applied Poultry Research (3)

**2007** Journal of Applied Poultry Research (2)

**2006** Journal of Applied Poultry Research (2)  
Journal of Atmospheric Environment  
Spanish Journal of Agricultural Research

**2003** Reviewed and gave input on future farm data collection systems for Choretime Mfg.

**2002** Reviewed and gave input on future ventilation products for Aerotech Mfg.

**2001** Reviewer/Designer of the environmental control system for new USDA poultry research facilities in Beltsville, Maryland (continuing contribution).  
Reviewer of NRAES Poultry Production Manual.

**2000** Reviewer/Designer of the environmental control system for new USDA poultry research facilities in Beltsville, Maryland.

**1999** USDA Southeastern Poultry Research Laboratory and MS State (2)  
Journal of Applied Poultry Science (3)

## CONTRIBUTIONS IN TEACHING

- 2008** Worked with MAM students. Gave lectures (workshops) and multiple farm visits.
- 2006** Worked with MAM students. Gave lectures (workshops) and multiple farm visits.
- 2005** Students of the Masters of Avian Management Program attended both Tunnel Ventilation and Cold Weather Ventilation Workshops as a part of their course work.
- 2004** Students of the Masters of Avian Management Program attended both Tunnel Ventilation and Cold Weather Ventilation Workshops as a part of their course work.
- 2003** Poultry Science 410 - Advanced Broiler Management. Guest Lecturer. Poultry House Environmental Control
- 2002** Poultry Science 410 - Advanced Broiler Management. Guest Lecturer. Poultry House Environmental Control
- 1999** Poultry Science 410 - Advanced Broiler Production. Guest Lecturer  
Masters Avian Management Program. Guest Lecturer.
- 1998** Masters Avian Management Program. Guest Lecturer. Poultry House Ventilation. January.
- 1997** Masters of Avian Management Program. Guest Lecturer. Poultry House Ventilation. January.
- 1995** Poultry Disease Research Center. Warm Weather Ventilation. Guest Lecturer.  
Masters of Avian Management Class. Cold Weather Ventilation. Guest Lecturer.  
Masters of Avian Management Class. Warm Weather Ventilation. Guest Lecturer.
- 1994** Masters of Avian Management Class. Cold Weather Ventilation. Guest Lecturer.  
Masters of Avian Management Class. Warm Weather Ventilation. Guest Lecturer.
- 1993** Masters of Avian Management Class. Cold Weather Ventilation. Guest Lecturer.  
Masters of Avian Management Class. Warm Weather Ventilation. Guest Lecturer.  
Poultry Science 360. Cold Weather Ventilation. October. Guest Lecturer.  
Poultry Science 360. Warm Weather Ventilation. October. Guest Lecturer.
- 1992** Masters of Avian Management Class. Cold Weather Ventilation. Guest Lecturer.  
Masters of Avian Management Class. Warm Weather Ventilation. Guest Lecturer.  
Poultry Science 360. Warm Weather Ventilation.  
Poultry Science 360. Cold Weather Ventilation.
- 1991** Poultry Disease Research Center. Warm Weather Ventilation. January. Guest Lecturer.  
Undergraduate AMT Class. February. Guest Lecturer.  
Undergraduate Poultry Science Class. February. Guest Lecturer.  
Poultry Disease Research Center. Warm Weather Ventilation. October. Guest Lecturer.

List M.S. and PhD. students that you are advising and give expected date of graduation (place asterisks by those of which you serve as major professor).

**2004** Samer Badei. University of Bagdad. MS Student in Agricultural Engineering. Advising Samer on the design and analysis of his research on the cooling efficiency of various low cost materials for evaporative cooling systems (via email) as well as provided testing equipment.

## **CONTRIBUTIONS IN EXTENSION OR OUTREACH**

Mass media and visual aids (programs presented or materials developed).

Powerpoint - Video Presentation. *Poultry House Environmental Control.*

Participation in continued educational programs at Continuing Education/Rural Development Centers and other colleges and/or universities.

**2008** Managing the Modern Breeder Workshop. Edmonton, Alberta. *Broiler-Breeder House Environmental Control.*

Delmarva Poultry Supervisor Workshop. Ocean City, MD. *Evaporative Cooling Pad Maintenance.*

Delmarva Poultry Supervisor Workshop. Ocean City, MD. *Attic Inlets.*

House Construction and Management Workshop. Auburn, AL. *Heating and Ventilating Wide Houses.*

Auburn Poultry House Construction and Management Workshop. Auburn, AL. *Poultry House Ventilation Systems.*

North Carolina Turkey Days. Wilmington, NC. *Brooding Barn Environmental Control.*

McLean County Agricultural Development Council. Owensboro, KY. *Minimum Ventilation ... How and Why.*

Madison County Poultry Management Meeting. Union City, KY. *Minimum Ventilation ... How and Why.*

**2007** Penn State Poultry Management Class. Hershey, PA. *Commercial Layer House Environmental Control.*

Arkansas Poultry Symposium. Fayetteville, AR. *Poultry House Water Usage.*

Arkansas Poultry Symposium. Fayetteville, AR. *Ventilating Turkey Houses During Cold Weather.*

Arkansas Poultry Symposium. Fayetteville, AR. *Housing and Ventilation Update.*

Virginia Poultry Symposium. Roanoke, VA. *Bird Density and Cooling.*

Virginia Poultry Symposium. Roanoke, VA. *Turkey House Environmental Control.*

Virginia Poultry Symposium. Roanoke, VA. *Production Trends and Technologies.*

Delmarva Poultry Supervisor Workshop. Ocean City, MD. *Production Trends and Technologies.*

Delmarva Poultry Supervisor Workshop. Ocean City, MD. *Poultry Houses Around The World.*

Texas Broiler Symposium. Nacogdoches, TX. *Poultry House Energy Conservation.*

Inframation Thermal Imaging Conference. Las Vegas, NV. *Thermal Imaging in the Poultry Industry.*

Auburn Poultry House Construction and Management Workshop. Auburn, AL. *Heating and Ventilating Wide Houses.*

Auburn Poultry House Construction and Management Workshop. Auburn, AL. *Poultry House Ventilation Systems.*

**2006** Auburn University Summertime Poultry House Management Workshop. Auburn, AL. *The Importance of Bird Uniformity During Hot Weather.*

West Virginia Poultry Festival – Educational Program. Weyers Cave, VA. *Tunnel Ventilated Turkey Houses.*

Alabama Broiler Workshop. Auburn, AL. *Radiant Tube vs. Radiant Brooder Heating Systems.*

**2005** University of Auburn Poultry House Construction Workshop. A two day workshop on the design and construction of poultry houses. Gave three presentations.  
University of Alberta International Broiler Breeder Workshop. A three day workshop on Broiler Breeder Management. Gave two presentations on breeder house environmental control.

University of Manitoba Broiler and Hatching Egg and Health Seminar. Winnipeg, Manitoba. Poultry House Environmental Control.

University of Manitoba Turkey Management and Health Seminar. Winnipeg, Manitoba. Turkey House Environmental Control During Cold Weather.

**2004** National Australian Tunnel Ventilation Workshop. A one day workshop on the design and operation of tunnel ventilated poultry houses. Department of Primary Industries and Fisheries and Queensland Poultry Industries (Extension). 300 Australian poultry producers attended.

**1999** River Valley Poultry Expo. Arkansas.

Arkansas Poultry Grower Symposium.

Virginia Poultry Symposium.

U.S. Poultry and Egg Broiler Health Seminar. Memphis, TN.

Arbor Acres International Broiler Breeder School.

Goldkist. *Tunnel ventilating broiler breeder houses*. Live Oak, FL.

**1997** Arbor Acres International Broiler Breeder Management School.

Avian Farm International Poultry Management School.

Louisiana Poultry Management Seminar.

Arkansas Poultry Symposium (2 presentations).

Arbor Acres International Broiler Breeder Management School.

Arbor Acres International Broiler Breeder Management School.

Jornada Tecnica sobre Gallinas Ponedoras, Patologia y Ventilacion. Dominican Republic.

**1995** National Swine Practitioners Meeting

Auburn Broiler Servicemen's Seminar

Delmarva Breeder Servicemen School

Ranburn County Poultry Management School

North Carolina State Broiler Supervisors Short Course

Arbor Acres International Production Management School

Alabama Poultry and Egg Broiler Management Seminar

Alabama Poultry and Egg Annual Meeting

Avian Farms International Poultry Management School

Aerotech Open House and Ventilation Seminar

Auburn Poultry Management School.

**1994** Louisiana Poultry Servicemen's School. March.

Al Leman Swine Conference. September.

Alabama Poultry and Egg Association Servicemen's Seminar. August.

Delmarva Servicemen's School. September.

Arbor Acres Poultry Management School. September.

Avian Farm Poultry Management School. June.

**1993** Ohio Poultry Servicemen's Seminar. March.

Alabama Poultry Servicemen's Seminar (2). March.

Northern Alabama Contract Poultry Growers Association. March.

Florida Poultry Servicemen's Seminar. April.

Arkansas Farm Bureau Meeting. December.

In-service training conducted for agents or other professionals.

**1997- PRESENT**

International Tunnel Ventilation Workshop. Organized and conducted 70% of the lectures for a three-day workshop. Approximately 100 national and international participants.

International Cold Weather Poultry Ventilation Workshop. Organized and conducted 70% of the lectures for a three-day workshop. Approximately 100 national and international participants

Statewide meetings initiated and/or conducted (e.g. workshops or short courses).

**2008** Deep South Poultry Conference. Tifton, GA. *Poultry House Energy Conservation.*

UGA Poultry Management Conference. Athens, GA. *Attic Inlets.*

UGA Poultry Management Conference. Athens, GA. *Reducing Broiler House Heating Costs.*

**2005** Deep South Poultry Conference. *Poultry House Heating Systems.*

University of Georgia Broiler Serviceman's Workshop. *Poultry House Heating Systems*

**2004** Deep South Poultry Conference. *Air Speed and Distribution in Tunnel Houses.*

**2003** Deep South Poultry Conference. *Recent Innovations in Poultry House Ventilation.*

Georgia Poultry Serviceman's Workshop. *Operating Modern Broiler Houses.*

**2002** Deep South Poultry Conference. *Recent Innovations in Poultry House Ventilation.*

Georgia Poultry Serviceman's Workshop. *Poultry House Ventilation.*

**2001** Deep South Poultry Conference. *Broiler House Environmental Control.*

The University of Georgia Poultry Servicemen's Workshop. *The Importance of Broiler House Environmental Monitoring.*

**2000** Deep South Poultry Conference. *Broiler House Environmental Control and Designing Tunnel-Ventilated Pullet Houses.*

The University of Georgia Poultry Servicemen's Workshop. *Recent Developments in Broiler House Environmental Control.*

**1999** Deep South Poultry Conference. Tifton. With M.P. Lacy.

**1998** University of Georgia Breeder Hatchery School

South Georgia Poultry Conference

Georgia Poultry Conference

**1997** University of Georgia International Poultry Management School.

AMCA Meeting at Southeastern Poultry and Egg Exposition.

Delmarva Poultry Management Seminar

**1995** Georgia International Poultry Short Course

Georgia Poultry Servicemen's School

Georgia Farm Bureau Meeting

Seaboard Farms Poultry Management School

Georgia Hatchery-Breeder Management School

Southeastern Poultry and Egg Association Poultry Health Seminar

University of Georgia Poultry Serviceman's School. *Fogging Pads*.

**1994** Southeastern Breeder Servicemen's School. *New Developments in Ventilation*. July.

University of Georgia Poultry Servicemen's School. *Fogging Pads*. October.

Cagle's Live Production Meeting. *Summertime Ventilation*. March.

Georgia Annual Farm Bureau Meeting.

National Food and Energy Council – Agricultural Energy Meeting.

Southeastern Poultry and Egg Association Poultry Health Seminar.

**1992** The International Poultry Exposition Commercial Egg Seminar. January.

Seaboard Farms Hatchery Management Seminar. March.

Campbell's Soup Processing Seminar. August.

Swine Production Short Course. August.

Southeastern Poultry Association Poultry Health Seminar. September.

Georgia Poultry Servicemen's Seminar (2). October.

**1991** Georgia Broiler Seminar.

Georgia Broiler Hatching Egg Seminar.

Georgia Flock Supervisors' Short Course.

Local or county educational meetings initiated and/or conducted (e.g. workshops or short courses).

**2008** Pilgrim's Broiler Servicemen's Meeting. Ellijay, GA. *Poultry House Energy Conservation.*

Sanderson Farms Poultry Grower Meeting. Adel, GA. *Poultry House Energy Conservation.*

**2007** Southern Farmer's Association. *Poultry House Energy Conservation.* Gilmer County.

Fieldale Farms Broiler Servicemen's Meeting. *Poultry House Energy Conservation.*

Pilgrim's Broiler Servicemen's Meeting. *Poultry House Energy Conservation.* Ellijay.

Perdue Summer Grower Meetings (4). *Maximizing Bird Cooling During Hot Weather.* Macon, Hawkinsville, Montezuma, and Barnesville.

Perdue Winter Grower Meetings (4). *Poultry House Energy Conservation.* Macon, Hawkinsville, Montezuma, and Barnesville.

North Georgia Poultry Grower Meeting. *Poultry House Energy Conservation.* Lumpkin/Dawson County.

Piedmont Poultry Grower Association. *Poultry House Energy Conservation.* Buckhead.

**2006** Poultry Technical Service Open House. Gainesville, GA.

**2005** Perdue Grower Meeting. Forsyth, GA. *Broiler House Energy Conservation.*

Perdue Grower Meeting. Forsyth, GA. *Tunnel Ventilation Operation.*

Gilmer County Grower Meeting. *Hot Weather Poultry House Operation.*

Lumpkin County Grower Meeting. *Broiler House Energy Conservation.*

Goldkist Grower Meeting. Commerce, GA. *Hot Weather House Operation.*

Goldkist Grower Meeting. Commerce, GA. *Minimizing Heating Costs.*

**2004** Pilgrim's Pride Grower Meeting. Commerce, GA. *Broiler House Energy Conservation.*

Perdue Grower Meetings (4). Forsyth, GA. *Broiler House Energy Conservation.*

Perdue Grower Meetings (4). Forsyth, GA. *Tunnel Ventilation Operation.*

Gilmer County Grower Meeting. *Broiler House Energy Conservation.*

Lumpkin County Grower Meeting. *Broiler House Energy Conservation.*

Goldkist Grower Meetings. Carrollton, GA. *Tunnel Ventilation Operation.*

**2003** Goldkist Grower Meeting. Commerce, GA. *Broiler House Energy Conservation.*

Goldkist Grower Meeting. Commerce, GA. *Tunnel Ventilation Operation.*

Goldkist Grower Meeting. Calhoun, GA. *Broiler House Energy Conservation.*

Goldkist Grower Meeting. Calhoun, GA. *Tunnel Ventilation Operation.*

Poultry Producers Meeting. Lumpkin County. *Cold Weather Ventilation.*

Tyson Grower Meeting. Anniston, AL. *Tunnel Ventilation Operation.*

Tyson Grower Meeting. Anniston, AL. *Cold Weather Ventilation*

**2002** Goldkist Grower Meeting. Commerce, GA. *Broiler House Energy Conservation.*

Goldkist Breeder Grower Meeting. Douglas, GA. *Breeder House Ventilation and Energy Conservation.*

Poultry Producers Meeting. White County. *Broiler House Energy Conservation.*

Poultry Producers Meeting. Lumpkin County. *Hot Weather Ventilation.*

Goldkist Breeder Grower Meeting. Douglas, GA. *Ventilated Breeder Houses During Hot Weather.*

Goldkist Producers Meeting. Commerce, GA. *Keeping Birds Cool During Warm Weather.*

Goldkist Producers Meeting. Lavonia, GA. *Keeping Birds Cool During Warm Weather.*

Poultry Producers Meeting. Greene County. *Broiler House Energy Conservation.*

**2001** Goldkist Producers Meeting. Athens and Ellijay. *Making Broiler Houses More Energy Efficient.*

*Recent Developments in Broiler House Ventilation.* Barrow County.

*Recent Developments in Broiler House Ventilation.* Morgan County.

**2000** Goldkist. Douglas. *Broiler Breeder House Ventilation.*

*Recent Developments in Broiler House Ventilation.* Barrow County.

*Recent Developments in Broiler House Ventilation.* Morgan County.

**1999** Goldkist. Douglas. *Cold Weather Ventilation.*

Goldkist. Douglas. *Tunnel Ventilation.*

*Negative pressure ventilation.* Carroll County.

*Recent Developments in Broiler House Ventilation.* Barrow County.

Piedmont Poultry Growers Association.

**1998** Barrow County Grower Association.

Jackson County Grower Association.

Worth County Area Grower Meeting.

**1997** Barrow County. *Energy Conservation and Heat Stress Reduction.*

Goldkist. Ellijay. *Cold Weather Ventilation.*

Carroll County Grower Association. *Energy Conservation and Heat Stress Reduction.*

Jackson County Grower Association. *Energy Conservation and Cold Weather Ventilation.*

**1995** Barrow County. *Reducing Energy Usage on Broiler Farms.*

Madison County. *Heat Stress Reduction.*

**1994** Dade County. *Energy Efficient Lighting.* January.

Barrow County. *Evaporative Cooling Systems.* February.

Gordon County. *Tunnel Ventilation and Energy Efficient Lighting.* March

Barrow County. *Energy Efficient Lighting.* May

Turner County. *Energy Conservation and Heat Stress Reduction.* September.

**1993** Barrow County. *Evaporative Cooling Systems.* May.

Pickens County. *Energy Conservation and Heat Stress Reduction.* October.

Carroll County. *Wintertime Ventilation.* October.

Gordon County. *Energy Efficient Poultry House Lighting.*

**1992** Banks County. *Energy Conservation.* March.

Macon County. *Energy Conservation.* June.

Barrow County. *Reducing Heat Stress.* August.

Fannin County. *Energy Conservation.* September.

Carroll County. *Wintertime Ventilation.* October.

**1991** Dawson County. *Energy Conservation.* January.

Gordon County. *Broiler House Energy Conservation.*

Oconee County. *Tunnel Ventilation Workshop.* April.

Macon County. *Summer Ventilation*. April.

Macon County. *Winter Ventilation*. October.

Gilmer County. *Broiler House Energy Conservation*.

Fieldale Poultry Company. *Wintertime Ventilation*. December.

**1990** Mitchell County. *Tunnel Ventilation*.

Industry groups or organizational meetings attended as advisor, liaison, or public relations (e.g. commodity group/trade association).

**2008** USPE

Georgia Poultry Federation

**2007** Georgia Poultry Federation

**2006** USPE

Georgia Poultry Federation

Other pertinent extension or outreach activities.

**2006** Made arrangements to start publishing Poultry Housing Tips in Spanish starting in January.

**2005** Tyson Foods. National Meeting of Tyson Food's Live Production Managers on Broiler Breeder House Ventilation System Design. Gave presentation and led discussions on national design specifications for new and existing broiler breeder houses.

Wayne Farms. National Meeting of Wayne Farms Live Production Managers on Wide Broiler Houses. Gave presentation and led discussions on national design specifications for new 50' and 60' wide houses.

Perdue. Broiler Breeder Workshop. Visited all five Perdue broiler breeder operations to put on day long workshops on broiler breeder house operation.

Inghams. Series of five, daylong workshops held across Australia and New Zealand for poultry producers on the poultry house environmental control.

Lilydale. Series of three, ½ day workshops held across Canada for broiler and turkey producers on poultry house environmental control during cold weather.

- 2004** Georgia Poultry Federation Summer Board Meeting.  
Tyson Foods. National Meeting of Tyson Food's Live Production Managers on Poultry Breeder Pullet House Ventilation System Design. Gave presentation and led discussions on national design specifications for new and existing broiler breeder pullet houses.
- Perdue Farms. National Meeting of Tyson Food's Live Production Managers on Poultry Breeder Pullet House Ventilation System Design. Gave presentation and led discussions on national design specifications for new and existing broiler breeder pullet houses.
- Barrter's Poultry Manager's Ventilation Workshop. Griffith, Australia. Three day workshop on the design and operation of tunnel ventilated broiler houses.
- Barrter's Poultry Producer's Ventilation Workshop. Brisbane, Australia. Two day grower workshop on the design and operation of tunnel ventilated broiler houses.
- 2001** USP&E Planning meeting on how to address emissions from poultry houses.  
Tucker, GA.
- Goldkist National Poultry Managers Meeting. Callaway Gardens. *Environmental Monitoring*.
- 1999** Tyson Foods Broiler Breeder House Ventilation System Specification Meeting.  
Munters' Corp International Meeting on Evaporative Cooling.

## **PUBLICATIONS**

Refereed journal articles and Extension Bulletins published.

- 2008** Fairchild, B.D.; M. Czarick; L.A. Harper; C.W. Ritz; J.W. Worley; B.J. Hale, and N.P. Naeher. *Fenceline ammonia concentration*. Poultry Science 86:593 (Suppl. 1).
- 2006** Visser, M.C., B.D. Fairchild, M. Czarick, M.P. Lacy, J. Worley, S. Thompson, J. Kastner, C.W. Ritz and L.P. Naeher, 2006. *Fine particle measurements inside and outside of tunnel-ventilated broiler houses*. J. Appl. Poultry Res. 15:394-405.
- C.W. Ritz, B.W. Mitchell, B.D. Fairchild, M. Czarick and J.W. Worley. *Improving In-House Air quality in Broiler Production Facilities Using and Electrostatic Space Charge System*. J. Appl. Poultry Res. 15(2):333-340.

- 2005** Ritz, C.W., A.B. Webster, and M. Czarick. 2005. *Evaluation of hot weather thermal environment and incidence of mortality associated with broiler live haul.* Journal of Applied Poultry Research 14:594-602.
- 2004** Ritz, C., B. Mitchell, B. Fairchild, M. Czarick, and J. Worley. 2004. *Electrostatic space charge system for dust reduction and air quality improvement in commercial broiler facilities.* Poultry Science. Vol. 83 (Suppl.1):395.
- 1998** Webster, A.B. and M. Czarick. *Temperature and flock performance variation in a tunnel-ventilated high rise commercial layer house.* Journal of Applied Poultry Science. (accepted for publication)
- 1997** VanWicklen, G.L. and M. Czarick. *Particulate emissions from poultry housing.* ASAE Paper# 97-4094. ASAE, St. Joseph, MI.
- Hamrita, T.K., B.W. Mitchell, and M. Czarick. *Advances in Poultry House Environmental Control.* ASAE Paper# 97-4124. ASAE, St. Joseph, MI.
- Hamrita, T.K., S.K. Hamrita, G. VanWicklen, and M. Czarick 1997. *Use of Biotelemetry in Measurement of Animal Responses to Environmental Stressors.* ASAE Paper #97-4008. ASAE, St Joseph, MI.
- 1994** Lacy, M.P. and M. Czarick. *Environmental Control of Poultry Houses.* Extension Bulletin #1085. Cooperative Extension Service, The University of Georgia, Athens.
- Lacy, M.P. and M. Czarick. *Field Testing of a Mechanized Broiler Harvesting System.* Poultry Science.
- 1992** Lacy, M.P. and M. Czarick. *Evaluation of a Mechanized Broiler Harvesting System.* Poultry Science.
- Bottcher, R., M. Czarick, M.P. Lacy and G.R. Baughman. *Evaporative Efficiency of a Fogging Fan for Poultry.* Applied Engineering in Agriculture.
- Lacy, M.P. and M. Czarick. *Tunnel-ventilated Broiler Houses: Broiler Performance and Operating Costs.* Journal of Applied Poultry Research.
- Lacy, M.P. and M. Czarick. *Application of Housing Conditions with Special Reference to Broilers.* World's Poultry Congress. Amsterdam, The Netherlands.
- 1991** Czarick, M. and M.P. Lacy. *Performance of Tunnel-Ventilated Broiler Houses with Misting Nozzles.* ASAE Paper 91-4562. ASAE, St. Joseph, MI.

Lacy, M.P. and M. Czarick. *Performance of Broilers in Tunnel-Ventilated Houses During Warm Weather*. Southern Poultry Science Association. Poultry Science. 70(Suppl. 1):168.

Czarick, M. and M.P. Lacy. *Environmental Conditions and Operating Costs Associated with Tunnel-Ventilated Broiler Houses*. Southern Poultry Science Association. Poultry Science. 70(Suppl. 1):155.

**1990** Czarick, M. and B.L. Tyson. *Reflective Roof Coatings on Commercial Laying Houses*. ASAE Paper 90-4512. ASAE, St. Joseph, MI.

Tyson, B.L., M. Czarick and M.P. Lacy. *Energy Efficient Broiler House Demonstration*. ASAE Paper 90-5530. ASAE, St. Joseph, MI.

Czarick, M. and M.P. Lacy. *Curtain Machines and Their Effect Upon Broiler House Environment*. ASAE Paper 90-4059. ASAE, St. Joseph, MI.

Czarick, M. and B.L. Tyson. *Temperature Variations in a High Density Curtain-Sided Laying House*. ASAE Paper 90-4023. ASAE, St. Joseph, MI.

**1989** Czarick, M. and B.L. Tyson. *Design Considerations for Tunnel-Ventilated Broiler Houses*. ASAE Paper 89-4527. ASAE, St. Joseph, MI.

**1988** VanWicklen, G.L. and M. Czarick. *Improving Fan Performance Through Shutter Modification*. ASAE Paper 88-4070. ASAE, St. Joseph, MI.

VanWicklen, G.L. and M. Czarick. *Design of a PVC Pipe System for Brooding Chickens*. Transactions of the ASAE, 31(2):552-557.

**1986** Czarick, M., F.W. Kay and B.L. Tyson. *Microcomputer Based Broiler House Energy Audit*. ASAE Paper 86-4067. ASAE, St. Joseph, MI.

Kay, F.W., B.L. Tyson and M. Czarick. *Improving Ventilation Management in Broiler Houses*. ASAE Paper 86-4043. ASAE, St. Joseph, MI.

**1984** VanWicklen, G.L., M. Czarick and M.B. Duclos. *Design of a PVC Pipe System for Brooding Chickens*. ASAE Paper 84-4027. ASAE, St. Joseph, MI.

Books, book chapters, and proceeding chapters.

**2008** Czarick, M., B. Fairchild. *Housing for Improved Performance in Hot Climates. Poultry Production in Hot Climates*. Editor N.J. Dagher. Publisher CAB International.

Worley, J.W.; Czarick, M.; Fairchild, B.D.; Ritz, C.W.; Harper, L.A.; Hale, B.D.; Naeher, L.P. Monitoring of Ammonia and Fine Particulates Downwind of Broiler Houses (ed.). St. Joseph, MI: ASABE. asabe.org.

**2007** Czarick, M., B. Fairchild. Housing for Improved Performance in Hot Climates. Poultry Production in Hot Climates. Editor N.J. Dagher. Publisher. CAB International (in press).

**2004** Fairchild, B. and M. Czarick. *Chickens: Broiler Housing*. In Encyclopedia of Animal Science. Eds. W. Pond and A. Bell. Marcel Dekker Inc., New York, NY.

Published abstracts and other non-refereed materials (i.e. can be obtained from a typical library).

**2007** Fairchild, B.D. and M. Czarick. Water consumption as a broiler management tool. Poultry Science, 86:1556.

C.W. Ritz; L.A. Harper; B.D. Fairchild; M. Czarick; J. Pavlicek and V. Johnson. Use of ferric sulfate for ammonia reduction in commercial broiler houses. Poultry Science, 86:593 (Suppl. 1).

**2003** Fairchild, B.D. and M. Czarick. Using recycled motor oil to heat broiler houses. International Poultry Scientific Forum, Georgia World Congress Center, Atlanta, GA. January 20-21.

**2000** Czarick, M. and M.P. Lacy. Temperature stratification in broiler houses during cold and hot weather. Poultry Science, 79 (supp. 1):33.

Czarick, M. and M.P. Lacy. Exploring the relationship between environment and broiler performance on a commercial broiler farm. Poultry Science, 79 (supp. 1):34.

Lacy, M.P. and M. Czarick. Feed consumption, water consumption and light programs on a commercial broiler farm. Poultry Science, 79 (supp. 1):33.

**1998** Lacy, M.P. and M. Czarick. *Mechanical harvesting of broilers*. Poultry Science. 77:1794-1797.

Lacy, M.P. and M. Czarick. *Design of environmental control systems for poultry research facilities*. Poultry Science 77 (Suppl. 1):97.

Webster, A.B. and M. Czarick. *Variation in egg size, egg specific gravity, and hen weight in a tunnel ventilated layer house*. 19th Annual Southern Poultry Science

Society meeting. January 19-20. World Congress Center. Atlanta, Georgia (abstract).

**1993** Lacy, M.P. and M. Czarick. *Development and Evaluation of a Mechanical Broiler Harvester*. Special Report #380.

**1992** Czarick, M. and M.P. Lacy. *Evaluation of Evaporative Pad Versus Fogging Nozzles in Tunnel-Ventilated Broiler Houses*. Special Report #355.

Other non-refereed materials (fact sheets, monograms, articles in popular press, slide sets, circulars, etc.)

**2008** Czarick, M., Fairchild, B.D. *Guidelines for Basic Attic Inlet Operation*. Poultry Times.

Fairchild, B.D. and M. Czarick. *Reducing Poultry House Heating Costs*. Watt Poultry USA. October.

Fairchild, B.D. and M. Czarick. *Reducing Electricity Usage in Tunnel Houses*. Watt Poultry USA. July.

Fairchild, B.D. and M. Czarick. *Going Real Time on the Farm*. Watt Poultry USA. March.

M. Czarick. *Ten Tips for Reducing Litter Moisture*. Watt Poultry USA. January.

M. Czarick. *A Way to Compare Tunnel-Ventilated Broiler House Fans*. Manure Manager. Nov/Dec.

Fairchild, B.D., Czarick, M. *Loose fitting curtains are very costly*. Poultry Times.

Fairchild, B.D., Czarick, M. *Keeping birds cool during hot weather*. Poultry Times.

Czarick, M. And M.P. Lacy. *The Importance of Having Proper Gas Pressure*. The Drumstick. NSW Department of Primary Industries. Volume 26, No. 1.

Czarick, M. *Best Performing Tunnel Fans – 2007*. The Drumstick. NSW Department of Primary Industries (Australia). Volume 25, No. 2.

Czarick, M. *High Capacity Tunnel Fans Decrease Producer Profits*. The Drumstick. NSW Department of Primary Industries. Volume 25, No. 2.

Fairchild, B.D. and M. Czarick. *Keeping Birds Cool During Hot Weather*. Poultry Times. Volume 55, No. 7.

Czarick, M. *Tips to Evaluate Tunnel Ventilation System Performance*. Poultry Times. Volume 55, No. 7.

Czarick, M. *Keeping Large Broilers Cool During Hot Weather*. Poultry Times. Volume 55, No. 7.

Czarick, M. and B.D. Fairchild. *Guidelines for Basic Attic Inlet Operation*. Poultry Times. Volume 55, No. 21.

Fairchild, B.D. and M. Czarick. *Migration Fences Needed in Cold Weather*. Poultry Times. Volume 55, No. 21.

Czarick, M. and B.D. Fairchild. *Loose Fitting Curtains are Very Costly*. Poultry Times. Volume 55, No. 21.

- 2007** Czarick, M. *Many Factors Affect Poultry House Water Usage.* Poultry Times, Vol. 54, No 5.
- Czarick, M. and B. Fairchild *Cool House Needed for Broilers During Hot Weather.* Poultry Times, Vol. 54, No 7.
- Czarick, M. *Checklist Provides Tips for Summer Ventilation.* Poultry Times, Vol. 54, No 7.
- Czarick, M. and B. Fairchild. *Carbon Monoxide Measuring and Monitoring.* Poultry Times, Vol. 54, No 11.
- Czarick, M. *Installing Circulation Fans in Open Ceiling Houses.* Poultry Times, Vol. 54, No 11.
- Czarick, M. and B. Fairchild. *Darkling Beetle Control is Vital to House and Birds.* Poultry Times, Vol. 54, No 13.
- Czarick, M. *Evaluating Tunnel Ventilation System Performance.* Poultry Times, Vol. 54, No 16.
- Czarick, M. and B. Fairchild. *Air Speed Insures Maximum Bird Cooling.* Poultry Times, Vol. 54, No 16.
- Czarick, M. *Tips for Using Noncontact Thermometers.* Poultry Times, Vol. 54, No 16.
- Czarick, M. and B. Fairchild. *Factors to Consider for Summer Ventilation.* Poultry Times, Vol. 54, No 17.
- Czarick, M. and B. Fairchild. *Heating Costs Can be Cut With Tighter Houses.* Poultry Times, Vol. 54, No 20.
- Czarick, M. and B. Fairchild. *Prepare Your Poultry Operation Early for Cold Weather.* Poultry Times, Vol. 54, No 20.
- Czarick, M. and B. Fairchild. *Testing for Static Pressure is Essential.* Poultry Times, Vol. 54, No 20.
- Czarick, M. and B. Fairchild. *Determining Minimum Ventilation During Cold Weather.* Poultry Times, Vol. 54, No 20.
- Fairchild, B. and M. Czarick. *Keeping Birds Cool in Hot Weather.* UGA Broiler Tip. May.
- Czarick, M. and B. Fairchild. *The Producers Indispensable Tool.* Watt Poultry USA. July.
- Czarick, M. *Ten Steps to Control House Moisture.* Watt Poultry USA. May.
- Czarick, M. *10 Steps in Controlling House Moisture.* Claxton Poultry News. Volume 11, Issue 32.
- Czarick, M. *Minimum Ventilation During Cold Weather.* Nicholas Technical Bulletin. Volume 1, No 1.
- Czarick, M. *Controlling Drafts During Brooding.* Nicholas Technical Bulletin. Volume 1, No 2.

Contributed to/Interviewed for:

- Okeefe, T. *Analyzing This: Data Isn't Cheap.* Poultry USA. Volume 8, No 12.
- Schupski, S. *System Improving Life and Profits in Chicken House.* Poultry Times, Vol 54, No 13.

Okeefe, T. *Data Gathering on the Farm*. Watt Large Volume Grower. November, 2007.

Okeefe, T. *Five Steps to Reducing Fuel Usage*. Watt Large Volume Grower. October, 2007.

Okeefe, T. *Money in the Attic*. Watt Large Volume Grower. June, 2007.

- 2006** Fairchild, B. and M. Czarick. *Effect of Cool Temperatures on Broiler Performance*. Poultry Times, Vol. 53, No. 20.
- Czarick, M. and B. Fairchild. *General Operating Tips During Cold Weather*. Poultry Times, Vol. 53, No. 20.
- Fairchild, B. and M. Czarick. *Make Sure Ammonia Levels Don't Hurt Flocks*. Poultry Times, Vol. 53, No. 20.
- Czarick, M. and J. Donald. *Potential Insulation Problems With Dropped Ceilings*. Poultry Times, Vol. 53, No. 7.
- Czarick, M. and B. Fairchild. *Uniform Bird Distribution Aids With Cooling Performance*. Poultry Times, Vol. 53, No. 7.
- Czarick, M. and B. Fairchild. *Controlling Cooling Produced By Six Inch Pad Systems*. Poultry Times, Vol. 53, No. 7.
- Czarick, M. and B. Fairchild. *Higher Nighttime Wind Speeds During Hot Weather Made a Difference*. Poultry Times, Vol. 53, No. 7.
- Czarick, M. *Air Distribution Also Important in Layer Houses*. Poultry Times, Vol. 53, No. 7.
- Czarick, M. *Summertime Ventilation Check List*. Poultry Times, Vol. 53, No. 16.
- Czarick, M. *Understanding Fan Performance*. Poultry Times, Vol. 53, No. 16.
- Czarick, M. and B. Fairchild. *Sidewall Inlet Hoods Help Keep Houses Dark*. Poultry Times, Vol. 53, No. 16.
- Czarick, M. *Getting More Out of Pad Systems Circulation Pumps*. Poultry Times, Vol. 53, No. 16.
- Czarick, M. and B. Fairchild. *Cooling Pad Temperatures Can Control Wet Litter*. Poultry Times, Vol. 53, No. 12.
- Czarick, M. *Loose Brooding Curtains Can Be Costly*. Poultry Times, Vol. 53, No. 12.
- Czarick, M. and B. Fairchild. *Using 1/15 hp Circulation Fans Have Some Advantages*. Poultry Times, Vol. 53, No.12.
- Fairchild, B. and M. Czarick. *The Effect of Cool Temperatures on Broiler Performance*. The Communicator, Fall.
- Czarick, M. and B. Fairchild. *Do Lower Brooding Temperatures Save You Money?* The Drumstick. NSW Department of Primary Industries, Australia, Vol. 24, No. 1.
- Czarick, M. and B. Fairchild. *Temperature Stratification During Brooding*. The Drumstick. NSW Department of Primary Industries, Australia, Vol. 24, No. 1.
- Czarick, M. *Brooder Gas Hose Support – Grower Invention*. The Drumstick. NSW Department of Primary Industries, Australia, Vol. 24, No. 1.

- 2005** Czarick, M. and B. Fairchild. *Solving Problems With Cooling Pads Systems*. Poultry Times, Vol 52, No. 12.
- M. Czarick. *La circulacion de agua en un sistema de paneles de enfriamiento evaporativo*. Avicultura Profesional. Vol 25, No. 2.
- Fairchild, B. and M. Czarick. *Trends in Broiler Housing*. Poultry Tribune. March/April 2005.
- Czarick, M. and B. Fairchild. *Double-digit Static Pressure Leads to Fuel Savings*. Poultry Times, Vol. 52, No. 3.
- Czarick, M. *Checklist Can Aid Preparation*. Poultry Times, Vol. 52, No. 7.
- Czarick, M. *Properly Aligning Fan Pulleys Makes a Difference*. Poultry Times, Vol. 52, No. 7.
- Czarick, M. and B. Fairchild. *Controlling Cooling Produced By 6-inch Pad Systems*. Poultry Times, Vol. 52, No. 7.
- Donald, J. and M. Czarick. *Hot Weather Provides Performance Challenge*. Poultry Times, Vol. 52, No. 7.
- Czarick, M. and B. Fairchild. *Maintaining Air Moving Capacity*. The Drumstick. NSW Department of Primary Industries. September. Vol. 23, No. 3.
- Czarick, M. and B. Fairchild. *Air Leakage and Litter Caking is Jeopardizing Bird Comfort*. The Drumstick. NSW Department of Primary Industries. June. Vol. 23, No 2.
- Fairchild, B. and M. Czarick. *Iron Concentration in Broiler Drinking Water: Does it Affect Bird Performance*. The Communicator. Published by the U.S. Poultry and Egg Association. Fall Edition.
- Czarick, M. and B. Fairchild. *Uniform Bird Distribution Aids With Cooling Performance*. Poultry Times, Vol. 53, No 7.
- 2004** Ritz, C. B.A. Webster, and M. Czarick. *Factors Affecting Broiler Mortality During Livehaul*. Poultry Times Supplement. August 30.
- Donald, J. and M. Czarick. *Questions Concerning Hot Weather Performance*. Poultry Times, Vol. 51, No. 7.
- Czarick, M.. *Correct Size for Circulation Pumps Needed for Efficiency*. Poultry Times, Vol. 51, No. 7.
- Czarick, M. *Following Fan Laws can Improve Performance*. Poultry Times, Vol. 51, No. 7.
- Czarick, M. *Six-Inch Pad Systems Utilize More Water than Fogging Pads*. Poultry Times, Vol. 51, No. 12.
- Czarick, M., B. Fairchild and T. Hamrita. *How Birds are Cooled at Night Effects Daytime Stress Levels*. Poultry Times, Vol. 51, No. 12.
- Czarick, M. and B. Fairchild. *Inlet Hoods can Help Reduce Light Intensity for Birds*. Poultry Times, Vol. 51, No. 12.
- Czarick, M. and B. Fairchild. *Comparing Heating Costs: Natural Gas Vs. Propane*. Poultry Times, Vol. 51, No. 12.
- Czarick, M. *House Humidity Affects Fogging Nozzle Performance*. Poultry Times, Vol. 51, No. 12.

Czarick, M. and M.P. Lacy. *Replacing Worn Belts Improves Energy Efficiency*. Poultry Times, Vol. 51, No. 17.

Czarick, M. and B. Fairchild. *Tighter Houses will Contribute to Cooler Birds*. Poultry Times, Vol. 51, No. 17.

Czarick, M. *Seal Curtain Bottoms To Prevent Air Leakage*. Poultry Times, Vol. 51, No. 21.

Czarick, M. and M.P. Lacy. *Important to Make Proper Adjustments for Sidewall Inlets*. Poultry Times, Vol. 51, No. 21.

Czarick, M. and Manejo de la Cama. *Industria AVICOLA*. June, 2004. Pages 18-21.

Czarick, M. and M.P. Lacy. *Good Start*. Small Farm Canada. May/June Vol. 1, Issue 1. Pages 38-41.

Czarick, M. *Water Circulation in an Evaporative Cooling Pad System*. The Drumstick. NSW Department of Primary Industries (Australia). December. Vol. 22, No. 4.

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Czarick, M. and M.P. Lacy. *Maintaining a Consistent House Temperature During Cold Weather*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. August/September.

Czarick, M. and M.P. Lacy. *Negative Pressure Ventilation - How Many Fans do I Need?* Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. October/November.

Czarick, M. and M.P. Lacy. *Negative Pressure Ventilation - How Many Inlets do I Need?* Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. December.

**1992** Czarick, M. and M.P. Lacy. *Poultry House Tightness*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. January.

Czarick, M. and M.P. Lacy. *Side Wall Inlet Placement*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. February.

Czarick, M. and M.P. Lacy. *Increasing Bird Densities in Tunnel-Ventilated Houses*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. March.

Czarick, M. and M.P. Lacy. *Heat Stress and Nighttime Ventilation*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. April.

Czarick, M. and M.P. Lacy. *Warm Weather Rules of Thumb*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. May.

Czarick, M. and M.P. Lacy. *Design Fogging Systems for Tunnel-Ventilated Houses*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. June.

Czarick, M. and M.P. Lacy. *Temperature Reduction in Tunnel-Ventilated Poultry Houses*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. July.

Czarick, M. and M.P. Lacy. *Fogging Systems in Curtain-Sided Poultry Houses*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. August.

Czarick, M. and M.P. Lacy. *Comparing Poultry House Exhaust Fans*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. September.

Czarick, M. and M.P. Lacy. *Side Wall Curtains and Air Leakage*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. October.

Czarick, M. and M.P. Lacy. *Half House Brooding Ventilation*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. November.

Czarick, M. and M.P. Lacy. *Negative Pressure Ventilation Air Inlets*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. December.

- 1991** Czarick, M. and M.P. Lacy. *Radiant Brooders*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. January.
- Czarick, M. and M.P. Lacy. *Suffocation*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. February.
- Czarick, M. and M.P. Lacy. *Fuel Savings With Radiant Brooders*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. March.
- Czarick, M. and M.P. Lacy. *Tips on Operating Tunnel-Ventilated Poultry Houses*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. April.
- Czarick, M. and M.P. Lacy. *Air Velocity Meters*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. May.
- Czarick, M. and M.P. Lacy. *What is Evaporative Cooling?* Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. June.
- Czarick, M. and M.P. Lacy. *Curtain Drop/Alarm System Failures*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. July.
- Czarick, M. and M.P. Lacy. *Temperature, Relative Humidity and Evaporative Cooling Systems*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. August.
- Czarick, M. and M.P. Lacy. *Which Should I use: Curtain Ventilation or Power Ventilation?* Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. September.
- Czarick, M. and M.P. Lacy. *Negative Pressure Ventilation: The Basics*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. October/November.
- Czarick, M. and M.P. Lacy. *How Much Ceiling Insulation is Enough?* Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. December.
- Czarick, M. and M.P. Lacy. *Fuel Savings Ideas*. Poultry Tips. Cooperative Extension Service, Extension Poultry Science, UGA. May.
- Czarick, M. *Migration Fence for Tunnel-Ventilated Broiler Houses*. Poultry Tips. Cooperative Extension Service, Extension Poultry Science, UGA. July.
- Czarick, M. *Ceiling Fans in Turkey Housing*. Poultry Tips. Cooperative Extension Service, Extension Poultry Science, UGA. August.
- Czarick, M. *Link Belts for Exhaust Fans*. Poultry Tips. Cooperative Extension Service, Extension Poultry Science, UGA. October.
- 1990** Czarick, M. *Compact Fluorescent Light Bulbs in Broiler Houses*. Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. February.

Czarick, M and M.P. Lacy. *Do Curtains Machines Save You Money?* Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. March.

Czarick, M. and M.P. Lacy. *Fogging Nozzles in Tunnel-Ventilated Houses.* Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. March.

Czarick, M. and M.P. Lacy. *Is Stratification Costing You Money?* Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. April.

Czarick, M. and M.P. Lacy. *Bird Migration in Tunnel-Ventilated Broiler Houses.* Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. April.

Czarick, M. and M.P. Lacy. *Air Inlets and Fan Performance.* Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. May.

Czarick, M. and B.L. Tyson. *The Design and Operation of Tunnel-Ventilated Poultry Houses.* Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. May.

Czarick, M. and M.P. Lacy. *Relieving Heat Stress.* Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. June.

Czarick, M. and M.P. Lacy. *Using Fogging Nozzles in Tunnel-Ventilated Poultry Houses.* Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. June.

Czarick, M. and M.P. Lacy. *Tunnel vs Conventional.* Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. August.

Czarick, M. *Tunnel Ventilation vs. Natural Ventilation with Mixing Fans .. Electricity Usage.* Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. August.

Czarick, M. and M.P. Lacy. *Fogging Fans.* Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. September.

Czarick, M. and M.P. Lacy. *Smoke Emitters.* Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. October.

Lacy, M.P. and M. Czarick. *Ventilating Poultry Houses on Cold, Rainy Days.* Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. November.

Czarick, M. and M.P. Lacy. *Management of Forced Air Furnaces.* Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. December.

- 1989** Czarick, M. *Circulation Fan Placement in Curtain-Sided Broiler Houses.* Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. June.
- Czarick, M. *Minimizing Heating Costs in Broiler Houses.* Poultry Housing Tips. Cooperative Extension Service, Extension Engineering, UGA. September.
- Czarick, M. *Radiant Barriers.* Poultry Tips. Cooperative Extension Service, Extension Poultry Science, UGA. April.

- 1988** Czarick, M. *Poultry House Cooling Hints*. Engineering Newsletter, Cooperative Extension Service, UGA. August.  
 Czarick, M. *Evaporative Cooling Pads*. Poultry Tips. Cooperative Extension Service, Extension Poultry Science, UGA. July.  
 Czarick, M. *Tunnel Ventilation*. Poultry Tips. Cooperative Extension Service, Extension Poultry Science, UGA. September.
- 1987** Czarick, M. *Inadequate Insulation...How Much is it Costing You?* Poultry Energy Facts. Cooperative Extension Service, UGA. March 11.  
 Czarick, M., F.W. Kay, B.L. Tyson and R. Chassevent. *Energy Conservation in Agriculture: Insulation: The Basics*. Cooperative Extension Service, UGA. MP27. May.
- 1986** Czarick, M. *Energy Saving Light Bulbs*. Poultry Energy Facts. Cooperative Extension Service, UGA. January 10.  
 Czarick, M. *Maintenance Decreases Electric Bills*. Poultry Energy Facts. Cooperative Extension Service, UGA. September 15.

Computer programs, web-based communications, etc.

- 2008** Excel Tunnel Fan Comparison Spreadsheet (available on website).
- 2007** [www.poultryventilation.com](http://www.poultryventilation.com) website webmaster. 3,471 visits to the website in 2007 from over 50 countries.  
 Excel Tunnel Fan Comparison Spreadsheet - 2007 (available on website).
- 2006** [www.poultryventilation.com](http://www.poultryventilation.com) website webmaster.
- 2005** Tunnel Ventilation Design Spreadsheet (Revised 2005)  
 Broiler House Heating Cost Estimation Spreadsheet (Revised 2005)
- 2004** Tunnel Ventilation Design Spreadsheet (Revised)  
 Broiler House Heating Cost Estimation Spreadsheet (Revised).
- 2003** Tunnel Ventilation Design Spreadsheet  
 Broiler House Heating Cost Estimation Spreadsheet
- 2002** Revised the Poultry Ventilation web site to make the easier to use.  
[www.poultryventilation.com](http://www.poultryventilation.com)
- 2000** Poultry Housing Ventilation Web Site ([www.poultryventilation.com](http://www.poultryventilation.com) passes to [www.engr.uga.edu/service/extension/ventilation](http://www.engr.uga.edu/service/extension/ventilation))  
 Light Controlled Pullet House Design Spreadsheet

## Tunnel Ventilated Broiler House Design Spreadsheet

**1999** Poultry Housing Ventilation Web Site ([www.bae.uga.edu/extension/ventilation](http://www.bae.uga.edu/extension/ventilation)).

### GRANTS AND CONTRACTS

**2008** Fairchild, B.D., L.A. Harper, L.P. Naeher, M. Czarick, C.W. Ritz, J.W. Worley and S.A. Thompson. Monitoring Ammonia and Particulate Matter Concentrations at Property Fence Lines. US Poultry and Egg Association. May 2006 to April 2008. \$50,000

Fairchild, B.D., L.A. Harper, L.P. Naeher, M. Czarick, C.W. Ritz, J.W. Worley and S.A. Thompson. Monitoring Ammonia and Particulate Matter Concentrations at Property Fence Lines in Cold Weather. US Poultry and Egg Association. May 2006 to April 2008. \$45,571

Dartnell, D. and M. Czarick. Evaluation of Wood Pellet Heating System for Broiler Houses. USDA Forest Service. \$79,500

M. Czarick, B.D. Fairchild, and D. Dartnell. Wood Pellet Heating System for Broiler Houses.

Georgia Agriculture Innovation Center. Georgia Department of Economic Development. July 2008 to July 2009. \$56,500

Sarkisov, S., M. Czarick and B.D. Fairchild. Sensor of Ammonia Emission Resulting from Animal Manure Management Systems. USDA-SBIR 2008. \$60,080 (\$15,800 UGA portion).

Harper, L.P., C.W. Ritz, M. Czarick, B.D. Fairchild, and J.W. Worley. Broiler Housing Ammonia Emission Factors Determination, Downwind Concentration Measurement, and Dispersion Model Validation. U.S. Poultry and Egg Association. July 2008 to July 2009. \$110,000

**2007** Ritz, C.W., B.D. Fairchild, L.A. Harper and M. Czarick. Evaluation of Ferric Sulfate for Ammonia Control in Commercial Broiler Production. Kemira Water Solutions, Inc. May 2006 to April 2007. \$21,000

Fairchild, B.D., L.A. Harper, L.P. Naeher, M. Czarick, C.W. Ritz, J.W. Worley and S.A. Thompson. Monitoring Ammonia and Particulate Matter Concentrations at Property Fence Lines. U.S. Poultry and Egg Association. May 2006 to April 2008. \$50,000

Fairchild, B.D., L.A. Harper, L.P. Naeher, M. Czarick, C.W. Ritz, J.W. Worley and S.A. Thompson. Monitoring Ammonia and Particulate Matter Concentrations at Property Fence Lines in Cold Weather. U.S. Poultry and Egg Association. May 2006 to April 2008. \$45,571

Dartnell, D. and M. Czarick. Evaluation of Wood Pellet Heating System for Broiler Houses. USDA Forrest Service. \$79,500.

Ritz, C.W., L. A Harper, B. D. Fairchild, M. Czarick, J. Johnson. Evaluation of poultry house emissions in relation to slash pine (*Pinuselliottii*) plantations. US Poultry & Egg Association, \$25,300 July 2007 to December 2008 (money returned due to lack of industry cooperation).

**2006** Ritz, C.W., B.D. Fairchild, L.A. Harper and M. Czarick. Evaluation of Ferric Sulfate for Ammonia Control in Commercial Broiler Production. Kemira Water Solutions, Inc. May 2006 to April 2007. \$21,000

Fairchild, B.D., L.A. Harper, L.P. Naeher, M. Czarick, C.W. Ritz, J.W. Worley and S.A. Thompson. Monitoring Ammonia and Particulate Matter Concentrations at Property Fence Lines. U.S. Poultry and Egg Association. May 2006 to April 2008. \$50,000

Fairchild, B.D., L.A. Harper, L.P. Naeher, M. Czarick, C.W. Ritz, J.W. Worley and S.A. Thompson. Monitoring Ammonia and Particulate Matter Concentrations at Property Fence Lines in Cold Weather. U.S. Poultry and Egg Association. May 2006 to April 2008. \$45,571

Bird scales and data acquisition equipment. Choretime. \$2,000 (In-kind).

Bird scales and data acquisition equipment. Thevco. \$3,000 (In-kind).

Bird scales and data acquisition equipment. Rotem. \$3,000 (In-kind).  
Gravity ceiling inlets. Doublel. \$2,750 (In-kind).

Radiant brooders. Choretime. \$500 (In-kind).

Tunnel doors. Choretime. \$5,000 (In-kind).

Circulation fans. Doublel. \$1,500 (In-kind).

**2005** M. Czarick. Energy Efficient Broiler House Production - State Energy Office, 1 year. \$3,500

B. D. Fairchild, C. W. Ritz, M. Czarick, J. W. Worley. Animal & Poultry Waste Management Center, October 2004 to September 30, 2006, \$38,060. Evaluation of Heavy Litter Treatment Application to Reduce Broiler House Emissions.

M. Czarick. and B. Fairchild. Enclosing Broiler Houses Using Spray Polyurethane Insulation. \$8,000 (in-kind).

M. Czarick and B. Fairchild. Fan/Inlet Test Chamber. \$20,000 (in-kind).

B. Fairchild and M. Czarick. Bird Scale Testing. \$6,000 (in-kind).

M. Czarick and B. Fairchild. European Inlet Study. \$5,000 (in-kind).

M. Czarick and B. Fairchild. Circulation Fan Comparison. \$2,000 (in-kind).

M. Czarick and B. Fairchild. Radiant Tube Brooder Comparison. \$3,000 (in-kind).

M. Czarick and B. Fairchild. Tunnel Door Study. \$6,000 (in-kind).

**2004** M. Czarick. Energy Efficient Broiler House Production. State Energy Office, 1 year. \$3,500

M. Czarick, B. Fairchild, and W.A. Dozier. Evaluating the Use of Radiant Tube Heaters in Broiler Housing. Roberts- Gordon. September 2002 - September 2004. \$9,000 + 10,000 (in-kind, heating equipment and installation).

C.W. Ritz, B.W. Mitchell, B.D. Fairchild, M. Czarick, J.W. Worley. Improving In-house Air Quality and Reducing Emissions Associated with Broiler Production Facilities Using an Electrostatic Space Charge System. US Poultry and Egg Association. October 2002 to April 2005. \$58,000.

B. D. Fairchild, C. W. Ritz, M. Czarick, J. W. Worley. Evaluation of Heavy Litter Treatment Application to Reduce Broiler House Emissions. Animal & Poultry Waste Management Center. October 2004 to September 30 2006. \$38,060.

**2003** M. Czarick. Energy Efficient Broiler House Production - State Energy Office, 1 year. \$7,000.

M. Czarick, B. Fairchild, and W. A. Dozier. Evaluating the Use of Radiant Tube Heaters in Broiler Housing. Roberts-Gordon. \$9,000 + \$10,000 (in-kind, heating equipment and installation). September 2002- September 2004.

C.W. Ritz, A.B. Webster, M. Czarick. Factors Affecting Broiler Mortality During Live Haul. U.S. Poultry and Egg Association. \$18,244. May 2002 - May 2003.

C.W. Ritz, B.W. Mitchell, B.D. Fairchild, M. Czarick, J.W. Worley. Improving In-house Air Quality and Reducing Emissions Associated with Broiler Production Facilities Using an Electrostatic Space Charge System. U.S. Poultry and Egg Association. \$58,000. October 2002 - December 2003.

**2002** M. Czarick and M.P. Lacy. Broiler House Environmental Control. Goldkist. \$75,000. Last year of four year grant.

M. Czarick. Energy Efficient Broiler House Production. State Energy Office. One year. \$7,000.

M. Czarick, B. Fairchild, and W.A. Dozier. Evaluating the Use of Radiant Tube Heaters in Broiler Housing. Roberts- Gordon. \$9,000 + 10,000 (in-kind, heating equipment and installation).

C.W. Ritz, A.B. Webster, M. Czarick. Factors Affecting Broiler Mortality During Live Haul. US Poultry and Egg Association. \$18,244. May 2002 to May 2003.

C.W. Ritz, B.W. Mitchell, B.D. Fairchild, M. Czarick, J.W. Worley. Improving In-house Air Quality and Reducing Emissions Associated with Broiler Production Facilities Using an Electrostatic Space Charge System. US Poultry and Egg Association. \$58,000. October 2002 to December 2003.

**2001** M. Czarick and M. P. Lacy. Broiler House Environmental Control. Goldkist. Three years, in third. \$40,000 was added to the original \$35,000 grant for use in the last two years.

M. Czarick and B. Fairchild. Broiler House Floor Heating System. State Energy Office. \$11,000.

M. Czarick. Energy Efficient Broiler House Production. State Energy Office. One year. \$5,000.

M. Czarick and J. Worley. Ammonia Emissions from Commercial Broiler Houses. U.S. P&E. \$9,000 (in second year).

M. Czarick. Insulated Tunnel Inlet Doors. Canarm, one year. \$4,000 (in-kind).

**2000** M. Czarick and M. P. Lacy. *Broiler House Environmental Control*. Goldkist. Three years, in second year. \$40,000 was added to the original \$35,000 grant for use in the last two years.

- B. Webster and M. Czarick. *The Effects of Egg Packaging on Egg Cooling/Heating*. Dolco. \$3,500
- M. Czarick. *Energy Efficient Broiler House Production*. State Energy Office, one year. \$5,000
- M. Czarick and J. Worley. *Ammonia Emissions from Commercial Broiler Houses*. U.S. Poultry and Egg Association. Two years. \$9,000
- 1999** M. Czarick. *Broiler House Environmental Control*. Goldkist. 2 years. \$35,000
- M. Czarick. *Energy Efficient Broiler Production*. State Energy Office. 1 year, \$7,000
- 1998** M. Czarick. *Minimizing Energy Usage in Tunnel-Ventilated Broiler Houses*. State Energy Office of Energy Resources. \$7,500
- M. Czarick. *Broiler House Environmental Controllers*. Choretime Equipment. \$8,000 (in-kind).
- M. Czarick. *Ammonia Sensor Evaluation*. Industrial Scientific. \$500 (in-kind).
- M. Czarick. *Electronic Thermostat Demonstration/Evaluation*. Canarm Inc. \$500 (in-kind).
- M. Czarick. *Evaporative Cooling System Demonstration/Evaluation*. Munters, Inc. \$3,000 (in-kind).
- 1997** M. Czarick. *Minimizing Energy Usage in Tunnel-Ventilated Broiler Houses*. State Energy Office of Energy Resources. \$7,500.
- M. Czarick. *Evaluating Poultry House Light Traps*. Agricultural Fan Manufacturers. \$7,000 (in kind).
- 1995** M. Czarick. *Comparison of Radiant Brooders*. L.B. White. Principal. \$1,000.
- M. Czarick. *The Use of Board Insulation in the Side Walls of Curtain-Sided Broiler Houses*. Celotex. Principal. \$6,000.
- 1994** M. Czarick. Fluorescent Light Bulb Rebate Program. State Energy Office of Energy Resources.
- 1993** M. Czarick. *Energy Efficient Poultry Production*. State Energy Office of Energy Resources.

M. Czarick. Fluorescent Light Bulb Rebate Program. State Energy Office of Energy Resources.

M. Czarick. *Comparison of Evaporative Cooling in Tunnel-Ventilated Broiler Houses Using Pad and Fogging Systems*. Munters Corporation.

**1992** M. Czarick and M.P. Lacy. *Energy Efficient Poultry and Swine Production*. State of Georgia Office of Energy Resources. \$61,038.

M. Czarick. *Evaluation and Improvement of a Mechanical Broiler Harvesting Machine*. Southeastern Poultry and Egg Association.

M. Czarick. Fluorescent Light Bulb Rebate Program. State Energy Office of Energy Resources.

M. Czarick. *Comparison of Evaporative Cooling in Tunnel-Ventilated Broiler Houses Using Pad and Fogging Systems*. Munters Corporation.

**1991** M. Czarick and M.P. Lacy. *Energy Efficient Broiler Production*. State of Georgia Office of Energy Resources. \$60,460.

M. Czarick. *Egg Cooling Characteristics in Commercial Egg Coolers*. Southeastern Poultry and Egg Association.

M. Czarick. *Evaluation and Improvement of a Mechanical Broiler Harvesting Machine*. Southeastern Poultry and Egg Association.

M. Czarick. *Comparison of Evaporative Cooling in Tunnel-Ventilated Broiler Houses Using Pad and Fogging Systems*. Munters Corporation.

**1990** M. Czarick. *Energy Efficient Broiler Production Demonstration*. State of Georgia Office of Energy Resources. \$97,490.

## **CONTRIBUTIONS TO GOVERNANCE** (Departmental, College, University or Service)

**2005** College of Agriculture and Environmental Science Public Service Promotion Review Committee (Chairman).

College of Agriculture and Environmental Science Public Service Promotion Advisory Committee (Chairman)

**2003** College of Agriculture Public Service Promotion Review Committee

**2002** University Public Service Promotion Review Committee

**1999** D.W. Brooks Extension Award Committee

Public Service Promotion Committee - College of Agriculture

**1998** Public Service Promotion Committee

D.W. Brooks Award Committee

## CONSULTING

- 2008** Nicholas Turkeys. Multiple locations in U.S. and Canada.  
Cobb. South Carolina.  
Tyson Foods. Kentucky.  
Jones-Hamilton. Texas.
- 2007** Ross Breeders. Alabama.  
Arbor Acres. Alabama.  
Nicholas Turkeys. Multiple locations in U.S. and Canada.  
Aviagen. Japan, China.  
Peco Farms. Alabama.  
Pronaca. Ecuador.  
Embrex. North Carolina.  
Tyson Foods. Kentucky.
- 2006** Ross Breeders. Alabama.  
Arbor Acres. Alabama.  
Nicholas Turkeys. Multiple locations in U.S. and Canada.  
Bartters Poultry. Australia.  
Big Dutchman. Malaysia.  
Chickmont Poultry. Barbados.  
Tyson. Arkansas.  
Perdue. Maryland.  
Bachoco. Mexico.  
Peco Farms. Alabama.  
Coren Poultry. Spain.
- 2005** Coren Poultry. Coren Spain.  
Nicholas Turkeys. Canada, Virginia, Indiana.  
Perdue Farms. North Carolina, Kentucky, West Virginia, Florida, Delaware.  
Farbest Foods. Indiana.  
Holmes Foods. Texas  
Tyson Foods. Arkansas.  
Inghams. Australia.  
Chickmont. Barbados.  
Virginia Poultry Growers Cooperative. Virginia.  
Diversified Imports. Louisiana.
- 2004** Wenger Feeds. Reems, Pennsylvania.  
Maxim Eggs. Texas.  
Foster Farms. Turlock, California  
Nicholas Turkeys. Iowa, Nebraska, South Dakota.

Itur. Mexico.  
Wenger Feeds. Elizabethtown, Pennsylvania .  
Pilgrims Pride. Natchitoches, Louisiana.  
Pronaca Poultry. Guadiquil, Equador.  
Tyson Foods. Oxford, Alabama.  
Perdue Farms. Statesville, North Carolina.  
Sanderson Farms. Laurel, Mississippi.

**2003** Wenger Feeds. Reems, Pennsylvania  
Maxim Eggs. Texas  
Tyson Foods. Hope, Arkansas  
Nicholas Turkeys. Iowa, Nebraska, South Dakota  
Itur. Mexico  
Tyson Foods. Shelbyville, Tennessee  
Tyson Foods. Statesville, North Carolina  
Pronaca Poultry. Guadiquil, Ecuador  
Pilgrim's Pride. West Virginia  
Pilgrim's Pride. Virginia

**2002** Wenger Feeds. Reems, Pennsylvania  
Tyson Foods. Roberds, Kentucky  
Tyson Foods. Russellville, Arkansas  
Bachoco. Mexico  
OK Foods. Oklahoma  
Tyson Foods. Sneed, Alabama  
Jack Frost Foods. Minnesota  
Peco Farms. Gordo, Alabama  
Jamaica Broilers. Kingston, Jamaica  
Pronaca Poultry. Guadiquil, Ecuador

**2001** Foster Farms. California.  
Jones-Hamilton. Maryland.  
Cagles - Keystone. Kentucky.  
Tyson. Oklahoma, Arkansas, Tennessee.  
Bachoco. Mexico.  
Wenger Feeds. Pennsylvania.  
Perdue. North Carolina.  
Wayne Farms. North Carolina.

**2000** Foster Farms. California.  
Jones-Hamilton. Maryland.  
Cagles - Keystone. Kentucky.  
Tyson. Oklahoma, Arkansas.

Bachoco. Mexico.  
Wenger Feeds. Pennsylvania.  
Perdue. North Carolina.  
Wayne Farms. North Carolina.  
Choctaw Maid. Mississippi.  
Goldkist. Alabama.

**1999** OK Foods. Oklahoma.  
Wenger Feeds. Pennsylvania.  
Peco Foods. Mississippi.  
Townsend Foods. North Carolina.  
Tyson. Arkansas, North Carolina.  
Arbor Acres. Connecticut.  
Georges Foods. Arkansas.  
Cagles-Keystone. Kentucky.  
Perdue. North Carolina.  
Choctaw Maid. Mississippi.  
Bachoco. Mexico.  
Sanderson Farms. Mississippi.  
Goldkist. Alabama.

**1998** Goldkist. North Carolina.  
Tyson Foods. Tennessee.  
Tyson Foods. Arkansas.  
Carolina Golden. South Carolina.  
ConAgra Poultry. Louisiana.  
Wayne Poultry. Mississippi.  
Wenger Feeds. Pennsylvania.  
ConAgra Poultry. Arkansas.  
Georges Poultry. Arkansas.  
Mountaire Poultry. North Carolina.  
B.C. Rodgers. Mississippi.

**1997** Goldkist. Alabama.  
Hudson Foods. Kentucky.  
Peco Farms. Alabama.  
Carolina Golden. South Carolina.  
Goldkist. North Carolina.  
Lenexa. Kansas.  
ConAgra Poultry. Louisiana.  
Wayne Poultry. Mississippi.

**1995** Cal Maine. Bethune, South Carolina.

Con Agra Poultry  
Golden Poultry. Russellville, Alabama.  
Goldkist Poultry. Boaz, Alabama.  
Wayne Poultry. Laurel, Mississippi.  
Wayne Poultry. Guntersville, Alabama.  
Cal Maine. Greenville, North Carolina.  
Arbor Acres. Malaysia.  
Pilgrims Pride. Mississippi.  
Tyson. Texas.  
Golden Poultry. North Carolina.

**1994** Cal Maine. Bethune, South Carolina.  
Con Agra Poultry. Carthage, Missouri.  
Golden Poultry. Russellville, Alabama.  
Goldkist Poultry. Boaz, Alabama.  
Wayne Poultry. Laurel, Mississippi.  
Wayne Poultry. Guntersville, Alabama.  
Cal Maine. Greenville, North Carolina.  
Arbor Acres. Malaysia.

**1993** Cal Maine. Bethune, South Carolina.  
Con Agra Poultry. Carthage, Missouri.  
Golden Poultry. Russellville, Alabama.  
Goldkist Poultry. Boaz, Alabama.  
Perdue Poultry. Greenville, North Carolina.  
Wayne Poultry. Laurel, Mississippi.  
Wayne Poultry. Guntersville, Alabama.  
Cal Maine. Greenville, North Carolina.

**1992** Cal Maine. Bethune, South Carolina.  
Con Agra Poultry. Carthage, Missouri.  
Golden Poultry. Russellville, Alabama.  
Goldkist Poultry. Boaz, Alabama.  
ISE Farms. Broadway, New Jersey.  
Perdue Poultry. Greenville, North Carolina.

**1991** Cal Maine. Bethune, South Carolina.  
Incubadora International. Quito, Ecuador.  
Leading Edge. Miami, Florida.  
ConAgra Poultry. Carthage, Missouri.  
Golden Poultry. Russellville, Alabama.