

Great Plains Center for Agricultural Health

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Annual Report

FY 07 (Oct.1, 2006-Sept.30, 2007)

Wayne T Sanderson, PhD, CIH

Program Director

II. CENTER PROJECT REPORT BY CORE / TYPE: Administration Planning and Outreach Core

A. PROJECT TITLE

Administrative Planning and Outreach Core

B. PROJECT OFFICER(S)

Wayne T. Sanderson, PhD, CIH, Center Director
Great Plains Center for Agricultural Health
College of Public Health
The University of Iowa
Oakdale Campus, 134 IREH
Iowa City, Iowa 52242
Telephone: 319-335-4207
Fax: 319-335-4225
Email: wayne-sanderson@uiowa.edu

Murray Madsen, MBA, Associate Director
Risto Rautiainen, MS, PhD, Deputy Director
Patricia Ramstad, MA, Program Coordinator
Wendy Jackson, MBA, Center Administrator
Julie Venzke, Center Webmaster
Patricia Francisco, Account Specialist

C. PROJECT DESCRIPTION

The mission and tasks undertaken by the Great Plains Center for Agricultural Health are varied. The Administrative Planning and Outreach Core provides leadership, direction, and oversight of all aspects of the Center. The Core provides continuity, builds upon the strengths of the previous work, and supports ventures advancing into new research areas. The Core also initiates and integrates new Center responsibilities.

The specific aims of the Administrative Planning and Outreach Core are to:

- 1: Provide Center leadership and administrative infrastructure sufficient to direct and report all project and Center activities.
- 2: Coordinate all projects and outreach activities within the Center, with related programs at the University of Iowa, with other NIOSH Agricultural Health and Safety Centers, and with other US and international investigators concerned with agricultural health and safety.
- 3: Develop in consultation with the Internal Regional and External Advisory Committees a strategic plan to guide the Center's development and growth.

- 4: Support regional feasibility/pilot projects program, (competitively selected each year) and evaluate their progress.
- 5: Support and evaluate targeted outreach activities, in collaboration with regional partners health and safety professionals and other agricultural health centers.

D. PROJECT START AND END DATES

09/30/2006-09/30/2007

E. APOC PROJECT ACTIVITIES / ACCOMPLISHMENTS

Implementation of Center Evaluation Plan

The GPCAH Administrative Planning and Outreach Core provided strategic review of all Center activities to evaluate progress and effectiveness in achieving the Center's specific aims to promote agricultural safety and health, guide research, education, and outreach efforts, and to provide mentoring opportunities. The GPCAH Admin Core held frequent meetings and discussions with internal and regional partners to discuss agricultural health and safety needs and propose research projects and outreach efforts to address these needs. Many topics with potential to become projects were identified through interaction with our internal and regional partners.

The GPCAH Executive Council is the primary internal advisory and Center decision-making group. Chaired by the Center Director, the GPCAH Executive Council holds monthly management meetings to address programmatic, project, and budgetary issues. Members of GPCAH are also part of the Ag Core Group which consists of 16 faculty and staff within the Department of Occupational and Environmental Health in the College of Public Health. The Ag Core Group also meets monthly to discuss and share information. Other internal and external national and international professionals are occasional attendees of our meetings.

GPCAH members were active participants in the NIOSH National Agricultural Tractor Safety Initiative. They helped design and propose studies within the initiative and advise NIOSH on the direction the initiative should take. Drs. Sanderson and Donham worked with co-leader Dr. Purschwitz of the University of Kentucky on a project to gain additional farmer, farm organization, dealer, and manufacturer perspectives on the implementation of ROPS on tractors. Dr. Rautiainen worked for collaborative positions on project proposals to address social marketing, injury and intervention estimates, and to describe model intervention programs.

Feasibility/Pilot Projects Program

Regional Advisory Committee (RAC) members participated in an initial briefing on the projects of the GPCAH 2006-11 and their roles as an advisory committee. This briefing was hosted in conjunction with the Midwest Rural and Agricultural Safety and Health (MRASH) forum in November 2006 to build regional community as well as shape pilot / feasibility and outreach program plans for FY2007.

RAC members (representing 9 states in our region plus 5 major agricultural safety and health organizations home-based in our region) supported a special "Year One (FY2007) Only" opportunity

combining pilot / feasibility and outreach program funding. Subsequently, 14 proposals were submitted, one by each RAC member, to do the following:

1. Identify needs and priorities for their constituency in the region;
2. Detail education and outreach being done and what they would do, or support by others;
3. Describe efforts to identify individuals and form teams interested, able, and willing to respond to the GPCAH pilot / feasibility research project request-for-proposals (RFP);
4. Track and report what “Year One Only” funding helped, supported, or made possible.

RAC guidance shaped the content and timing of the GPCAH request-for-proposals (RFP) and the subsequent process leading to the selection of pilot / feasibility projects for funding in FY2008. RAC members reconvened in February 2007 to finalize the RFP work begun in November, its specifications and timeframes, as well as to share plans for RFP redistribution, networking, and collaboration on proposals among potential applicants. The RFP was released the first week of March 2007.

Nine proposals were submitted for FY2008 pilot / feasibility project funding. Each proposal was independently reviewed and rated by three experts. The full panel of all reviewers met face-to-face to hear each others’ reviews, perform final ratings, and ultimately select proposals to be funded. The following four pilot / feasibility projects were chosen to receive funding for FY2008, representing an investment of the entire GPCAH pilot / feasibility project budget allocation:

- Evaluating Noise Exposures of Rural Youth
- Rural Roadway Safety Optional Drivers Education Module
- Farm Crisis Services Affect Farmer Suicide: A Comprehensive Evaluation
- Expansion of the Rural Health Initiative: Incorporating Occupational Health Interventions in a Community Based Participatory Preventative Health Program for Farm Families

We have not yet finished the administrative struggles associated with extramural human participant research approvals and subcontracting, and the relatively small size of award makes applicants wary. In parallel time but separate from the review of pilot / feasibility project applications, RAC members convened in June 2007 to provide an update on their “Year One Only” deliverables and address how best to invest the GPCAH outreach program budget allocation for FY2008.

Early findings from their “Year One Only” work led RAC members to a consensus supporting distributed state and local outreach funding in two priority areas:

- Tractor and equipment safety (e.g., overturns, extra riders, or farm equipment on roads)
- Agricultural health (e.g., personal protective equipment)

They also advised GPCAH not to allocate FY2008 outreach funding to support day camps or ATV safety at this time.

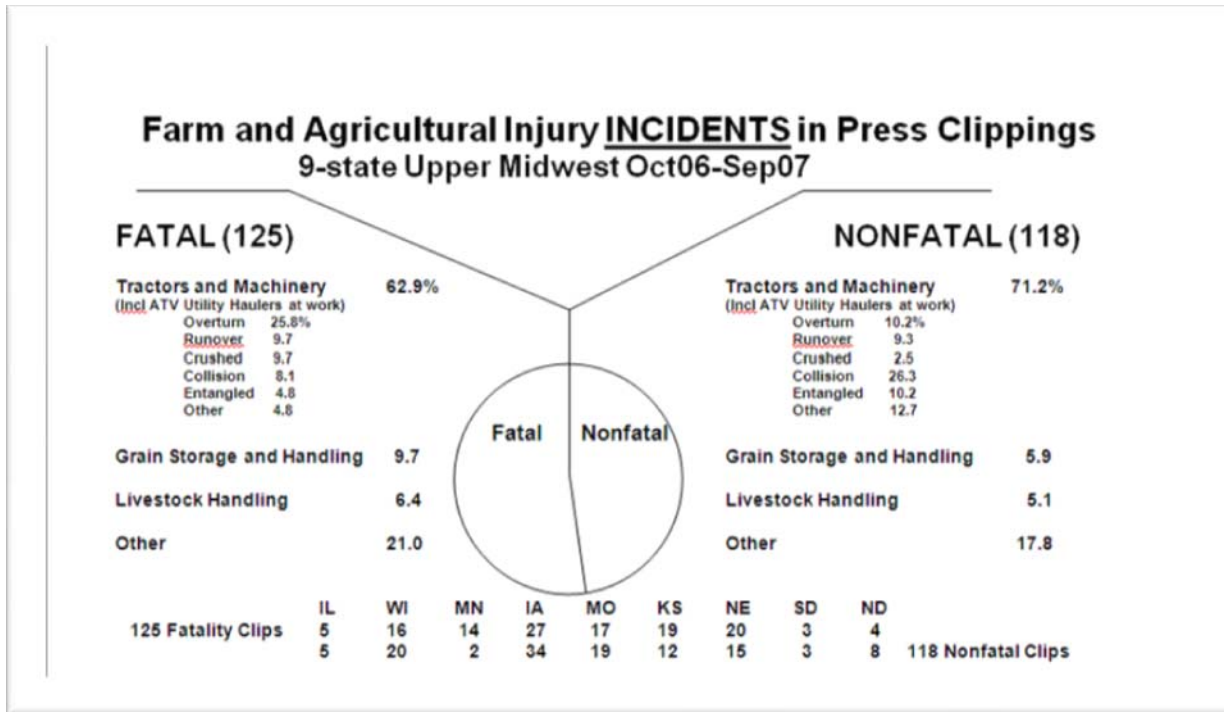
The mechanism considered most practicable was a repeat of that used for “Year One Only” funding. For “GPCAH FY2008 Outreach”, RAC members (or those they chose to work with or defer to in their work network) are applying for an equal share to support work related to the priority areas listed above.

The GPCAH reserved a portion of the outreach dollars for intramural outreach including the quarterly Alive and Well newsletter distributed electronically to 1026 and in hardcopy to 606 individuals, the Midwest Rural Agricultural Safety and Health (MRASH) conference attended by 150 individuals and the Farm and Agricultural Injury Monitoring System (FAIMS) which captures press clippings from across the 9-state region.

FAIMS data supports interaction with media, articles for newsletters, brings real stories into grant applications and the classroom, and serves as a periodic means for staying connected and sharing

information with our regional advisors. A summary of FAIMS press clippings for FY2007 is provided in Figure 1.

Figure 1.



The following excerpts from mid-year and final “Year One Only” reports from RAC members are testimony to a year of successful beginnings in work with colleagues of our 9-state region. The summarization of these activities shows the strong partnership we have developed with partners in our region.

Missouri Cooperative Extension Service (MO CES) is learning and informing on the needs and priorities of residential/lifestyle farmers, those living in the country as a lifestyle choice. By USDA definition, their farming enterprise generates only one \$1000 to \$10,000 in annual income so they have major employment other than farming. Farms in the GPCAH 9-state region comprise nearly 30% of US farms, and 40% of the farms in our region (2006) fit the residential/lifestyle definition. The number of lifestyle farms is even greater if one includes the growing number of niche farms making less than \$1000 annually.

Understanding this population requires understanding why they have chosen the lifestyle. It has a little to do with the ability to access coupled with the lure of being less accessible. It is about the pursuit of passions for couple where both, and increasingly the wife, are actively engaged in farming. Many commute and travel significant distances to stock up, an observation not lost on those looking at motor vehicle traffic and farm equipment crashes in rural areas.

Among the passions of those choosing to live in the country is raising animals, especially horses and a small herd of cattle. The literature documents well animals as a leading source of nonfatal injuries in production agriculture, on a par with machinery-related sources. Lifestyle farmers also possess machinery sized smaller for their acreage than that typically deployed on the large row crop, hay and grain farms which are perhaps a more visible feature of the Midwest landscape. Many returning or novice may not be familiar with farming's safety and health hazards, old or new.

Working with the Country Living Association, MO CES engaged these farmers with programming they want and need on tractors, grain handling, and ATV safety at venues such as Women in Agriculture forums, farm equipment shows, and ATV youth safety training events. Missouri programs provided with GPCAH support also addressed senior farmer and farmworker issues, asthma and allergies triggered in rural environments, hearing protection, ergonomics, pesticide protections, and more.

MO CES networked with partner RAC member FS4JK to create a project proposal to further work with the Country Living Association, especially on ATV safety.

Farm Safety 4 Just Kids (FS4JK) like MO CES began working more closely with the Country Living Association (CLA) which, interestingly, has an official publication committed to the ever-growing, rural residential/lifestyle population called *Living the Country Life*, a Meredith Publication. To learn more about this population, its safety needs and priorities, FS4JK developed and presented programs at 3 CLA meetings. At CLA's urging, FS4JK included (in addition to its other offerings for the safety of children on farms) a special emphasis segment on ATV safety. According to a National Association of Farm Broadcasters there are 60% more small farms with an ATV than the aggregate 25% of all farms that have one or more.

While not large in the mosaic of farm work injury sources, ATV use and injuries are rampant in rural settings. Focus groups at CLA meetings, and a CLS member survey, indicate this population is neither well informed nor concerned about farm safety and health but is alert to the ATV user safety issue.

North Dakota Farm Bureau (NDFB) compiled the farm and agricultural health and safety statistics for ND and convened members of the stakeholder ND Agricultural Safety and Health (ND ASH) group. This resulted in 50 additional CDs of the Purdue "Gearing Up for Safety" training for youth in agriculture being provided to vocational agriculture teachers and extension agents across the state. Additional funding supported safety day camps.

ND ASH was employed as a venue for sharing from the GPCAH through the ND RAC member, such as the opportunity for pilot / feasibility research project and outreach program funding. Although the research proposal offered did not receive funding for FY2008, remain FY2007 funds distributed to NDFB were provided to Dr. McCullagh to develop an instrument to measure farmers' preferences for hearing protectors. This project acknowledges the importance of understanding these preferences in order to help farmers select devices that will also meet their needs. Returns from the deployment of this survey instrument will be used to shape a behavior-based intervention to increase use of hearing protection among farmers.

Through the ND ASH group members are being made aware of products, projects, activities, services and events relevant to agricultural safety and health, such as ND Public Service Commission's subcontract to the Mental Health Association of ND (MHAND) to provide 2-1-1 ND call center and program services. MHAND hosted the RAC partner AgriWellness "Sowing the Seeds of Hope" coalition meeting to develop definitive strategies responding to the behavioral health issues for ND farm and ranch families.

AgriWellness applied funding from GPCAH to enhance and enrich the organization serving the behavioral healthcare needs of the agricultural population in seven states of the Sowing the Seeds of Hope (SSoH) within the GPCAH region. A regional conference was organized and delivered. Proceedings are available at www.agriwellness.org. Participants rated the conference favorably, between 3 and 4 on a semantic differential scale 1 to 4 for each of seven key dimensions of success. The conference was preceded by a coalition capacity development workshop and followed by a town meeting. The workshop engaged at least one representative from each SSoH member state to dialog on capacity and communication building and to help establish future directions for AgriWellness, which set the stage for member state coalition meetings that followed in each of the seven states. The town hall meeting focused on next steps to address the behavioral healthcare needs of the agricultural population. Pilot / feasibility funding for a comprehensive evaluation of SSoH services was identified as a potentially important contributor to the larger plan for a Farm and Ranch Stress Assistance Network (FRSAN) supported through the US Federal 2007 Farm Bill. The AgriWellness website and its two newsletter (12,500 addressees nationwide) carried information from the conference, workshop, and town meeting and track progress aided by GPCAH involvement.

The AgriWellness research proposal to the GPCAH was accepted for FY2008 funding. Among the aims of our pilot / feasibility project program is success in securing other, additional funding for work that has benefitted from the “seed” monies. AgriWellness was awarded a Rural Health Network Development Grant in May 2007 and the FRSAN has been introduced through legislators and is a component of the Farm Bill currently under consideration by the US Congress.

South Dakota Cooperative Extension Service (SD CES) utilized GPCAH support to review the statistics on agricultural injury and illness in their state’s footprint within our region. Their conclusion is significant numbers of youth are engaged in SD farming and a very high proportion of them operate ATVs. Thirty SD *Save Our Farm Youth* (SOFY) sessions (day camps, school safety programs, and fairs) benefitted from GPCAH support during the year reaching over 2,400 youth. Each session utilized one to six of nearly twenty modules available. Based on pre-test/post-test results, average scores rose from 70% to 93%.

SD CES networked with RAC member MN CES in a workshop entitled *Current Issues in Rural Agricultural and Environmental Health*, a collaborative effort that also engaged the University of MN School of Public Health and Sioux Valley Regional Hospital – Worthington in a focus on agricultural and rural health and safety issues for farm families.

Minnesota Cooperative Extension Service (MN CES) used a portion of their GPCAH funding for continued subscription to press clipping services that monitor deaths, serious injuries, and important safety issues on farms in their MN footprint. This clippings information helps guide their programming and the materials disseminated through extension educators and rural volunteers in the state and region.

Networking support enabled MN CES to reconnect with key commodity groups, including a needs assessment initiative with pork producers through the Center for Animal Health and Food Safety at the University of MN in collaboration with the National Pork Board. This has enriched and entrenched MN CES involvement in the national “Sow Bridge” distance education program for pork producers, which will feature agricultural safety and health in April 2008 and list GPCAH as a sponsor. In addition, discussions were held with Dr. Greg Gray at the University of Iowa regarding future educational programs for key audiences such as workers in poultry and pork production sector. GPCAH support is also listed on the MN safety website <http://safety.cfans.umn.edu/>

(one of the first agricultural safety websites in the US) which receives more than 30,000 hits per year. In addition, the “supported by GPCAH” tag will appear on updated and new educational programs and presentations accessible via this site.

Wisconsin National Farm Medicine Center – Marshfield (WI NFMC) studied a 10-year history (1995-2005) of farm or agricultural deaths in WI (See <http://www.wiscash.uwex.edu>). Priority issues identified were:

- Tractor-related, particularly overturns and runovers
 - Of the 113 fatalities involving farm tractors, overturns accounted for 54% and runovers were 38%.
- Other farm machinery, particularly entanglements or being pinned
 - Of the 80 fatal incidents involving farm machines other than tractors, those involving being pinned or entangled accounted for 65% with runovers adding 16%.
- Incidents involving older farmers, especially 65 and older
 - Nearly one-third of victims were 65 or older
- Incidents involving youth, especially those under 10 and teenagers
 - Nearly one-fifth of victims were 19 or younger, with 10% under age 10

The WI NFMC compilation also shows other important areas that should not be neglected, including those which are animal-related (12%), falls, and incidents among persons 45-64 years old (33%). This compilation is being uploaded to the WI NFMC website and promoted to state and local media via news releases and newsletters. It is also being shared with the WI Association of Agricultural Educators to reach high school vocational agriculture teachers statewide, and offered to the WI Center for Agricultural Safety and Health for announcement through the county extension agriculture and 4-H/youth development networks.

Nebraska Cooperative Extension Service (NE CES) responded to a critical need with support from GPCAH this year. There are still too few instructors for the Hazardous Occupations Order in Agriculture safety trainings in NE to meet the needs of youth, including those without farm experience who want to work on farms and likewise agribusinesses for their employees. Six new instructors and seven previous instructors were enabled to deliver the training required.

Kansas Cooperative Extension Service (KS CES) surveyed KS County Ag Agents. Priority needs identified were ATV safety programming, modernized tractor and machinery safety materials, help for annual tractor safety trainings, and materials for small and hobby farms. In response KS CES provided 110 “Gearing Up for Safety” (Purdue/HoBar) C-Ds, conducted two statewide Extension Agent trainings on use of “Gearing Up” and two regional trainings on agricultural hazardous occupations (AgHOs) safety training and presented at two statewide beef industry field days, a favorite kind of event for many of those opting to be “Living in the Country”. While no proposal for a research project was submitted, their network was strengthened through this supported work and there is strong potential of both refreshed, continuing work with Extension Agents and KSU Engineering and Extension programming.

National Education Center for Agricultural Safety (NECAS) programs received GPCAH support as they responded to the needs of especially NE Iowa, the 4-corners region, and beyond with work supporting efforts such as the National Farm Safety and Health Week. Our support also helped NECAS deliver an on-the-farm message about the personal protective equipment (PPE) for their operations at 90 farms enrolled in Certified Safe Farm projects. Central to these communications were respiratory health and eye protection brochures plus samples of appropriate PPE provided with assistance from fellow RAC member AgriSafe, Inc.

In the summer, three safety days at the NECAS facility reached 245 children and their parents. Weeklong hands-on safety programs were provided for commercial pesticide applicators, those who handle LP gas and anhydrous ammonia, and operators of forklifts and skid steers for agribusinesses. Safety days were a hit with 145 high school students who were made aware of combine, auger, flowing grain, tractor and other machinery hazards of harvest time before they headed into the fields to help this fall.

Accreditation has assisted with funding for NECAS programming now delivered at small town firehouses on emergency response to anhydrous ammonia incidents, tractor overturn and combine entanglement victim extrication. NECAS has started on a grain elevator fire and explosion training DVD for fire departments and their successful pilot / feasibility project application to the GPCAH will outline a rural roadway safety chapter and resources for high school drivers training curricula, the importance of which is illustrated in the following chart (Figure 2) of farm equipment versus motor vehicle crashes for the GPCAH region.

Figure 2.

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

AgriSafe confirmed through its work with the Certified Safe Farm program the extent to which farmers do not use PPE and embarked on an assessment of the reasons. Preliminary data supports hands-on education with the PPE applicable to the enterprise as important to increase use, as are convenience, comfort, and low cost. They are employing focus groups and survey design to determine the reasons, which will shape their PPE media campaign for 2008, and adoptive behavior stage which will assist with intervention design and strategies for hands-on education.

Illinois Cooperative Extension Service (IL CES) convened as special meeting of the IL Network for Agricultural Safety and Health (INASH) to identify and prioritize consensus, major issues in IL agricultural safety and health, and to discuss plausible interventions. Among over 30 issues identified, the top five high priority agricultural safety and/or health issues related to older farmers, road transport, children, emergency medical services and provider knowledge, and evaluation of local programs. Based on these priorities, a collaborative research plan was formulated to address elder IL Farm Bureau farmer issues but it was not ready in time for this year's round of pilot / feasibility project competition.

IL CES assisted in conducting a one-day rural and agricultural safety forum at Southern IL University for an audience of rural educators and rural healthcare providers and shared information on major issues and available resources. Issue-oriented PSAs were developed on seven timely topics. Work on a self-learning web-based version of the agricultural confined spaces training previously sponsored by the GPCAH continued (See http://www.uic.edu/sph/cade/confined_space/index.htm).

Iowa Cooperative Extension Service (IA CES) performed a needs and priorities assessment using injury information from press clippings, external partners, and Extension staff. As expected, top injury-associated agent is tractors which are also involved in the most fatalities. Roadway collisions were reported as new to the list of top causes of agricultural injuries in Iowa.

Tractor training and training support materials were distributed to 100 ISU Extension County Offices and a strategic evaluation of Federal Tractor and Machinery Safety Certification Training was conducted with 22 County Extension Education Directors, 33 County Youth Coordinators, and 9 Office Assistants. They assume it is difficult to offer this training for less than 20 participants, an enrollment they do not expect to achieve locally, and most believe they do not have a dedicated volunteer to provide this training (preferably in June). A total of 50 youth age 14-16 received the requisite training and certification in Iowa.

ISU Extension engaged in a public awareness campaign that included weekly public service radio shorts and a pushed distribution of National Farm Safety and Health Week materials. These NFSHW materials were distributed to 100 County Extension Offices, area offices and media specialists, and others. In addition, the information was posted and remains prominent on the *Safe Farm* website (www.abe.iastate.edu/safety.html).

Proteus provides services for farmworkers, immigrants, migrant and seasonal workers throughout Iowa with the ability to do so because of its strong relations with producers. Proteus combined returns from a health needs assessment that identified migrant worker concerns with an August 2007 survey of producers and crew leaders. Worker concerns related to existing conditions, such as Type II diabetes, hypertension, alcoholism, and domestic violence, and additional services, such as help with emergencies and access to a dentist and optometrist. Growers overwhelmingly identified hydration / heat stress as the main occupational hazard followed by pesticide exposures and ergonomics.

Beyond these formalized means, many outreach activities were used to gain information and perspectives. Six site visits across the state engaged workers at work in seed corn, melon, organic vegetable, prairie grass, flower, and grape production. Pesticide trainings by Proteus provided another opportunity to hear concerns of 188 farmworkers at six separate events. Work at four migrant health clinics afforded at firsthand look at primary healthcare for 162 farmworkers.

Proteus considered but did not propose to the GPCAH three pilot projects, all requiring some degree of collaboration with others having research expertise: a program to prevent dehydration and

heat stress in agricultural settings, expansion of the current Proteus pesticide training program, and ergonomic interventions.

Outreach

Since 2002, the Admin Core has maintained a surveillance system of agriculturally related fatalities and injuries in Iowa, Kansas, Missouri, and Nebraska largely from press clippings from regional newspapers. In 2006 this effort was expanded to include the states of Illinois, Minnesota, North Dakota, South Dakota, and Wisconsin. Under the direction of Mr. Murray Madsen, it serves as a resource to inform our agriculture health and safety partners about the number and types of agriculturally-related fatalities that are occurring in our region, helps set research and intervention priorities, and supports health and safety training. This system has now become another information source for Fatality Assessment and Control Evaluation (FACE) investigators and others. It adds important information to research proposals and is both a stimulus and a resource for newsletter articles and presentations.

In addition to website work, the Center personnel contribute feature and standing articles to each quarterly edition of our own *Alive & Well* regional newsletter. *Alive & Well* and its companion e-bulletin are distributed electronically to an initial level of 1026 email addresses and in hardcopy to 606 postal addresses for individuals and organizations.

Networking, research, outreach, feasibility projects, press clippings, conferencing, and other communications are strategically valuable in building on our reputation for “centerness” in our Region. Very important parts of our working network are the AgriSafe Clinics and each state’s and organization’s agricultural safety leaders.

Center Seminars, Workshops and Conferences

This year as in the past five years, the GPCAH was a co-sponsoring organization of the Midwest Rural Agricultural Safety and Health Forum (MRASH), which brought together approximately 150 producers, extension specialists, researchers, healthcare professionals, and the media for a regional meeting. The MRASH Forum was held in Iowa City, Iowa in November 2006 and included keynote speakers and breakout sessions on a variety of topics. In collaboration with the AgriSafe Network, Center members presented a workshop on proper selection and use of respiratory protection in agricultural situations. This workshop led to the development of a manual to advise clinicians about how to educate their patients on the proper use of respirators (Appendix A).

Drs. Merchant, Sanderson, and Stromquist were presenters and discussion leaders in a workshop in Cluj-Napoca, Romania entitled Public Health Concerns of Rural Peoples. Specifically they used research and education materials from the Keokuk County Rural Health Study and the GPCAH to demonstrate research methodology in assessing the association between agricultural exposures and health and injury risks. This workshop was conducted in collaboration with the Center for International Rural Environmental Health (CIREH) of the University of Iowa College of Public Health and the University of Cluj. The brochure/agenda for the workshop is provided in Appendix B. Participants at the workshop were from Romania, Serbia, Slovakia, Slovenia, and the United States.

Members of the GPCAH continued to be active leaders and generous contributors in a wide range of professional service venues locally, nationally, and internationally. Drs. Sanderson, Donham, Rautiainen, and Mr. Madsen served variously on planning committees, as session organizers, moderators, and presenters at conferences and symposia. Dr. Sanderson, for example, is active in agricultural health and safety committee work for the American Conference of Governmental Industrial

Hygienists (ACGIH) and the American Industrial Hygiene Association (AIHA). Dr. Donham is a member of the Board for the Leopold Center for Sustainable Agriculture, the Center for Rural Health and Primary Care, the Johnson County Health Department, and the International Association of Agricultural Medicine and Rural Health. Mr. Madsen is Past Chair and Executive Committee Member for the Farm Safety 4 Just Kids Board of Directors, serves on the NECAS Executive Advisory Committee, is a member of the USDA Hazardous Occupations Order in Agriculture Advisory Committee working with Purdue University, and was President of the National Institute for Farm Safety (NIFS) in 2006-2007. Dr. Rautiainen is an active member of the American Society of Agricultural Engineers. All GPCAH members serve on editorial boards or as manuscript reviewers for professional journals such as the Journal of Agricultural Safety and Health, Journal of Agromedicine, Journal of Occupational and Environmental Health, American Journal of Industrial Medicine, Environmental Health Perspectives, and the International Journal of Agricultural and Environmental Medicine. In addition to this kind of professional service, Drs. Donham, Rautiainen, and Sanderson counsel graduate student research and supports students pursuing grants on agricultural health and safety topics. Dr. Sanderson also attends all the Ag Center Directors' meetings and participates in their quarterly conference calls.

Research Activities Supported by the Administrative Core

The Admin Core provided guidance and support for several research projects in addition to those selected to receive pilot grant funds. This support included technical advice in designing and conducting studies, data analysis, and equipment and supplies to support field and laboratory activities.

In collaboration with Farm Safety for Just Kids staff, a survey of ATV activities, use of safety equipment, and injuries was conducted of youth attending an FFA conference in Louisville, Kentucky. GPCAH staff provided guidance in developing the survey instrument, analysis of data, and preparation of presentations and publications on the results of this survey. The following table is a summary of some of the information obtained from this survey. (Table 1)

Table 1.

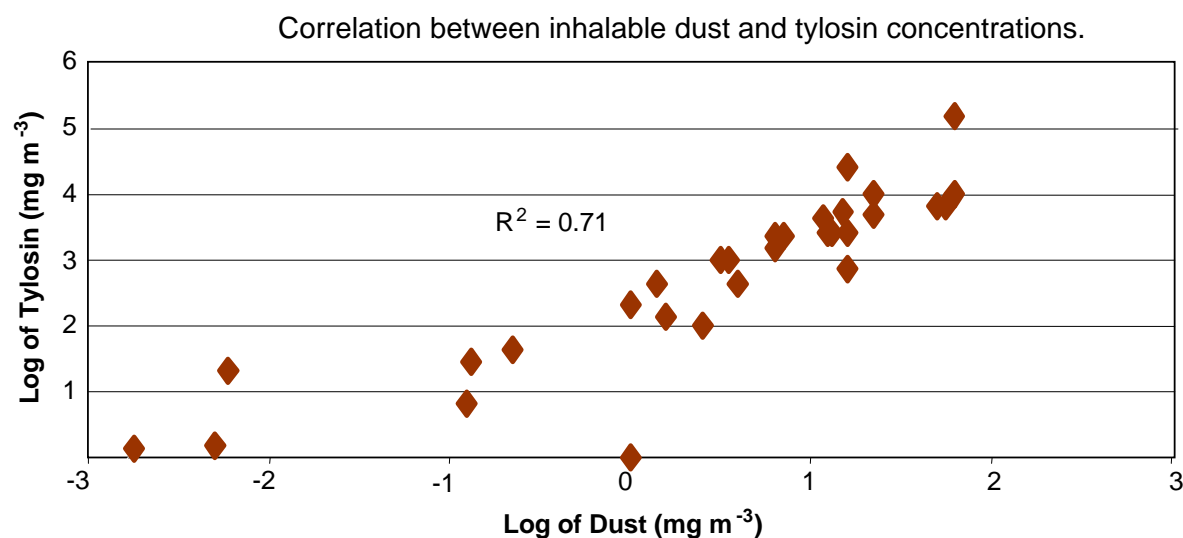
Characteristics of Youth (n = 624)	Median	Range
Age Started Riding ATV (years)	9	1 – 17
Size of ATV Usually Ride (cc)	350	35.4 – 900
	Frequency	
Never or Sometimes Use Helmet when Riding ATV	343 (57%)	
Always or Most of the Time Allow Passengers	187 (31%)	
Participated in ATV Safety Training	131 (22%)	
Would Like to Participate in ATV Safety Training	237 (41%)	
Injured in an ATV Incident	176 (29%)	

The survey showed that average age that youths started riding ATVs was nine years and that many of them rode ATVs considered to large for their age. Youths also participated in risky behaviors when riding ATVs, including riding without a helmet (57%) and riding with passengers (31%). Almost a

third of the respondents had been injured in an ATV accident while only 22% had received any safety training on ATVs. This survey demonstrated the need for a greater emphasis on ATV safety targeted towards young people.

Dr. Matthew Murphy published a manuscript in the Journal of Agricultural Safety and Health entitled Airborne Antibiotic Concentrations in a Swine Feeding Operation. This work was conducted in collaboration with the University of Iowa Hygienic Laboratory and the Kirkwood Community College in Cedar Rapids, Iowa. GPCAH provided equipment, and guidance in conducting this study. The study developed a sampling and analytical technique for measuring concentrations of the antibiotics tylosin and lincomycin in air. Antibiotic concentrations were found to positively correlate with dust levels and demonstrated that swine workers were at risk of inhaling antibiotics while working in swine feeding operations. (Table 2).

Table 2.

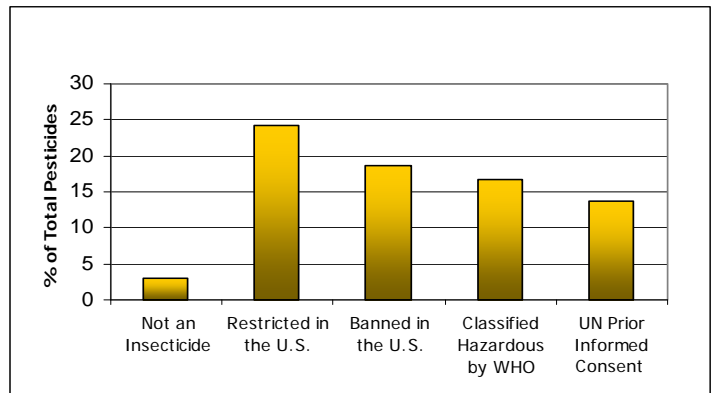


Dr. Murphy, for his PhD dissertation, also conducted a study of pesticide use to control vector borne diseases such as malaria in The Gambia. Dr. Sanderson served as his research advisor and Dr. Donham served on his research committee. This study showed that farmers who use pesticide impregnated netting in fencing to reduce the mosquito pressure on their cattle also reduced the number of mosquitoes found in their homes. The effect of the netting was greatest where the mosquito pressure was greatest. Dr. Murphy also showed that pesticides are primarily purchased in open-air markets in The Gambia and little to no labeling or guidance on the safe use of the pesticides is provided. In collaboration with NIOSH, we were able to chemically determine the content of 93% of these pesticides. The results showed that many of these pesticides were restricted or banned for use in the U.S. or classified as hazardous by the World Health Organization. The lack of proper labeling and safety guidance on these products is likely to contribute to potentially high levels of skin exposure while applying the pesticides. (Table 3)



Open-Air Vendor Selling Insecticides for Home And Farm Use in The Gambia

Table 3.



Michael Humann, a PhD candidate in the College of Public Health, is conducting research with a focus on agricultural health and safety. He received GPCAH pilot grant funding to assess the noise exposures of rural youths. This study is being conducted in collaboration with the Keokuk County Rural Health Study. He is also currently designing a study of task-based noise exposures of grain farmers. This study will be conducted in collaboration with the AgriSafe Network clinics and the Marshfield Clinic in Marshfield, Wisconsin. Mr. Humann's research is being conducted under the supervision of Drs. Sanderson and Donham.

In collaboration with the rural Solon, Iowa and Lisbon, Iowa School districts, Dr. Sanderson is conducting a study of the association between open burning of refuse and crop fields and increased asthma attacks among school children. The school nurses are tracking the use of inhalers and nebulizers and number of asthma attacks within the school districts and Dr. Sanderson is monitoring environmental air quality.

F. PROJECT PRODUCTS

1) Presentations:

Murphy M, Sanderson W., June, 2007. Pesticide Use and Exposure Risks for Vector Control Activities in The Gambia . American Industrial Hygiene Conference and Exposition. Philadelphia, Pennsylvania

Parker L, Sanderson W., June, 2007. Protease Enzyme Air Monitoring: Strategies and Exposure Characterization. American Industrial Hygiene Conference and Exposition. Philadelphia, Pennsylvania

Sanderson W., July, 2007. Design Issues in Monitoring Pesticide Exposure. Summer Institute on Rural and Environmental Health. Cluj-Napoca, Romania.

Sanderson W, Stromquist A., July, 2007. Design, Data Collection, and Management. Summer Institute on Rural and Environmental Health. Cluj-Napoca, Romania.

Merchant J, Stromquist, Sanderson W., The Keokuk County Rural Health Study-Identifying Opportunities for Future Research, Community-Based Prevention and Intervention Programs. Summer Institute on Rural and Environmental Health. Cluj-Napoca, Romania

Madsen MD. June 2007. Welcome and opening remarks. In Proceedings 2007 National Institute for Farm Safety, Inc., Annual Conference – Penticton, BC. RE Petrea, ed. Urbana, IL: NIFS.

Sanderson, W, Organizer: 2007 ACGIH Agriculture Health & Safety Session, American Industrial Hygiene Conference, Minneapolis, Minnesota

Sanderson, W., Planning Committee, 2008 6th International Symposium Future of Rural Peoples, Saskatchewan, Canada

2) Publications:

Peer Reviewed

Curwin B, Hein M, Sanderson W, Striley C, Heederik D, Kromhout H, Reynolds S, Alavanja M. Urinary Pesticide Concentrations Among Children, Mothers, and Fathers Living in Farm and Non-Farm Households in Iowa. *Ann Occup Hyg* 51(1):53-65, Jan 2007.

Murphy M, Sanderson W, Vargo J. Airborne Antibiotic Concentrations in a Swine Feeding Operation. *J Agricul Safety Health* 13(4):357-366, Oct 2007.

Curwin B, Hein M, Sanderson W, Striley C, Heederik D, Kromhout H, Reynolds S, Alavanja M. Pesticide Dose Estimates for Children of Iowa Farmers and Non-Farmers. *Environmental Research* (in press).

Rautiainen R, Lehtola M, Day L, Salminen S, Schonstein E, Suutarinen J. Interventions for preventing injuries in the agriculture industry. *The Cochrane Collaboration. Occupational Health Field. Systematic review protocol. The Cochrane Library*, Jan 2007, Issue 1.

Donham KJ, Rautiainen RH, Lange J, Schneiders S. Injury and illness costs in the Certified Safe Farm study. *J Rural Health*. (accepted, Mar 2007)

Kaustell KO, Mattila TEA, Rautiainen RH. Safety performance of animal confinement floors – slip, trip and fall injuries in Finland. *J Agric Saf Health* (accepted, May, 2007).

Culp KR, Kuye RA, Donham KJ, Rautiainen RH, Umbarger-Mackey M, Marquez SP. Agriculture-related injury and illness in The Gambia: A descriptive survey of a rural nursing service and are farmers. *Clinical Nursing Research* 16(3), Aug 2007.

Peek-Asa C, NL Sprince, PS Whitten, SR Falb, MD Madsen and C Zwerling. Fall 2007. Characteristics of crashes with farm equipment that increase potential for injury. *J. Rural Health*. Ames, IA: Blackwell Publishing. Pending

Madsen MD. June 2007. Welcome and opening remarks. In Proceedings 2007 National Institute for Farm Safety, Inc., Annual Conference – Penticton, BC. RE Petrea, ed. Urbana, IL: NIFS.

Madsen MD. April 2007. (Editorial) Impact agricultural safety and health: know producers, know agriculture, and engage in a professional community of practice. J. Agricultural Safety and Health. St. Joseph, MI: ASABE

Burgus SK, MD Madsen, WT Sanderson and RH Rautiainen. Behavior among youth operating and riding on all-terrain vehicles. J. AgroMedicine. Ames, IA: Blackwell Publishing. pending

Non Peer Reviewed

Mattila TEA, Kaustell KO, Rautiainen RH, Pitkänen T, Suutarinen J. Slip, trip and fall injuries in potato, sugar beet and open field vegetable production in Finland. International Conference on Slips, Trips and Falls 2007: From Research to Practice. Liberty Mutual Research Institute for Safety. Hopkinton, MA. August 23-24, 2007.

Karttunen J, Suutarinen J. Management skills key in survival of active farms in the future. (Risto Rautiainen contributor) [In Finnish: Johtamisosaaminen elinehto lähitulevaisuuden aktiivituloille]. Maaseudun Tulevaisuus, 3-times weekly Finnish farm paper. June 12, 2007.

Rautiainen RH, Ledolter J, Ohsfeldt RL, Donham KJ, Zwerling C. Risk factors for serious injury in agriculture. Technical paper. National Institute for Farm Safety, 2007 Summer Conference. Penticton, BC, Canada. June 24-28, 2007.

Lötjönen T, Mattila T, Mattila T, Rautiainen RH. Injuries potato and open field vegetable production. Technical paper. Advances in labour and machinery management for a profitable agriculture and forestry. CIGR international conference. 17-19, Sept 2007, Slovak University of Agriculture, Nitra, Slovakia.

Murray Madsen, Farm Families Alive & Well Newsletter articles (Circulation 1026 electronic plus 605 hardcopy):

- Vol 12 Issue 3 – Third Quarter Farm Injury Profile
- Vol 12 Issue 4 – Fourth Quarter Farm Injury Profile
- Vol 13 Issue 1 (Dec06) – Farm Equipment (FE) – Motor Vehicle Crashes
- Vol 13 Issue 2 (Mar07) – Farm and Agricultural Injury Incidents Reported in Press Clippings (Iowa, Kansas, Missouri, and Nebraska), 2003-2006.
- Vol 13 Issue 3 – Iowa Fatality Assessment and Control Evaluation (IA FACE) Work Deaths, 2006 (N=79)
- Vol 13 Issue 4 (Sep07) – Great Plains Announces Projects
- Vol 13 Issue 4 (Sep07) – Avoid Deadly Manure Gases: Stay Out of Manure Pits
- Vol 13 Issue 4 (Sep07) – Farm Equipment (FE) – Motor Vehicle (MV) Crashes on Public Roads, 2006

Murray Madsen, Technical contributions to the following articles:

DeWitte D. October 11, 2007. The hurt and the harvest – Farming remains deadliest pursuit. The Gazette: Cedar Rapids, IA (Circulation 63,210; Readership 126,420)

Layman D. September 2007. WHO radio talk show and affiliate redistribution. (Per WHO “Impossible to say, but tens of thousands of listeners.”)

Madsen MD. 2006-7. Farm and Agricultural Injury Monitoring System (FAIMS) Press Clips – Year-to-Date Summaries. Iowa City, IA: Univ of IA. Issued Nov06, Jan07, Feb07, Jun07, Sep07

Tevis C. Feb2007. Survey sets off ATV alarm. Successful Farming. Des Moines, IA:
Meredith Publishing (Circ. 420,000; Readership 1,500,000).

G. STATES AND COUNTRIES THE PROJECT WAS ACTIVE IN

Iowa	Missouri	South Dakota
Illinois	Nebraska	Wisconsin
Kansas	North Dakota	
The Gambia	Slovakia	Romania