

## Great Plains Announces Projects

The Great Plains Center for Agricultural Health (GPCAH) encourages new and creative research; sometimes that research is embedded in an innovative intervention or the translation of research into practice. The pilot/feasibility projects funded by GPCAH for fiscal year 2008 are now finishing human subjects and contract details. Barring complications, these projects will begin October 1<sup>st</sup>.

**Rural Roadway Safety Drivers Education Module**  
Rural roadways have more crashes, more miles traveled, and more fatalities than urban roadways. This project, led by Dan Neenan at the [National Education Center for Agricultural Safety](#), will investigate an optional module for driver education instructors to use in drivers training. Partners from neighboring states, Departments of Transportation, insurance companies, and other interested parties will participate in an advisory role to identify the format, content, and distribution method most appropriate.

**Do Farm Crisis Services Affect Farmer Suicide?**  
Several states have farm crisis hotlines offering telephone counseling to the agricultural population, information about additional resources, and referrals. This project by Mike Rosmann at [AgriWellness, Inc.](#)

looks at the rates of suicide and knowledge of agricultural resources in states that have had farm crisis services for many years, and states that have not.

**Evaluating Noise Exposures of Rural Youth**  
While hearing loss is commonly associated with farmers over 50, it is believed that hearing loss among farmers begins in early adolescence. This study by University of Iowa Doctoral Candidate Michael Humann will assess the noise exposures of farming and non-farming male adolescents in a rural area.

**Incorporating Occupational Health Interventions in a Community Based Program for Farm Families**  
The purpose of this research authored by Lisa Schiller is to expand the Shawano County, Wisconsin Rural Health Initiative (RHI), incorporating the [Certified Safe Farm \(CSF\) program](#). The RHI has focused on screening and education related to cardiovascular health and nutrition for farm families. This research focuses on the ability of the RHI to incorporate on-farm safety reviews and occupational health screenings, in an effort to evaluate the ability of a community based program to incorporate the CSF program, and farmers' perception and experience with participation.

## Asthma and Farming

by Wayne Sanderson, PhD, CIH

The number of people suffering from asthma in the United States is higher than ever before. The Centers for Disease Control and Prevention estimate that as many as 15 million Americans currently have asthma and the National Center for Health Statistics estimates that 4 million of them are children. It is not clear why the prevalence of asthma is increasing, but air pollution and environmental toxins have been suggested as possible causes.

Asthma is a temporary narrowing of the airways of the lungs which causes difficulty breathing, chest tightness, coughing, and the characteristic respiratory wheeze. Asthma most commonly occurs among people with a personal or family history of allergies after they have had high or frequent exposure to sensitizing substances, such as animal hair or dander, organic dusts (like grain), insect proteins, bacteria, fungi, or various chemicals. Asthma may also develop in people who have no known allergies. It is well documented that workers who are frequently



Research Assistant calibrating environmental dust sampler outside a rural home.

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Iowa's Center for Agricultural Safety and Health (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 15th 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.



Iowa Secretary of Agriculture Bill Northey, Cheryl Tevis, and Kelley Donham.

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. She has received numerous awards for her writing, including the National Award for Excellence in Journalism from the North American Agricultural Journalists; the American Agricultural Editors' Association Writing Award; the American Corn Growers Voice of Agriculture Award; and the Milt Hakel Award for Agricultural Communications from the National Farmers Union.

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

For more information on the Hall of Fame Award visit [www.public-health.uiowa.edu/Icash/programs/HallOfFame/index.htm](http://www.public-health.uiowa.edu/Icash/programs/HallOfFame/index.htm)



I-CASH is seeking proposals for its **Agricultural Youth Injury Prevention Grants**. This program is aimed at decreasing the risk of illness and injury to young people living on Iowa farms or involved in production agriculture. Application packets are available at [www.public-health.uiowa.edu/icash](http://www.public-health.uiowa.edu/icash), the **application deadline is January 15, 2008**. Technical assistance will be available through a conference call October 17th. To participate in the call, request an application, or learn more about this program, contact Meggan Fisher at 319/335-4226 or [meggan-fisher@uiowa.edu](mailto:meggan-fisher@uiowa.edu).



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exposed to high concentrations of agricultural dusts are at higher risk of developing respiratory diseases including chronic bronchitis, organic dust toxic syndrome, and asthma. On the other hand, many studies have reported that farm children are less likely to have allergic diseases and asthma, while other studies have not found such an association.

The Great Plains Center for Agricultural Health (GPCHA) is currently conducting the third round of the Keokuk County Rural Health Study (KCRHS). This is a population-based study of approximately 1000 families living in a highly agricultural, rural county in Iowa. One of the primary objectives of this study is to evaluate the relationship between exposures to agricultural dusts and gases and their association with respiratory diseases, especially asthma. During this round of the study, dust and gas samples are collected both inside and outside the homes of study participants for six days. The dust samples are being analyzed for endotoxin, a compound found in the cell wall of gram-negative bacteria which is well known to be associated with respiratory disease. The results of the sampling will ultimately be compared to the respiratory health of the research participants whose homes are sampled, and comparisons will be made with exposures found in urban population studies.

We hope the results of our work will help answer the puzzling question: What is the relationship between the increasing prevalence of respiratory diseases and environmental exposures?

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# Avoid Deadly Manure Gases: Stay Out of Manure Pits

by Murray Madsen, Program Consultant, GPCAH

Livestock manure is often collected and stored in slurry silos or underground pits and later spread across farm land in the fall and spring. As stored manure decomposes, it generates gases, principally carbon dioxide, ammonia, hydrogen sulfide, and methane. All are toxic. Methane and hydrogen sulfide can be particularly deadly for anyone entering a manure storage facility.

“Methane from manure pit triggers tragedy” was the subtitle for a national news story this summer about five people killed on a Virginia dairy farm. After the farmer was overcome in a manure pit, the others (including 3 family members) died in one failed rescue after another. It’s a scenario heard too many times, over too many years.

Methane is lighter than air, colorless, odorless, tasteless, and does not dissolve in water. It is generated by decomposition and is released from the slurry without any easily detectable warning signs. When the slurry store has a lid on it, or the methane is otherwise restricted from escaping, it displaces the oxygen which is essential for breathing, and asphyxiation results. The pit on the Virginia farm was nearly enclosed and poorly ventilated.

More rapidly lethal than methane, concentrations of hydrogen sulfide high enough to cause death in a single breath have been measured when a stored manure slurry was agitated. Like methane and other manure gases, hydrogen sulfide is generated in the breakdown that occurs within the slurry. Unlike methane, hydrogen sulfide easily remains dissolved in the slurry and releases like carbon dioxide from a shaken soft drink when the slurry is agitated. In addition, hydrogen sulfide is heavier than air so it accumulates above the slurry like an invisible fog, flows and fills any low spaces. Although hydrogen sulfide accumulation also displaces the air one would need to breathe, it’s capable of causing death before that occurs.

One part hydrogen sulfide per million parts of air (1 ppm) or less smells like rotten eggs. As the ppm concentration increases, hydrogen sulfide paralyzes the sense of smell. Hydrogen sulfide does not starve the lungs for oxygen; it prevents the absorption of oxygen. Increasing concentration and duration of exposure cause nausea, unconsciousness, and ultimately death in a single breath.

Precautionary measures are essential to avoid concentrations of methane and/or hydrogen sulfide that cause death without warning. Every person coming near a manure storage facility should be aware of the dangers and the precautions to follow. This reminder is especially timely as we enter fall when many slurry stores will be agitated and emptied. For more information visit the IA FACE website at [www.public-health.uiowa.edu/face](http://www.public-health.uiowa.edu/face) and the NIOSH FACE website at [www.cdc.gov/niosh/FACE/](http://www.cdc.gov/niosh/FACE/). Resources are also available on the internet (search “manure gas”) and through your local Cooperative Extension Service.

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## calendar

October 7-13

**National 4-H Week**

[www.extension.iastate.edu/news/2007/sep/090701.htm](http://www.extension.iastate.edu/news/2007/sep/090701.htm)

October 12-19

**National Safety Council Congress & Expo**

Chicago, IL

[www.congress.nsc.org](http://www.congress.nsc.org)

November 3-7

**American Public Health Association Annual Meeting and Exposition**

Washington, DC

[www.apha.org/meetings](http://www.apha.org/meetings)

November 14

**AgriSafe Network, Inc.**

**Annual Meeting**

Council Bluffs, IA

[www.agrisafe.org](http://www.agrisafe.org)

November 14-16

**The Changing Face of Agricultural Health and Safety: Biofuels, Food Safety, and Alternative Agriculture**

Omaha, NE

[www.public-health.uiowa.edu/ICASH](http://www.public-health.uiowa.edu/ICASH)

January 15, 2008

**I-CASH Youth Grant deadline**

[www.public-health.iowa.edu/ICASH](http://www.public-health.iowa.edu/ICASH)

### **I-CASH Agricultural Occupational Health Training**

**June 9-13, 2008**

Information and skills for health care professionals to function as practitioners in the prevention of agricultural occupational illnesses and injuries.

Contact Kay Mohling

at 319/335-4219 or

[kay-mohling@uiowa.edu](mailto:kay-mohling@uiowa.edu)

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# +++++It All Adds Up

## Farm Equipment (FE) – Motor Vehicle (MV) Crashes on Public Roads, 2006

Note: A “fatal” crash may include more than one fatality. An “injury” crash may include more than one injury.

	CRASHES <sup>1</sup>			INJURIES			DEATHS			
	PDO <sup>2</sup>	Injury	Fatal	Total	FE	MV	Total	FE	MV	Total
<b>Illinois</b> Dept. of Trans., Traffic Statistics Unit	174	47	5	226	19	41	60	1	4	5
<b>Iowa</b> Traffic Safety Data Service	104	85	8	197	36	83	119	5	3	8
<b>Kansas</b> Dept. of Transportation	59	18	4	81	4	21	25	1	3	4
<b>Minnesota</b> Dept. of Transportation	71	35	2	108	13	37	50	1	1	2
<b>Missouri</b> Hwy Patrol Public Info. and Ed. Div.	127	48	3	178	22	41	63	2	1	3
<b>Nebraska</b> Dept. of Roads – Hwy Safety	42	25	1	68	13	17	30	0	1	1
<b>North Dakota</b> Dept. of Trans., Traffic Safety Div.	20	5	0	25	2	7	9	0	0	0
<b>South Dakota</b> Dept. of Public Sfty, Ofc of Hwy Sfty	21	8	3	32	4	13	17	0	3	3
<b>Wisconsin</b> State Patrol, Bureau of Trans. Sfty	97	62	1	160	13	79	92	1	0	1

1) Data excludes non-collision events, collisions with parked motor vehicles, fixed objects, animals, trains, pedestrians, and various other categories of “first harmful events”.

2) PDO refers to a crash in which there is “Property Damage Only”.

For more information contact Murray Madsen, [murray-madsen@uiowa.edu](mailto:murray-madsen@uiowa.edu) or 319/335-4481.

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**GREAT PLAINS CENTER FOR AGRICULTURAL HEALTH**

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