

2008 ANNUAL REPORT

I-CASH

*Helping Farmers Stay
Alive and Well*



I-CASH Iowa's Center for
Agricultural Safety and Health

A PARTNERSHIP OF:

THE UNIVERSITY OF IOWA

IOWA STATE UNIVERSITY

IOWA DEPARTMENT
OF PUBLIC HEALTH

IOWA DEPARTMENT
OF AGRICULTURE AND
LAND STEWARDSHIP

Opening Thoughts From The Director

“I Have Dirt in my Veins”



This Fall, LaMar Grafft, Carolyn Sheridan, and I were in Vermont teaching our Agricultural Occupational Health course. In my introduction to the training I asked the participants why they were there. One woman, a physician and dairy farm wife, replied readily. “It’s simple, I have dirt in my veins.” I knew instantly what she meant. She was tied emotionally to agriculture, and she was connected to the culture of the people who do that work. Consequently, taking this training and translating it to her practice was a mission, not a job.

The sustainability and long term effectiveness of our agricultural health and safety programs depend on how much dirt is uncovered in the veins of our sponsors and administrators. One of the important functions of I-CASH is to train health care providers about the anticipation, diagnosis, treatment, and prevention of health and safety problems they encounter in their farm patients. The usual curriculum for health care providers contains little information on this subject. Since 2001 we have trained over 500 doctors, nurses, physician assistants, veterinarians, and other health providers in the subject of agricultural medicine. Most of these providers are located in rural communities and utilize this information in their practice. Those who take the course become enthusiastic and leave with a mission of serving the agricultural population with the knowledge they have acquired.

Since there is little training of this type offered outside of our program, we initiated a new “Building Capacity” project. With funding from the NIOSH funded Great Plains Center for Agricultural Health, we are working with surrounding states to develop capacity within their regions to institute sustainable training programs. This program has become quite popular and we are now receiving requests for the training outside the Midwest region.

Similar to the woman from Vermont, we see the “dirt in the veins” phenomenon in many of our students, especially those who were raised on a farm, or have had substantial contact with agriculture. The dirt in the veins remains in many people who left the farm generations ago, but if they return to the farm it comes back with all the passion. Witness the many “new” people in alternative agriculture, and those moving back to the country for retirement or lifestyle change. These people may have spent a career in a city, but found the calling to reinvigorate the dirt in their veins.

We work in a world where more and more of our organizations and government officials have forgotten the dirt in their veins, and funding for agricultural health programs becomes a hard sell. In Iowa there have been 26 farmers and 6 farm children die, so far, this year. Still, the mission of I-CASH is challenged by budget cuts. It will be an even more difficult challenge this year because of the expenses related to widespread flooding and the economic downturn.

Many in our I-CASH family have dirt in their veins. Every day we seek to advance our mission, “*Helping Farmers Stay Alive and Well.*” During the next few years, as we climb out of these economic challenges, it will take all of the dirt we have in our veins to keep our efforts alive, and the resources alive to sustain them. We have a job to do, so let’s roll up our sleeves and get on with farming the health and safety of our people.

Kelley J. Donham, MS, DVM
Director, Iowa’s Center for Agricultural Safety and Health

2008 Board of Directors

Marilyn Adams
Farm Safety 4 Just Kids

Cecilia Arnold
Network Against Human Trafficking

Karey Claghorn
Iowa Department of Agriculture
and Land Stewardship

Kelley Donham (Chairperson)
The University of Iowa

Bill Furlong
Producer

Mark H. Hanna
Iowa State University

Paul A. James
The University of Iowa

Kathy Leinenkugel
Iowa Department of Public Health

Terry Meek
Proteus, Inc.

Dan Neenan
National Education Center for
Agricultural Safety

Jeris Peterson
Producer

Wayne Sanderson
The University of Iowa

Ken Sharp
Iowa Department of Public Health

Carolyn Sheridan
AgriSafe Network, Inc.

Dustin VandeHoef
Iowa Department of Agriculture
and Land Stewardship

Wendy Wintersteen
Iowa State University

2008 Advisory Council

Shari Burgus (Chairperson)
Farm Safety 4 Just Kids

Gary Edwards
Iowa Corn Growers Association

Jan Goldsmith
Highway Safety Consultant

Deb Hebl
Producer

George Hebl
Producer

Charles A. Jennissen
The University of Iowa

Mark Kuhn
Producer

Corinne Peek-Asa
The University of Iowa

Chris Petersen
Iowa Farmers Union

Susan Roberts
Food and Society Policy Fellowship

Michael Rosmann
AgriWellness, Inc.

Cheryl Tevis
Successful Farming Magazine

Margaret VanGinkel
Iowa Concern Hotline

Eugene VerSteeg
Pork Producer

I-CASH Staff

Kelley Donham
Director

Eileen Fisher
Associate Director

LaMar Grafft
Rural Health and Safety Specialist

Aaron Kline
Certified Safe Farm Project Coordinator

Kay Mohling
Program Coordinator



Vision Statement

To make Iowa the world's healthiest and safest agricultural environment in which to live and work through creative leadership and collaboration among I-CASH, its partners and Iowa's agricultural community.

Mission Statement

The Mission of I-CASH is to enhance the health and safety of Iowa's agricultural community by establishing and coordinating prevention and education programs.

2008 I-CASH Annual Report

Kay Mohling, Editor

Cover Design by Patti O'Neill,
University of Iowa College of Public Health

The University of Iowa prohibits discrimination in employment and in its educational programs and activities on the basis of race, national origin, color, creed, religion, sex, age, disability, veteran status, sexual orientation, gender identity, or associational preference. The University also affirms its commitment to providing equal opportunities and equal access to University facilities. For additional information on nondiscrimination policies, contact the Coordinator of Title IX, Section 504, and the ADA in the Office of Affirmative Action, (319) 335-0705 (voice) or (319) 335-0697 (text), The University of Iowa, 202 Jessup Hall, Iowa City, Iowa 52242-1316.

Table of Contents

I-CASH Partner Programs

<i>Iowa Department of Agriculture and Land Stewardship</i>	
Pesticide Applicator Certification	4
Worker Protection Standard	4
<i>Iowa Department of Public Health</i>	4
<i>Iowa State University</i>	
Extension Farm Safety Program	5
Iowa Concern Hotline	5
<i>The University of Iowa (projects led by I-CASH core faculty and staff)</i>	
Agricultural Occupational Health Training	6
Building Capacity of Health and Safety Professionals	6
Certified Safe Farm	6
Certified Safe Farm for Large Farms	6
Comprehensive Assessment of Rural Health in Iowa	7
Hall of Fame Award	7
Injury Prevention in Agricultural Youth Grant	8
Pork Industry Health and Safety Training	8
Rural Roadway Safety	8
<i>The University of Iowa (projects at other UI research centers)</i>	
Agricultural Health Study	9
Center for International Rural and Environmental Health	9
Environmental Health Sciences Research Center	9
Great Plains Center for Agricultural Health	10
Injury Prevention Research Center	10
Iowa Fatality Assessment and Control Evaluation	10

I-CASH Affiliate Programs

AgriSafe Network, Inc.	11
AgriWellness, Inc.	11
Farm Safety 4 Just Kids	11
Iowa Farm Safety Council	12
National Education Center for Agricultural Safety	12
Proteus, Inc.	12

Financial Report	13
-------------------------------	----

I-CASH Presentations/ Educational Activities/ Newspaper Publications....	14
---	----

I-CASH Member Publications	16
---	----

Iowa's Center for Agricultural Safety and Health

Department of Occupational and Environmental Health
College of Public Health
100 Oakdale Campus, #124 IREH
The University of Iowa
Iowa City, IA 52242-5000

Telephone: 319/335-4438 FAX: 319/335-4225

www.public-health.uiowa.edu/icash

I-CASH Partner Programs

The following are brief descriptions of activities of the four I-CASH state institutional partners (the Iowa Department of Agriculture and Land Stewardship, Iowa State University, The University of Iowa, and the Iowa Department of Public Health).

Iowa Department of Agriculture and Land Stewardship

Pesticide Applicator Certification

The Iowa Department of Agriculture and Land Stewardship (IDALS) in cooperation with the Iowa State University Extension (ISUE) and the US Environmental Protection Agency (EPA) conduct the pesticide applicator certification program. Private pesticide applicators are certified to apply Restricted Use Pesticides and Commercial Pesticide Applicators are certified to apply General and Restricted Use Pesticides. As of June 30, 2008, Iowa had 36,488 certified applicators. There were 12,192 certified commercial applicators, 476 certified commercial handlers, and 23,820 certified private applicators. Certification testing will be held at about 1,250 sites in fiscal year 2008. Approximately 180 private and 255 commercial continuing instruction certification training sessions are expected to be offered by ISU Extension in fiscal year 2009.

www.IowaAgriculture.gov

Worker Protection Standard

The Worker Protection Standard (WPS) for agricultural pesticides is a regulation issued by the EPA. The WPS emphasizes educating agricultural employers on farms, forests, nurseries, and greenhouses of the need to train their workers and pesticide handlers regarding the safe use of pesticides. The Pesticide Bureau provided the Iowa Department of Public Health, Proteus Inc., and Iowa Legal Aid with the English/Spanish brochure, *Iowa Pesticides - Tips & Complaints*, for distribution at migrant camps, welcome centers, and for interested individuals throughout Iowa.

With matching funds from EPA and IDALS, ISUE completed two WPS outreach projects. The first project was transferring the ISUE Worker

Protection Standard *Train the Trainer* video from a VHS to a digital format. The video, produced in 2000, is designed to help the growers become qualified as trainers of their WPS workers and is marketed through IDALS. The second project was to develop an online version of *Train the Trainer*, which will also help facilitate the WPS trainer qualification process by IDALS.

www.extension.iastate.edu/pme/pat/workerprotection

Iowa Department of Public Health

The Iowa Department of Public Health (IDPH) Occupational Safety and Health Surveillance Program (OSHSP) recently completed its first year. The NIOSH-funded program is designed to build capacity for state-level surveillance that monitors work-related injuries, illnesses, and fatalities. The program also provides a foundation for enhanced surveillance programs already in place in Iowa, including Iowa FACE, IDPH Pesticide Poisoning Surveillance, and IDPH Adult Blood Lead Epidemiology and Surveillance programs. Networking with a variety of data partners at the local, state, and national level, the OSHSP collects and analyzes data for indicators monitoring the health and safety of workers in the state, and then disseminates the information to various stakeholders for program planning and intervention activities.

Analysis of occupational health indicator data shows that Iowa's work related fatality rates are higher than the national average for workers 45 years of age or older, and double the national rate for workers 55 years or older. For workers 65 years of age or older, Iowa workers had a work-related fatality rate in 2006 of 20.3 deaths per 100,000 compared to a rate of 10.8 per 100,000 USA workers in the same age bracket. This equals about 16 deaths each year for Iowa workers 65 or older in recent years.

OSHSP distributed information and resources through the Regional Community Health Consultant

program to local public health contacts in each of the 99 counties in Iowa. The program has also collaborated with the IDPH CADE (Center for Acute Disease Epidemiology) this past year for outbreaks that have included occupational exposures of infectious and zoonotic diseases.

The natural disasters of 2007 also required IDPH to provide assistance using health experts and health information coordinated through their Center for Disaster Operations and Response (CDOR). CDOR deployed the Environmental Health Division's Environmental Health Response Team (EHRT) in order to support local public health agencies to perform initial damage assessments, and inspect Red Cross shelters for food safety and sanitation issues.

EHRT also provided help in areas such as solid waste removal, evaluating carbon monoxide exposures, and assuring safe drinking water. Local public health agencies were essential partners in providing food inspection and assessment in the affected areas, along with on-going oversight of sanitation and safety concerns. The IDPH Environmental Health staff worked with local public health agencies to create fact sheets for residents regarding food and water safety, waste disposal, general sanitation, use of gas powered generators, accessing vaccines, and guidelines for salvaging, cleaning and disinfecting property and personal items.

www.idph.state.ia.us

Iowa State University

Extension Farm Safety Program

Iowa State University Extension farm safety program and activities that are directed towards I-CASH goals are:

- The Safe Farm radio program produced and distributed 52 weeks of one-minute messages to 68 radio stations completing 17 years of continuous safety audio programming efforts.
- ISU Extension organized articles on farm safety issues by involved partners and distributed them to Iowa's newspapers during National Farm Safety and Health Week.

- ISU Extension staff in three counties offered tractor safety training courses to 55 youth (14 and 15 year-olds) during 2008.
- A total of 23 safety day camps conducted by extension staff were held throughout the state reaching 4,047 youth.
- A total of 15 safety events conducted by extension staff reached 969 participants.

www.abe.iastate.edu/safety

Iowa Concern

The Iowa Concern Hotline at 800/447-1985 offers information and referral, stress counseling, and legal education. The Hotline received 18,192 calls from July 2007-June 2008. Approximately 25% of those calls were from farm and rural families.

Farm and rural issues this year varied. With high yields and grain prices, the crop situation was generally good. However, some livestock producers, especially hog producers, had trouble buying expensive grain to feed their livestock. There were also concerns this spring with the late weather conditions delaying planting. Input costs for seed, fuel, and fertilizer were another concern with farmers.

The tornadoes and floods in May and June caused much loss and stress in rural Iowa this summer. Although much of the publicity for Iowa flooding was focused on larger cities, many rural farms had flooding in their fields and personal residences. Severe damage to crops resulted in fields needing to be replanted. Livestock was lost in tornadoes, and pieces of metal and wood strewn in the fields had to be picked up by hand to prevent damage to farm equipment when harvesting. The Hotline helped organize volunteers for some counties to walk fields and assist after the disasters.

Farm and rural families called the Hotline regarding issues such as divorce, contracts, leases, and fence laws. Health insurance cost was another issue with rural families.

Iowa Concern also provides funding for behavioral health counseling. The *Sowing the Seeds of Hope* grant provides money for "farm" families

to receive behavioral health counseling. Iowa Concern has the list of providers and issues vouchers for people to receive up to five free counseling sessions. This service is confidential and counseling providers are available throughout the state. Approximately 65 families have accessed this program in the past year.

Iowa Concern continues to receive questions and concerns through the web site, receiving approximately 6,000 hits per month. The site has many *Frequently Asked Questions*, links to other organizations and agencies, success stories from persons who have accessed mental health facilities, and a *Live Person Chat* to talk directly with stress counselors.

www.extension.iastate.edu/iowaconcern

The University of Iowa

Projects led by I-CASH core faculty and staff

Agricultural Occupational Health Training

The Iowa Agricultural Occupational Health Training was held June 9-13, 2008. Forty-two health care professionals from fourteen states, Singapore, and Sweden were trained in a variety of agricultural safety and health topics. In addition to the on-campus course, the first half of the training was offered in a distance education format. The annual course can be taken for three graduate credit hours from the University of Iowa College of Public Health, and continuing education credits are offered. The 2009 course will be held June 8-12, 2009 in Iowa City, IA.

www.public-health.uiowa.edu/icash

Building Capacity of Health and Safety Professionals

The primary goal of this education/translation project is to address the critical shortage of agricultural occupational health and safety researchers and program leaders by educating the next generation of agricultural safety and health specialists through graduate and continuing

education programs. Agricultural Occupational Health Training courses were held in Illinois, Iowa and Vermont in 2008. Meetings are being held with representatives from Wisconsin, Minnesota, North Dakota, South Dakota and Nebraska to plan future training opportunities. Illinois will repeat the training in the summer of 2009.

Certified Safe Farm



The Certified Safe Farm (CSF) program has been

an agricultural health and safety research study since 1996. The methods are multifactorial, consisting of occupational health screenings, on-farm safety evaluations, incentives, and personalized education. The program has been implemented in over 25 Iowa counties. Some of the essential findings include the following:

- a 47% savings in insurance costs for occupational illnesses and injuries;
- a 22% reduction in Organic Dust Toxic Syndrome (ODTS) in intervention farmers;
- a reduction in bronchitis; and
- an increased use of personal protective equipment.

The current phase is now transitioning to different segments within the agricultural population and from research into the practice of production agriculture. The applications are in a variety of formats and include studies with senior farmers, health insurance claims, large farms, a workman's compensation/property casualty insurance company, and farm kids.

Our belief is that the CSF program is one of the few interventions that has shown effectiveness in reducing occupational injuries and illnesses, and providing a cost savings in medical care. We intend to keep working with this program to create its sustainability within the agricultural infrastructure.

CSF for Large Farms

After a decade of refining the CSF program for family farms, I-CASH has been working with

Amana Farms, Inc. of Amana, Iowa to develop a health and safety program for their company utilizing the Certified Safe Farm program principles. This experience will aid in the development of a CSF for Large Farms Program that can be implemented in any large-scale agricultural operation which includes both crops and livestock.

The program includes the four main components of the CSF program: 1) occupational health and wellness screening, 2) on-farm safety review, 3) personalized education, and 4) incentives. In addition, the large farms program concentrates on OSHA compliance issues as well as preparing the operation for applying for OSHA's Voluntary Protection Program (VPP).

Since the Amana Farms, Inc. program began in April 2007, I-CASH has completed two rounds of on-farm safety reviews with recommendations for removing the hazards that were found. Several new practices have been implemented such as strategic placement of first aid kits and PPE. In addition, eight educational meetings have been presented to the employees.

www.public-health.uiowa.edu/icash/CSF/index.htm

Comprehensive Assessment of Rural Health in Iowa

The Comprehensive Assessment of Rural Health in Iowa (CARHI) is a project of I-CASH, with funding from the Iowa Department of Public Health (IDPH). The goal of this research is to develop a surveillance system that links health data and environmental contaminants data, using a geographic information system (GIS). The system is designed to test the potential to evaluate relationships between environmental exposures from agricultural and other rural sources, and health outcomes.

A GIS environmental database was created to map potential sources of toxic substance sources. The CARHI team developed and tested a privacy protection tool within the GIS system that will allow the IDPH to collaborate on investigations into the relationship between environmental

exposures and health outcomes while protecting privacy. The main relationship examined is the location of permitted animal confinement facilities and medical diagnoses of persons living in the vicinity of these facilities. The procedure and privacy protection methods have been worked out and an exposure model has been developed to predict levels of hydrogen sulfide exposures at various distances from the facility. At present, we have found no relationship to the risk for development of a variety of respiratory, gastrointestinal, and other conditions relative to the closeness one lives to the livestock facility. Although developed for one county in Iowa, the project shows that it would be possible to develop a GIS system for the whole state in the future.

Hall of Fame Award

I-CASH named Cheryl Tevis of Pilot Mound, Iowa, the 2007 recipient of the Agricultural Safety and Health Hall of Fame Award. Tevis received this recognition at the Iowa State Fair on August 15, 2007 during the WOI midday radio show which aired live from the Iowa State University Extension booth. Iowa Secretary of Agriculture Bill Northey presented the award.

A writer and editor with Successful Farming magazine since 1979, Tevis serves as senior farm issues editor for the magazine. Throughout her professional career, Tevis has worked to improve the public's knowledge of farm safety and health issues, especially those that affect rural children.



Iowa Secretary of Agriculture Bill Northey, Hall of Fame Recipient Cheryl Tevis, and I-CASH Director Kelley Donham.

Tevis also devotes considerable time to farm health and safety issues beyond her journalistic duties. She volunteers with her local 4-H club and County Extension Council, and has also served on the board of directors of Farm Safety 4 Just Kids.

www.public-health.uiowa.edu/Icash/programs/HallOfFame/index.htm

Injury Prevention in Agricultural Youth Grant

Since its inception in 1990, I-CASH has designated funds each year for communities to develop farm injury prevention and education programs for Iowa's youth. This year grant funds were awarded to the following projects:

- Charles City, Nashua, and Rockford FFA Chapters, *Progressive Agriculture Safety Day*
- Town and Country Farm Safety for Kids, *Light and Yield SMV Safety*
- Dordt College, *Dust Explosion Demonstration and Safety Education*
- Horn Memorial Hospital AgriSafe Clinic, *Safety Day Fire Extinguisher Station*
- Howard County 4-H, *Teaming Up for Farm Safety*
- Taylor County Extension, *Growing Safe and Responsible Youth*
- Iowa State University Extension Clay County, *Tractor and Farm Machinery Certification*
- Iowa State University Extension Keokuk County, *Animals "Best Friend or Worst Enemy?"*

www.public-health.uiowa.edu/icash/programs/youthgrant/index.htm

Pork Industry Health and Safety Training

I-CASH staff, with funding from the National Pork Board, have developed an education program for producers on prevention of occupational injuries and illnesses. The Pork Industry Health and Safety Training project is a series of eleven online seminars which can be viewed at www.porktraining.com. This web site also provides a location where producers can ask questions, and

share information on the health and safety of employees. The seminar topics were developed in conjunction with an advisory group of industry representatives, and were presented by I-CASH staff, as well as health and safety professionals from across the country. Pork industry safety employees participated in the education sessions to provide practical commentary to the presentations. The seminars are focused towards pork production company personnel and safety managers who can then disseminate the information to their employees. Certificates are given to those who view the 11 sessions and complete the exams.

www.porktraining.com

Rural Roadway Safety

Rural roadway safety is the primary focus of the I-CASH Producer's Committee. Their goal is to reduce the number of collisions between non-farm vehicles and implements of husbandry by 20% over next 10 years. Their objectives include involving law enforcement in rural roadway safety, creating a media campaign to increase public awareness, and recruiting other partners to work on rural roadway safety. Jan Goldsmith, producer committee member and former employee of the Iowa Governor's Traffic Safety Bureau, organized a stakeholders meeting in June 2008 with representatives of the Governor's Traffic Safety Bureau, the Iowa Departments of Transportation, Education, and Public Safety, Association of County Sheriffs, I-CASH, Kinze Manufacturing, Polk County Farm Bureau, ISU Center for Transportation Research, Successful Farming magazine, and regional representatives from the National Highway Traffic Safety Administration - Region 7. Since then these partners have published numerous articles in newspapers and magazines on the topic. They continue to work to find solutions through engineering, education, and policy.

Agricultural Health Projects at other University of Iowa Research Centers:

Agricultural Health Study



The Agricultural Health Study is a prospective cohort study of agricultural exposures and chronic disease in Iowa and North Carolina among private pesticide applicators, their spouses, and commercial pesticide applicators. This is the 16th year of the study. During the first five years eligible subjects were enrolled; a total of 89,658 subjects were enrolled including 58,564 in Iowa. Phase II involved recontacting each cohort member to update exposure information (completed with 60,138), obtain dietary health questionnaire data (completed with 35,164), and obtain buccal cells (completed with 35,164). Phase III, which updates pesticide exposure histories and self-reported diseases, is ongoing and has been completed by over 21,000 Iowans.

The study has resulted in over 100 peer-reviewed publications evaluating methods, exposure assessment, high pesticide exposure events, environmental pesticide measures, farm work-related injuries, and health outcomes including mortality, cancer, eye disorders, neurologic symptoms/diseases, respiratory diseases, reproductive abnormalities, diabetes, and immunologic diseases. Abstracts of these publications can be found at the website.

www.aghealth.org

The Center for International Rural and Environmental Health

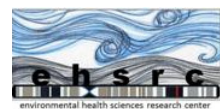
The Center for International Rural and Environmental Health's (CIREH) International Training and Research in Environmental and Occupational Health Program is funded by the NIH Fogarty International Center. In twelve years more than 70 young professionals have come to Iowa as Fogarty trainees. Trainees have conducted 45 in-country workshops after returning home, and have received funding from various sources for more than 25 collaborative research projects.

The training program for trauma and injury prevention research welcomed trainees from Croatia, Serbia, Macedonia and Romania. Research interests for this group include childhood injuries, domestic violence, traffic and bicycle safety, and the establishment of national injury registries in these countries. Several trainees are in the process of planning workshops.

Minority International Research Training provides minority students from Iowa an opportunity to spend 8-10 weeks at a foreign research institution. During the first years, students went to Slovakia, Poland, The Gambia, Romania, Australia, Thailand, Ghana, China, and Cameroon. This program benefits from the institutional connections that have been developed in CIREH's other training programs. The students were able to work with mentors in a laboratory setting, and also had the chance to participate in field trips, such as visits to Roma camps in Slovakia and rural clinics in The Gambia.

www.public-health.uiowa.edu/Cireh

Environmental Health Sciences Research Center



The Environmental Health Sciences Research Center (EHSRC), established in 1990, is one of 26 NIEHS-funded Core Centers of Excellence, and the only one located in the Midwest. Comprised of 56 faculty and 25 staff, the EHSRC is at the forefront of research in environmental lung disease, inflammation and innate immunity, and oxidative stress. Health concerns such as community and occupational exposures to airborne hazards from concentrated livestock feeding operations, asthma among rural children, and exposures to agricultural chemicals, radon, and bioaerosols are among the many issues currently under study by Center Investigators. The EHSRC also operates a pilot grant program and an enrichment program. In October 2007, the Center co-hosted an educational workshop for state legislators, "Environmental Health Issues in the Midwest." Center investigators also provided

health and safety expertise to aid organizations, the University of Iowa, governmental authorities, and the public throughout the flood of 2008, and plan to conduct research in the region.

www.ehsrsrc.org

Great Plains Center for Agricultural Health



The Great Plains Center for Agricultural Health (GPCAH) is dedicated to protecting and promoting the health and safety of farmers, farmworkers, their families and their neighbors.

Over the last year the GPCAH has increased the impact of their funding and enhanced their recognition as a Center. Through feasibility and outreach projects they have connected with researchers and others in the region to deliver meaningful work. Progress continues on the following GPCAH projects:

- *The Building Capacity of Health and Safety Professionals.* This agricultural health and safety training program expanded to Iowa, Southern Illinois University, and the Vermont Department of Public Health.
- *The Keokuk County Rural Health Study* continues round 3 data collection, including environmental surveys of 46 households as well as data analysis from rounds 1 and 2.
- *The Determinants of Gas and Dust Exposures Among Swine Workers Study* has included field visits and data analysis. Preliminary statistical analysis of task exposure levels indicates detection of significant differences in dust concentrations between task types, despite the large intra-task measurement variability, demonstrating that certain tasks provide a greater exposure risk than others.

www.public-health.uiowa.edu/gpcab

Injury Prevention Research Center

IPRC Since 1990, the University of Iowa Injury Prevention Research Center (UI IPRC) has been a national leader in identifying

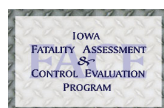
ways to reduce the high number of preventable injuries that occur in rural communities.

In addition to supporting research, the UI IPRC also serves as a national resource for rural injury prevention. The Center provides information, educational programs, and multi-disciplinary training to injury control advocates and programs across the Midwest. Large research studies currently underway at the UI IPRC include:

- comparing the effectiveness of various types of smoke detectors in rural homes;
- examining decision making behavior of children using a bicycle simulator;
- evaluation of a teen driving safety program;
- measuring domestic violence longitudinally and identifying the role of physical violence in relationship dissolution; and
- an evaluation of improvements of Batterer's Education Programs.

www.public-health.uiowa.edu/iprc

Iowa Fatality Assessment and Control Evaluation Program



The Iowa Fatality Assessment and Control Evaluation Program (FACE) is a program carried out by the Department of Occupational and Environmental Health under a subcontract with the Iowa Department of Public Health. The FACE program identifies all occupational fatalities in the state and conducts in-depth investigations of specific incidents. The FACE Program investigators develop recommendations aimed at preventing similar occupational injuries.

Fatal injuries while on the job remain a serious public health concern in Iowa as well as the entire country. During calendar year 2007, 80 fatal incidents resulted in a total of 86 traumatic deaths to persons while at work (compared to 79 deaths in calendar year 2006). All but nine of the occupational deaths in Iowa during 2007 were males. The victims tend to be older with 27.4% being 60+ years of age. Four of the victims were less than 21 years old.

www.public-health.uiowa.edu/face

I-CASH Affiliate Programs

The following are brief descriptions of Iowa farm safety and health programs and organizations that are associated with I-CASH and its mission of enhancing the health and safety of Iowa's agricultural community.

AgriSafe Network, Inc.



The AgriSafe Network, a non-profit national membership organization, represents health professionals and educators who are concerned about the health and safety of farm families. Many agricultural injuries, diseases, and fatalities can be prevented through the delivery of agricultural occupational health services. The Network is dedicated to supporting AgriSafe health professionals who are then prepared to serve the health care needs of farm families. As members of the AgriSafe Network, health professionals receive many benefits including training, educational materials, contact with other clinicians in the field, and updates on the most cutting-edge developments in agricultural safety and health.

To assist AgriSafe professionals in the provision of occupational health care the benefits have expanded to include monthly internet-based continuing education, technical assistance, educational resources, peer networking, and marketing support.

To learn more about developing AgriSafe services in your community visit AgriSafe online.

www.agrisafe.org

AgriWellness, Inc.



AgriWellness, Inc., a nonprofit organization, provides behavioral health supports for the agricultural population in seven states: Iowa, Kansas, Minnesota, Nebraska, North Dakota, South Dakota and Wisconsin. In 2007, partnering organizations in the region provided community education to 1,300 persons and professional education to 230 health care providers. State hotlines responded to 23,621 helpline calls and provided 3,100 vouchers for behavioral health services to farmers and their families. Highlights of 2007 include the following:

- The U.S. Congress authorized a Farm and Ranch Stress Assistance Network, modeled after the *Sowing the Seeds of Hope* program directed by AgriWellness, as part of the Food, Conservation and Energy Act of 2008.
- Completed pilot research to evaluate the effectiveness of farm crisis telephone hotlines.
- Information about *Sowing the Seeds of Hope* services was distributed to Farm Service Agency and Extension offices in the state.

www.agriwellness.org

Farm Safety 4 Just Kids



Farm Safety 4 Just Kids (FS4JK) is a non-profit organization that produces and distributes farm safety educational materials and includes a chapter network of volunteers throughout the United States and Canada. The following activities were provided by FS4JK:

- FS4JK worked with Iowa State University to update their grain educational packet funded by Cargill, and a new tractor educational packet was developed and funded by Deere & Company.
- *Successful Farming* magazine sponsored 10 Farm Family Grants through FS4JK.
- Spokesperson and Founding President, Marilyn Adams was named the grand prize winner of the 6th Annual Volvo for Life Awards. Volvo made a \$100,000 donation to FS4JK and Adams will receive a new Volvo automobile of her choice every three years—for life!
- The Outreach Coordinator network has expanded to include part-time coordinators in nine Midwestern states. These coordinators conduct safety programs in their communities.
- FS4JK published the article "Testing a Novel Child Farm Safety Intervention for Anabaptist Audiences" in the *Journal of Agromedicine*. The

study used FS4JK's magnetic demonstration to address safety concerns within Anabaptist farming practices.

www.fs4jk.org

Iowa Farm Safety Council

The Iowa Farm Safety Council is a volunteer organization that has worked to make rural Iowa a safer place to live, work, and raise a family for over 60 years. The Council is a grass roots effort supported by a network of professionals in agricultural production, education, insurance, industry, and government. This year the Council's ongoing efforts to promote good safety and health practices resulted in a presence at the Iowa Power Farming and Machinery Show and the Iowa State Fair.

While the number of members in the Iowa Farm Safety Council is relatively small, the people involved have consistently turned out to staff events and continue to bring the safety and health message to farmers and their families.

www.abe.iastate.edu/safety/ifsc.html

National Education Center for Agricultural Safety



The National Education Center for Agricultural Safety (NECAS) provides educational and interactive training programs for agriculture production workers, farm and ranch families, ag businesses and related industries. This

year, new teaching tools include a pickup and trailer for the Agricultural Safety and Health on the Road program, and new online safety programs in partnership with the Viticulture, Enology and Science Technology Alliance.

The Tractor Rollover and Combine/Auger Extrication programs are part of a new AAS Firefighting Specialist program developed by NICC. Rural Iowa volunteer fire/EMS departments can participate at little to no cost.

NECAS continues to host a Progressive Agriculture Foundation Safety Day coordinators

training program, as well as provides three Farm Safety Days and a Fall Harvest Safety Day program.

As the agricultural section of the National Safety Council, NECAS provides the information and theme for National Farm Safety & Health Week each year. The 2008 theme was *"Farm Safety – Protect YOUr Investment."* Contact NECAS to be included in the mailing/email list for materials, or to contribute to the resources available. In 2007, over 976,000 individuals accessed information thru the website, radio, and print media.

www.nsc.org/necas

Proteus, Inc.

PROTEUS
INC

Proteus, Inc. is a not-for-profit organization that since 1990 has operated the Bureau of Primary Health Care-funded Migrant Health Project in the state of Iowa. From offices located in Des Moines, Fort Dodge, and Iowa City, Proteus provides outreach, home visits, and clinics around the state for migrant and seasonal farm workers. After farm worker families are certified as eligible, Migrant Health Aides conduct health histories and the families are seen by the Project's Physician Assistants (PA), student PAs, volunteer providers, or contracted providers. Proteus conducts clinics and educational activities at sites such as migrant camps and employer sites. Each year, 1,000 to 2,000 migrant farmworkers come to Iowa to work. Iowa is also home to as many as 10,000 low income seasonal farm workers. These individuals reside in Iowa throughout the year and perform seasonal agricultural work, work in hog confinement operations, egg production, or are employed as general farmhands.

In 2007 the Proteus Migrant Health Project served 1,450 farmworkers in Iowa and this year the Project is well on its way to serving over 1,600 farmworkers. Over the past 2 years, the National Farmworker Jobs Program was able to provide support for Workplace and Pesticide Safety training for over 300 migrant farmworkers utilizing the EPA curriculum and issuing certification cards.

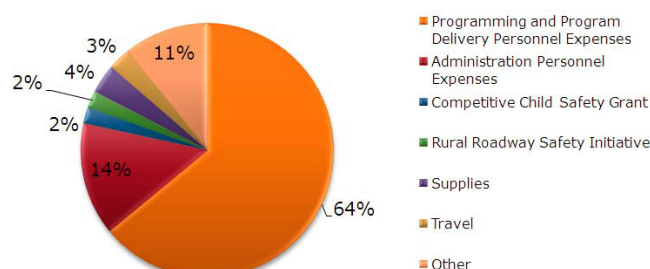
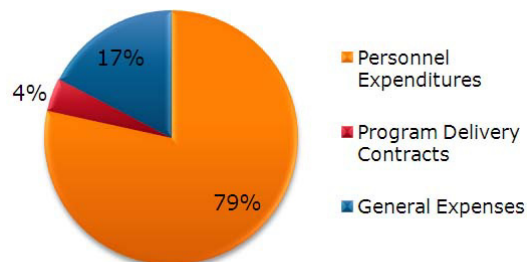
www.proteusinc.net

Financial Report

The I-CASH budget consists of FY 2008 state funds, plus competitive grant and contract funds listed below. The following table and graphs depict the state appropriated expenditures divided into three areas: 1) personnel expenditures for programming and administration; 2) program delivery contracts; and 3) general expenses.

PERSONNEL EXPENDITURES		
	Budget Dollars	Actual Dollars
Programming and Program Delivery	153,338	151,898
Administration	31,675	33,988
Total Personnel Expenditures	185,013	185,886
PROGRAM DELIVERY CONTRACTS		
Competitive Child Safety Grant	5,000	5,000
Rural Roadway Safety Initiative	5,000	5,000
Total Program Delivery Contracts	10,000	10,000
GENERAL EXPENSES		
Supplies	6,380	8,879
Travel	3,000	6,856
Other: Includes computer system support, required semi-annual meetings, outreach materials, annual report, telephone and newsletters	31,324	25,495
Carry-over deficit to FY09		(1,399)
Total General Expenses	40,704	39,831
TOTAL BUDGET	235,717	235,717

Actual FY 2008 Expenditures



Grants and contracts that I-CASH faculty and staff have received to conduct intervention and research activities in Iowa:

	Annual Total	Project Term
Certified Safe Farm: Evaluating Health Insurance Claims (US Dept. of Health and Human Services, CDC, Pioneer, Monsanto, Iowa Farm Bureau Federation)	\$ 250,087.00	9/1/2003 to 8/31/2008
Comprehensive Assessment of Rural Health in Iowa (CDC, IDPH)	\$ 124,297.00	10/1/2002 to 8/31/2007
ERC Ag (Heartland Center for Occupational Health and Safety)	\$ 78,992.00	7/1/2002 to 6/30/2013
GPCAH Building Capacity	\$ 152,498.00	9/30/2006 to 9/29/2011
GPCAH Swine Worker Exposure	\$ 165,763.00	9/30/2006 to 9/29/2011
Pilot Testing of Safe Play Areas Research Instrument (National Children's Center for Agricultural Health and Safety)	\$ 15,000.00	10/1/2006 to 9/28/2007
Pork Industry Training (National Pork Board)	\$ 25,000.00	12/1/2007 to 12/1/2008
Tractor Safety Initiative (US Dept. of Health and Human Services, CDC)	\$ 24,433.00	1/1/2006 to 12/31/2007
Total	\$ 836,070.00	

I-CASH Presentations/ Educational Activities/ Newspaper Publications

July 2007

"Agricultural safety and health." Kelley Donham. Presentation to the Rural Health and Primary Care Division of the Iowa Department of Public Health. July 1; Des Moines, IA.

"Grilling safety." LaMar Grafft. Radio interview with KXIZ radio station. July 5; Iowa City, IA.

"Home repairs recall need for ladder safety." LaMar Grafft. The Gazette, July 8, 2007.

"Farmer fatally injured in tractor posthole auger entanglement." Iowa Fatality Assessment and Control Evaluation Program case study. July 12; Iowa City, IA.

"Farmer killed when raised front-end loader bucket attachment falls." Iowa Fatality Assessment and Control Evaluation Program case study. July 12; Iowa City, IA.

"Design issues in monitoring pesticide exposure." Wayne Sanderson. Presentation at the Summer Institute on Rural and Environmental Health. July 15-20; Cluj-Napoca, Romania.

"The Keokuk County Rural Health Study: Identifying opportunities for future research, community-based prevention and intervention programs." James Merchant, Ann Stromquist, Wayne Sanderson. Presentation at the Summer Institute on Rural and Environmental Health. July 15-20; Cluj-Napoca, Romania.

"Agricultural trauma." LaMar Grafft. Presentation at the University of Iowa Carver College of Medicine. July 16; Iowa City, IA.

"Many farm fatalities involve tractors." LaMar Grafft. Iowa Farmer Today, July 21, 2007.

Child safety display. LaMar Grafft. Exhibit at the Johnson County Fair. July 24; Iowa City, IA.

"Farm Families Alive & Well Newsletter." I-CASH and GPCAH staff. Vol. 13(3). July 2007.

August 2007

"Focus on road safety during harvest time." LaMar Grafft. The Gazette, August 12, 2007.

Farm safety display. LaMar Grafft. Exhibit at the Iowa State Fair. August 16; Des Moines, IA.

"Take care on road as harvest approaches." LaMar Grafft. Iowa Farmer Today, August 18, 2007.

"Agricultural safety & health." LaMar Grafft. Presentation at the University of Iowa Carver College of Medicine. August 21; Iowa City, IA.

"Health risks and prevention for pork producers." Kelley Donham. Presentation to the Iowa Pork Producers Association. August 29; Iowa City, IA.

September 2007

"Newcomers need info on safety on acreages." LaMar Grafft. The Gazette, September 9, 2007.

"Agricultural trauma." LaMar Grafft. Presentation at St. Luke's Hospital EMS conference. September 12; Cedar Rapids, IA.

"63 years after proclamation, still work to be done." LaMar Grafft. Iowa Farmer Today, September 15, 2007.

"Certified Safe Farm: The process and health outcomes." Kelley Donham. Elluminate presentation to the AgriSafe Network. September 19; Iowa City, IA.

"Farmer attacked and killed by dairy bull." Iowa Fatality Assessment and Control Evaluation Program case study. September 21; Iowa City, IA.

"Farmer pitched from operator position run over by tractor and rotary cutter." Iowa Fatality Assessment and Control Evaluation Program case study. September 21; Iowa City, IA.

"Confined space training." LaMar Grafft. Presentation at the Central Iowa Training Association-Kirkwood Fire School. September 22; Cedar Rapids, IA.

"Grain bin rescue." LaMar Grafft. Presentation at the Central Iowa Training Association-Kirkwood Fire School. September 23; Cedar Rapids, IA.

"Farm Families Alive & Well Newsletter." I-CASH and GPCAH staff. Vol. 13(4). September 2007.

October 2007

"Put your safety first during harvest." LaMar Grafft. The Gazette, October 14, 2007.

"Drought contributes to fire losses." LaMar Grafft. Iowa Farmer Today, October 20, 2007.

November 2007

"Simple fixes for electrical hazards." LaMar Grafft. The Gazette, November 11, 2007.

"Agricultural safety & health." LaMar Grafft. Presentation at the University of Iowa Carver College of Medicine. November 12; Iowa City, IA.

"A fly-by of I-CASH programs and progress 2007." Kelley Donham. Presentation at the Midwest Rural Agricultural Safety and Health Forum. November 14-16; Omaha, NE.

"Medical costs and respiratory disease prevention in the Certified Safe Farm intervention." Kelley Donham. Presentation at the AgriSafe Annual Conference. November 14; Omaha, NE.

"Rollover protection." LaMar Grafft. Presentation at the Iowa Nebraska Equipment Dealers Association Meeting. November 14; Council Bluffs, IA.

"Electrical safety problems have serious consequences." LaMar Grafft. Iowa Farmer Today, November 17, 2007.

"Prevention of farm injuries and illnesses using a comprehensive intervention: The Certified Safe Farm." Kelley Donham. Presentation at The Rural Health Initiative Program. November 22; Shawano, WI.

"Protecting the health of pork producers." Kelley Donham. Iowa Pork Producer Headlines, a publication of the Iowa Pork Producers Association. Vol. 6 No 2.

"Protecting the health of pork producers: Proper use of respirators." Kelley Donham. Iowa Pork Producer, a publication of the Iowa Pork Producers Association. November 2007.

December 2007

"Farm safety changes." LaMar Grafft. Presentation at the Iowa Farm Safety Council Annual Meeting. December 7; Des Moines, IA.

"Make sure you have a fire escape plan." LaMar Grafft. The Gazette, December 9, 2007.

"Families need a fire escape plan." LaMar Grafft. Iowa Farmer Today, December 15, 2007.

"Farm Families Alive & Well Newsletter." I-CASH and GPCAH staff. Vol. 14(1). December 2007.

January 2008

"Agricultural safety." LaMar Grafft. Presentation at Amana Farms, Inc. January 4; Amana, IA.

"Looking ahead to 2008 safety." LaMar Grafft. Iowa Farmer Today, January 19, 2008.

"For safe new year, make resolutions." LaMar Grafft. The Gazette, January 20, 2008.

"Health and safety hazards and prevention in pork production." Kelley Donham. Presentation at the Iowa Pork Congress Annual Meeting. January 23; Iowa City, IA.

February 2008

"Wives should use influence for farm safety." LaMar Grafft. The Gazette, February 10, 2008.

"Encourage safety tips for loved ones." LaMar Grafft. Iowa Farmer Today, February 16, 2008.

"Respiratory hazards and prevention in production agriculture: Part I." Kelley Donham. Presentation at Amana Farms, Inc. February 21; Amana, IA.

March 2008

"Agricultural occupational health: What the health care providers need to know about the risks of their farm patients." Kelley Donham. Presentation at the University of Iowa Carver College of Medicine. March 3; Iowa City, IA.

"3 'no's' when driving in winter weather." LaMar Grafft. The Gazette, March 9, 2008.

"Farm safety." LaMar Grafft. Presentation to Certified Safe Farm participants. March 12; Ida Grove, IA.

"An overview of rural and agricultural health conditions in the rural environment: Diagnosis, treatment, and prevention." Kelley Donham. Presentation at the Lutheran Hospital. March 13; Des Moines, IA.

"Practice safe driving in winter weather conditions." LaMar Grafft. Iowa Farmer Today, March 15, 2008.

"Respiratory hazards and prevention in production agriculture: Part II." Kelley Donham. Presentation at Amana Farms, Inc. March 20; Amana, IA.

I-CASH display. I-CASH staff. Exhibit at the Occupational Health Symposium. March 27; Iowa City, IA.

"Work safely around liquid manure." Kelley Donham. Article for Iowa Pork Producer Magazine, March 2008.

"Farm Families Alive & Well Newsletter." I-CASH and GPCAH staff. Vol. 14(2). March 2008.

April 2008

"Farm Trauma." LaMar Grafft. Presentation at Mercy Hospital. April 4; Iowa City, IA.

"Preparation for a safe year." LaMar Grafft. Presentation at the Iowa Farm Safety Council Board Meeting. April 11; West Des Moines, IA.

"Spring cleaning gives you a boost." LaMar Grafft. The Gazette, April 13, 2008.

"Respiratory hazards and prevention in production agriculture: Part III." Kelley Donham. Presentation at Amana Farms, Inc. April 17; Amana, IA.

"Slips, trips & falls." LaMar Grafft. Presentation for the Pork Industry Training Program. April 17; Iowa City, IA.

"Spring cleaning does double duty keeping safety in mind." LaMar Grafft. Iowa Farmer Today, April 19, 2008.

May 2008

"Farm safety awareness key for older farmers." LaMar Grafft. The Gazette, May 11, 2008.

"Production agriculture in the United States: The human element," and "Veterinary biological and therapeutic occupational hazards." Kelley Donham. Presentations at the Southern Illinois University School of Medicine Agricultural Occupational Health Training. May 21-23; Springfield, IL.

"Pass on a legacy of safety, says Grafft." LaMar Grafft. Iowa Farmer Today. May 24, 2008.

"Agricultural safety & health." LaMar Grafft. Presentation at the University of Iowa Carver College of Medicine. May 27; Iowa City, IA.

"Electrical safety." LaMar Grafft. Presentation for the Pork Industry Training Program. May 29; Iowa City, IA.

"Accidental inoculations: A sticky problem." Kelley Donham. Article for Iowa Pork Producer Magazine, May 2008.

June 2008

"Agriculture injuries and deaths captured in press clips." Murray Madsen. University of Iowa Press Release. June 4; Iowa City, IA.

"Farm trauma: Preparing for trouble." LaMar Grafft. Presentation at St. Luke's Hospital EMS Conference. June 4; Cedar Rapids, IA.

"Results from the Certified Safe Farm Study." Kelley Donham. Presentation at the North American Agromedicine Consortium Annual Meeting. June 6; Lancaster, PA.

"Tornado cleanup." LaMar Grafft. The Gazette, June 8, 2008. Agricultural occupational health training. I-CASH staff. University of Iowa Continuing Education Course. June 9-13; Iowa City, IA.

"Personal protective equipment." Kelley Donham. Presentation for the Pork Industry Training Program. June 12; Iowa City, IA.

"Farm tour." Kelley Donham and LaMar Grafft. Presentation at the Southern Illinois University School of Medicine Agricultural Occupational Health Training. June 18-20; Springfield, IL.

"Prevention of illness in agricultural populations." Kelley Donham and Carolyn Sheridan. Presentation at the Southern Illinois University School of Medicine Agricultural Occupational Health Training. June 18-20; Springfield, IL.

"An investigation of all-terrain vehicle (ATV) incidents in Illinois, Indiana, Iowa, Nebraska, and Ohio." William P Campbell, Charles V Schwab, Robert E Petrea, et al. Technical paper presented at the National Institute for Farm Safety Annual Conference. June 22-26; Lancaster, PA.

“Building capacity: Delivery of a consensus curriculum in agricultural safety and health to health care and health and safety professionals.” Kelley J Donham, Kay Mohling, and LaMar Grafft. Technical paper and presentation at the National Institute for Farm Safety Annual Conference. June 22-26; Lancaster, PA.

“Effectiveness of the Certified Safe Farm on-farm safety review process in identifying and removing injury and illness hazards on the farm.” Risto H Rautiainen, LaMar J Grafft, Aaron K Kline, et al. Technical paper and presentation at the National Institute for Farm Safety Annual Conference. June 22-26; Lancaster, PA.

“Effects of asymmetric carrying tasks on lower extremity kinematics in farm children.” Jason C Gillette, Catherine A Stevermer, Ross H Miller, and Charles V Schwab. Technical paper presented at the National Institute for Farm Safety Annual Conference. June 22-26; Lancaster, PA.

“Interventions for preventing injuries in the agricultural industry.” RH Rautiainen, MM Lehtola, LM Day, et al. Technical paper and presentation at the National Institute for Farm Safety Annual Conference. June 22-26; Lancaster, PA.

“Lighting and marking agricultural equipment.” Murray Madsen. Presentation at the National Institute for Farm Safety Annual Conference. June 22-26; Lancaster, PA.

“Lost time from injuries and occupational diseases in agriculture in Finland.” Risto H Rautiainen, Nancy L Sprince, Kelley J Donham, et al. Technical paper and presentation at the National Institute for Farm Safety Annual Conference. June 22-26; Lancaster, PA.

“Needle sticks in livestock producers: A special risk for women.” Kelley J Donham, and Jamie Wallace. Technical paper and presentation at the National Institute for Farm Safety Annual Conference. June 22-26; Lancaster, PA.

“Results from the Certified Safe Farm Study.” Aaron Kline, Kelley Donham, Risto Rautiainen, et al. Poster presentation at the National Institute for Farm Safety Annual Conference. June 22-26; Lancaster, PA.

“Risk factors for work-related musculoskeletal disorders among farmers.” Obiora E Onwuameze, Gideon J Zamba, Corinne Peek-Asa, et al. Technical paper and presentation at the National Institute for Farm Safety Annual Conference. June 22-26; Lancaster, PA.

“Work ability index among Finnish dairy farmers.” J Karttunen, and RH Rautiainen. Technical paper and presentation at the National Institute for Farm Safety Annual Conference. June 22-26; Lancaster, PA.

“Farm trauma.” LaMar Grafft. Farm tour and lecture at the University of Iowa, Rural Health Scholars program. June 24; Iowa City, IA.

“Lockout/Tagout.” LaMar Grafft. Presentation for Pork Industry Training Program. June 24; Iowa City, IA.

Farm safety display. LaMar Grafft. Exhibit at Hay Expo. June 25-26; Ossian, IA.

“Stay safe when helping with disaster cleanup.” LaMar Grafft. Iowa Farmer Today, June 28, 2008.

“Farm Families Alive & Well Newsletter.” I-CASH and GPCAH staff. Vol. 14(3). June 2008.

I-CASH Publications

Culp K, R Kuye, KJ Donham, R Rautiainen, M Umbarger-Mackey, and S Marquez. 2007. Agricultural-related injury and illness in The Gambia: A descriptive survey of rural nursing service and area farmers. *Clin Nurse Res* 16(3):170-188.

Curwin B, M Hein, W Sanderson, C Striley, D Heederik, H Kromhout, S Reynolds, M Alavanja. 2007. Pesticide dose estimates for children of Iowa farmers and non-farmers. *Environmental Research* 105(3):307-315.

Donham KJ, RH Rautiainen, JL Lange, S Schneiders. 2007. Injury and illness costs in the Certified Safe Farm Study. *J Rural Health* 23(4):348-55.

Freeman SA, CW Lott, CV Schwab, and DW Field. 2007. Evaluation of the safety content in the National Association of Industrial Technology Certification Exam. National Association of Industrial Technology Conference. Panama City Beach, Florida.

Kaustell KO, TE Mattila, RH Rautiainen. 2007. Safety performance of animal confinement floors: slip, trip, and fall injuries in Finland. *J Agricultural Safety and Health* 13(4):395-406.

Kline A, K Leedom-Larson, KJ Donham, R Rautiainen, S Schneiders. 2008. Farmer assessment of the Iowa Certified Safe Farm Program. *J Agromed* 12(3):33-43.

Kuye RA, KJ Donham, SP Marquez, WT Sanderson, LJ Fuortes, RH Rautiainen, ML Jones, KR Culp. 2008. Pesticide handling and exposures among cotton farmers in The Gambia. *J Agromed* 12(3):57-69.

Murphy MW, WT Sanderson, JD Vargo. 2007. Airborne antibiotic concentrations in a swine feeding operation. *J Agricultural Safety and Health* 13(4):357-366.

Peek-Asa C, NL Sprince, PS Whitten, SR Falb, MD Madsen, and C Zwerling. 2007. Characteristics of crashes with farm equipment that increase potential for injury. *J Rural Health* 23(4):339-347.

