

**GREAT LAKES CENTER FOR
AGRICULTURAL SAFETY AND
HEALTH**

ANNUAL REPORT

FISCAL YEAR 2004*

(*October 1, 2003 - September 30, 2004)

**SUBMITTED BY:
THOMAS L. BEAN, DIRECTOR**

OHIO

GREAT LAKES CENTER FOR AGRICULTURAL SAFETY AND HEALTH (GLC)

I. INTRODUCTION & EXECUTIVE SUMMARY OF THE PROGRAM

The Great Lakes Center serves the states of Illinois (IL), Indiana (IN), Kentucky (KY) Michigan (MI), Ohio (OH), Pennsylvania (PA), West Virginia (WV) and Wisconsin (WI). These states share many common attributes, i.e. crops, farming practices, farm size, migrant streams, poverty in Appalachian areas, strong commercial fishing or timber harvesting, and Amish populations, to mention a few. The overall goal of the Great Lakes Center for Agricultural Safety and Health is to promote safety and health education, prevention, outreach, intervention, and research that would benefit employers, agricultural workers, families, and the agricultural communities in the states served by the Great Lakes Center.

To that end, the Center staff and PI's have, in FY 2004: completed the first three years of a five year research project on farm-related asthma; completed a prevention/intervention project on the effectiveness of sun safety behavior of agricultural workers; initiated research on field testing a grain hazard assessment tool; initiated an intervention project to evaluate for impact a GLC Fellows Program; initiated a project to develop an audiovisual approach to train West Virginia farmers on prevention effectiveness of ROPS in reducing traumatic injury; began to adapt best management practices for agriculture for the insurance industry; established three new feasibility projects; developed projects and plans for an aggressive outreach program; conducted one national meeting and one regional meeting; participated in the NIOSH Agricultural Safety and Health Center's "National Agricultural Tractor Safety Initiative" and submitted a grant as part of the initiative; conducted thirteen major national presentations with each being published as part of the proceedings; continued to work on extramural projects which include two USDA grants, a state of Ohio grant, one OSHA grant and one additional RO1 NIOSH grant.

A. CENTER ACCOMPLISHMENTS FOR FY 2004

For additional detail see the Administrative Core subpart E.

1. The GLC hosted a national conference entitled "Improving Agricultural Health and Safety Programs Through Evaluation: Rigorous and Practical Strategies" in Columbus, Ohio on March 15-16, 2004.
2. The Center Directors hosted the GLC Advisory Committee in Columbus, Ohio on March 14, 2004.

3. The GLC and the Extension Safety Group for Ohio State University hosted a Midwest Symposium for all Extension Agricultural Safety Specialists throughout the region served by the GLC and surrounding Midwest states on May 5-6, 2004
4. The GLC Directors successfully completed an application for Outreach supplemental funding to enhance the outreach activities of the Centers.
5. The GLC Director assisted with development of the NIOSH Agricultural Safety and Health Center's "National Agricultural Tractor Safety Initiative" document, which officially launched the Initiative.
6. The GLC Director participated in the development of Center Director's grant for additional funding of the Tractor Safety Initiative. The GLC director wrote the section entitled "Developing a Model Vehicle Code for Tractors and Machinery on Public Roadways."
7. Feasibility grants were solicited in August of 2004. Three were funded.
8. The Center Director of Prevention/Intervention and has been replaced by Dr. Tom Archer, Leader, Program Development and Evaluation, OSU Extension Service. In addition, applications are currently being received for a new GLC Program Manager.

B. REGIONAL ACTIVITIES

1. **States Served by Center:** Illinois, Indiana, Kentucky, Michigan, Ohio, Pennsylvania, Wisconsin, and West Virginia
2. **States with Center Activity for FY 2004:** Illinois, Indiana, Iowa, Kentucky, Michigan, Ohio, Pennsylvania, Wisconsin, and West Virginia

II. REPORT ON THE OUTREACH PROGRAM

As a result of an increase in Outreach funding, The GLC successfully recruited a new addition to the Center Staff. Ms. S. Dee Jepsen, ABD, Director of Agricultural Safety and Health Programs for the Extension Safety Program was appointed the Director of Outreach Programs for the GLC. Currently, through her efforts the GLC is hosting an aggressive train-the-trainer program for Community Lead Instructors throughout Ohio to inform them of the requirements of the Hazardous Occupations Order in Agriculture and to teach them how to train youth 14-15 to operate a tractor or other specified machinery. Eight training programs have been scheduled and two of the eight have been held. Twenty Community Lead Instructors have been taught. Sixty have registered for the remaining workshops. Additional students are registering daily. The remaining workshops will be held in

December and January. Materials used for this endeavor were developed from an extramural funded USDA project, Establishing A National Safe Tractor and Machinery Operation Certification Program. The main elements of this new program include: a series of over 60 curriculum task sheets, rules, and guidelines, evaluations, 560 possible randomly generated test questions (testing is conducted on-line), and guidelines for conducting a skills and driving test with a tractor and rear-attached machine. The project team that developed the program and materials included the GLC Center Director, GLC Director of Outreach Programs and the GLC Advisory Committee member from Pennsylvania.

Future plans include taking what was learned from the research incorporated in the project, Effectiveness of Sun Safety Intervention Approaches to Change Sun Protection Behaviors of Agricultural Workers from research to practice. The GLC is currently in conversation with the National Farm Bureau to jointly sponsor a state/regional/national Sun Detection and Protection Training Program for interested parties.

Updating the GCL website and printing promotional brochures and posters for use by GLC staff, PI's, and others is being planned for 2005.

III. CENTER PROJECT REPORT BY CORE/ TYPE

ADMINISTRATION CORE

A. PROJECT TITLE: Administration of the Center

B. PROJECT OFFICER(s)

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C. PROJECT DESCRIPTION

The primary objective of the Administrative Core of the Center is to provide the leadership for action and resource allocation guided by the Center Advisory Committee. A primary goal is to be one of the best of the NIOSH Agricultural Centers. Only prioritizing our actions and focusing on those that are most likely to improve our reputation and our performance in the context of fiscal responsibility will reach that goal. The overarching goal is to contribute to the saving of lives and improving of the quality of life of agricultural communities through distinctive education, cutting-edge interdisciplinary research, and 21st century outreach and prevention programs.

D. PROJECT START AND END DATE: October 1, 2003 to September 30, 2006

E. PROJECT ACTIVITIES / ACCOMPLISHMENTS

Major Project Accomplishment 1: The Great Lakes Center hosted a national conference entitled “Improving Agricultural Health and Safety Programs through Evaluation: Rigorous and Practical Strategies” on March 15-16 in Columbus, Ohio. There were sixty-seven registered participants. The conference program included: plenary sessions during which presentations were made by national experts in the evaluation of agricultural safety and health programs; poster session for presentation of agricultural health and safety evaluation efforts; and working group discussions to identify challenges encountered by evaluation agricultural health and safety programs and to brainstorm strategies for overcoming these challenges. All participants were asked to fill out a conference evaluation form. The form asked questions about the usefulness of the various conference sessions and activities. Participants’ responses are summarized in Table 1. Participants were also asked the extent to which they agreed with various statements about evaluation in agricultural safety and health. The percentage of participants who agreed with the statements is presented in Table 2. In general, participants felt that their awareness of evaluation benefits and challenges was raised.

Table 1: Participants’ ratings of the usefulness of conference activities

Conference Activity	Very Useful	Useful	Not Useful/Not Sure
Overview of Intervention Effectiveness Research	42.9%	53.6%	3.6%
Case Studies of Program Evaluations	57.1%	42.9%	0%
Making Agricultural Work Safer and Healthier: What Works?	50.0%	46.7%	3.3%
How Can We Learn More About What Works?	41.9%	58.1%	0%
Working Groups	48.4%	48.4%	3.2%

Table 2: Proportion of conference participants who agreed with statements

Statement about Evaluation	Percent Agree
I learned a lot about evaluation as a result of attending this conference.	82%
I believe I will conduct evaluation differently as a result of attending this conference.	79%
I now know more about key challenges in conducting evaluation of agricultural health and safety programs.	85%
I can better articulate the importance of evaluation in agricultural safety and health as a result of attending this conference.	82%

Major Accomplishment 2: The Center Directors hosted the GLC Advisory Committee in Columbus, Ohio on March 14, 2004. The Advisory Committee represents four of the states within the service region of the Great Lakes Center. Represented on the committee are Dr. Dennis Murphy, Pennsylvania State University, Dr. Robert Aherin, University of Illinois, Dr. Roger Tormoehlen, Purdue University, and Dr. Larry Chapman, University of Wisconsin. Ms. Teri Palermo joined the advisory committee as the NIOSH representative. The Center Director presented to the advisory committee the current major core projects of the center and the outcomes of the 2003 feasibility projects. The advisory committee provided advice on the focus of the GLC and topics and timing of the next solicitation of feasibility projects.

Major Accomplishment 3: On May 5-6, 2004 the GLC and the Extension Safety Group for Ohio State University hosted a Midwest Symposium for all Extension Agricultural Safety Specialists throughout the region served by the GLC and surrounding Midwest states. In addition the Iowa Center Director and his staff participated. The states of Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota and Wisconsin participated. The purpose of the meeting was to learn about agricultural safety and health programs in other states and possibility of collaboration.

Major Accomplishment 4: The GLC Directors successfully completed an application for Outreach supplemental funding to enhance the outreach activities of the Centers.

Major Accomplishment 5: The GLC Director assisted with development of the NIOSH Agricultural Safety and Health Centers "National Agricultural Tractor Safety Initiative" document which officially launched the Initiative.

Major Accomplishment 6: The GLC Director participated in the development of Center Director's grant for additional funding of the Tractor Safety Initiative. The GLC director wrote the section entitled "Developing a Model Vehicle Code for Tractors and Machinery On Public Roadways".

Major Accomplishment 7: Based on the Advice of the Advisory Committee, the GLC Directors solicited for 2004-2005 feasibility grants in August of 2004. The following feasibility grants were successful and subcontracts were recently arranged: Vehicle-in-the-loop Virtual Reality Simulation of Tractor Rollover, PI, Dr. Quin Zhang, Department of Agricultural and Biological Engineering, University of Illinois at Urbana-Champaign; Midwest Landscape Intervention Evaluation Pilot Program, PI, Dr. Larry Chapman, University of Wisconsin-Madison and Simulation of a PTO Environment, PI, Mr. Don Stredney, Ohio Supercomputer Center, The Ohio State University-Columbus.

Major Accomplishment 8: Dr. Catherine Heaney obtained a position at another university and resigned from the Center as Director of Prevention/Intervention and has been replaced in that position by Dr. Tom Archer, Program Development and Evaluation, OSU Extension Service. In addition, applications are currently being received for a new GLC Program manager to assist in the management of the GLC grant, subcontracts and programs. The position is expected to be filled January 1, 2005.

F. PROJECT PRODUCTS

1. Presentations:

“Adherence to the NAGCAT and Injury Risk Reduction.” *National Symposium on Agricultural Health and Safety NIFS Annual Conference*. Keystone Resort, Colorado, June 20-24, 2004.

“Evaluating the Effectiveness of the NAGCAT (North American Guidelines for Children’s Agricultural Tasks) with a Randomized Controlled Trial.” *National Symposium on Agricultural Health and Safety NIFS Annual Conference*. Keystone Resort, Colorado, June 20-24, 2004.

“Sharing Rural Roads with Farm Equipment.” *National Symposium on Agricultural Health and Safety NIFS Annual Conference*. Keystone Resort, Colorado, June 20-24, 2004.

“Enhancing the Health and Well-Being of Plain Communities.” *Ohio’s Amish Transportation Safety Program*. June 2004.

Papers Presented in October of 2003, Not reported in 2003 annual report as the 2003 report was prepared prior to presentation.

“A Case-Controlled Study of Injuries among Central Ohio Farm Youth.” *Fifth International Symposium - Future of Rural People*. October 2003.

“Task Specific Injury Rates for Youth Exposed to Agricultural Hazards.” *Fifth International Symposium- Future of Rural People*. October 2003.

“Evaluating Time-Dependent Errors in Daily Injury Self-Reports from Youth in a Longitudinal Study.” *Fifth International Symposium - Future of Rural People*. October 2003.

“Evaluating Time-Dependent Errors in Daily Injury Self-Reports From Youth in a Longitudinal Study of Agricultural Hazards.” *National Occupational Injury Prevention Research Symposium*. October 2003.

“Using Composite Measurements Scales to Model Injury Hazards.” *National Occupational Injury Prevention Research Symposium*. October 2003.

“Farm Youth Can Be Reliable Reporters of Their Daily Injury Experiences.” *National Occupational Injury Prevention Research Symposium*. October 2003.

“Task-Specific Injury Rates for Youth Exposed to Agricultural Hazards.” *National Occupational Injury Prevention Research Symposium*. October 2003.

“A Case-Controlled Study of Injuries among Central Ohio Farm Youth.” *National Occupational Injury Prevention Research Symposium*. October 2003.

2. Publications

Peer Reviewed Journal:

David Atrubin, J.R. Wilkins III, J. Mac Crawford and T.L. Bean. “Self-Reported Symptoms of Neurotoxicity and Agricultural Injuries Among Ohio Cash Grain Farmers.” *American Journal of Industrial Medicine*, submitted April 2004.

Trade Journals:

Jepsen, D. “Protection for Healthy Skin.” *Applied Engineering. Ohio’s Country Journal*. September 2004.

Jepsen, D. “Yields for a Lifetime.” *Applied Engineering. Ohio’s Country Journal*. Mid-September, 2004

Other Publications:

- News Article:

“Providing Glance into Air Quality on Animal Farms.” Survey. *Ohio State Agriculture*. Spring 2004.

- Published Abstracts:

Wilkins, J.R. III, C. Heaney, T. Bean, A. Ferketich, B. Morrongiello, and G. Smith. *Adherence to the NAGCAT and Injury Risk Reduction*. Abstract Published as part of Proceedings, National Symposium on Agricultural Health and Safety NIFS Annual Conference, Keystone Resort, Colorado, June 20-24, 2004.

Wilkins, J.R. III, C. Heaney, A. Ferketich, T.L. Bean, and G. Smith. *Evaluating the Effectiveness of the NAGCAT (North American Guidelines for Children’s Agricultural Tasks) with a Randomized Controlled Trial*. Abstract Published as part of Proceedings, National Symposium on Agricultural Health and Safety NIFS Annual Conference, Keystone Resort, Colorado, June 20-24, 2004.

Madsen, M.D., L. Neuendorff, and T.L. Bean. *Sharing Rural Roads with Farm Equipment*. Abstract Published as part of Proceedings, National Symposium on Agricultural Health and Safety NIFS Annual Conference, Keystone Resort, Colorado, June 20-24, 2004.

Dellinger W., T. Bean. *Ohio's Amish Transportation Safety Program*. Abstract Published as part of Proceedings, Enhancing the Health and Well-Being of Plain Communities, June 2004.

Papers Presented in October of 2003, Proceedings published in 2004:

Bean, T.L., Crawford, J.M., Elliot, M., Koechlin, K., Shotts, LF., Wilkins, J.R. III. *A Case-Controlled Study of Injuries among Central Ohio Farm Youth*. Abstract published as part of Proceedings, Fifth International Symposium - Future of Rural People, October 2003.

Bean, T.L., Crawford, J.M., Elliot, M., Koechlin, K., Shotts, LF., Wilkins, J.R. III. *Task Specific Injury Rates for Youth Exposed to Agricultural Hazards*. Abstract Published as part of Proceedings, Fifth International Symposium- Future of Rural People, October 2003.

Bean, T.L., Crawford, J.M., Elliot, M., Koechlin, K., Shotts, LF., Strickland, M., Wilkins, J.R. III. *Evaluating Time-Dependent Errors in Daily Injury Self-Reports form Youth in a Longitudinal Study*. Abstract Published as part of Proceedings, Fifth International Symposium - Future of Rural People, October 2003.

Bean, T.L., Crawford, J.M., Elliot, M., Koechlin, K., Shotts, LF., Strickland, M., Wilkins, J.R. III. *Evaluating Time-Dependent Errors in Daily Injury Self-Reports From Youth in a Longitudinal Study of Agricultural Hazards*. Abstract Published as part of Proceedings, National Occupational Injury Prevention Research Symposium, October 2003.

Bean, T.L., Crawford, J.M., Elliot, M., Koechlin, K., Shotts, LF., Wilkins, J.R. III. *Using Composite Measurements Scales to Model Injury Hazards*. Abstract Published as part of Proceedings, National Occupational Injury Prevention Research Symposium, October 2003.

Bean, T.L., Crawford, J.M., Elliot, M., Koechlin, K., Shotts, LF., Wilkins, J.R. III. *Farm Youth Can Be Reliable Reporters of Their Daily Injury Experiences*. Abstract Published as part of Proceedings, National Occupational Injury Prevention Research Symposium, October 2003.

Bean, T.L., Crawford, J.M., Elliot, M., Koechlin, K., Shotts, L.F., Wilkins, J.R. III. *Task-Specific Injury Rates for Youth Exposed to Agricultural Hazards*. Abstract Published as part of Proceedings, National Occupational Injury Prevention Research Symposium, October 2003.

Bean, T.L., Crawford, J.M., Elliot, M., Koechlin, K., Shotts, L.F., Wilkins, J.R. III. *A Case-Controlled Study of Injuries among Central Ohio Farm Youth*. Abstract Published as part of Proceedings, National Occupational Injury Prevention Research Symposium, October 2003.

3. Education / Training / Outreach

- **Training Seminars:**

Two of eight Train-the-Trainer seminars have been held for training Community Lead Instructors who will, in turn, train youth between the ages of 14 & 15 to drive tractors and operate farm machinery for employment as required by the Hazardous Occupations Act for Agriculture. See Section II, Report on the Outreach Program, for additional detail.

- **News Letters:**

Electronic GLC newsletter, February 2004

- **Other:**

Website: <http://www.ag.ohio-state.edu/~agsafety/glc/>

4. Conferences / Meetings Sponsored:

National conference entitled “Improving Agricultural Health and Safety Programs Through Evaluation: Rigorous and Practical Strategies,” Columbus, Ohio March 16-16, 2004

Midwest Symposium for Extension Agricultural Safety Specialists, Chicago, IL, May 5-6, 2004.

G. STATES THE PROJECT WAS ACTIVE IN: Illinois, Indiana, Iowa, Kentucky, Michigan, Ohio, Pennsylvania, Wisconsin, and West Virginia.

RESEARCH CORE:

A. PROJECT TITLE: Field Test of the Farm Grain Engulfment Hazard Assessment Tool

B. PROJECT OFFICER(s):

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C. PROJECT DESCRIPTION: In a previous study by the PI, a systems approach was used to complete a hazard analysis of on-farm metal grain storage bins in order to develop and test a farm grain hazard assessment tool that could predict the increased likelihood of an engulfment. The preliminary study was limited by the fact that most of the farms evaluated were located in Indiana and no commercial grain storage operations were assessed with the tool. This study broadens the application of the tool by applying it to commercial operations and farms in Illinois the research will accomplish the following objectives:

1. Field test the Farm Grain Engulfment Hazard Assessment Tool with at least 100 Illinois farm owners/operators and compare responses to previous findings reported by the PI in the preliminary study.
2. Field-test the Farm Grain Engulfment Hazard Assessment Tool with at least 25 Illinois commercial grain-handling sites and compare the responses to previous findings reported by the PI in the preliminary study.
3. Develop an interactive website that records user's responses to the assessment tool and provides the user with real-time risk assessment, identifies specific risky behaviors, and recommends preventative measures to reduce the risk of engulfment
4. Develop recommended strategies for introduction and adoption of the Farm Grain Engulfment Hazard Assessment Tool as a means of identifying and correcting grain bin and handling equipment designs, engulfment warning labels on grain storage structures, work conditions and human behaviors that contribute to an increased likelihood of engulfment and suffocation.

D. PROJECT START AND END DATES: The project has a two-year duration beginning October 1, 2003 and ending September 30, 2005; however, funding for this project was not established until February 2004 due to circumstances beyond the control of Illinois State University and the PI.

E. PROJECT ACTIVITIES / ACCOMPLISHMENTS:

1. The assessment tool was made available to at least 460 individuals through a distribution effort by 92 Illinois County Farm Bureau offices. By November 1, 2004, approximately 90 farm managers and owners who operate and/or are responsible for the handling and storage grain have completed the assessment tool.
2. A web-based version of the Farm Grain Engulfment Hazard Assessment Tool was developed to integrate technology into this research. This option was pursued so that a wider range of subjects could be reached.
3. A committee review of Farm Grain Engulfment Hazard Assessment Tool was conducted to ensure question efficiency.
4. Evaluation of the Farm Grain Engulfment Hazard Assessment Tool was conducted in order to develop statistical measures for questions so that responses to the assessment tool can be fully evaluated.
5. County farm bureau representatives were contacted to create working relationships for further distribution of the Farm Grain Engulfment Hazard Assessment Tool.
6. On farm investigations were conducted at six sites in central Illinois. The Farm Grain Engulfment Hazard Assessment Tool was utilized and visual inspection was completed to identify concerns associated with grain storage equipment.

F. PROJECT PRODUCTS:

• Presentations:

“Development and pilot testing of a web-based version of the Farm Grain Hazard Assessment Tool.” *National Institute for Farm Safety*. 2004

“Liberty Tube™ - Prototype Plastic Grain Rescue Tube,” poster. *National Institute for Farm Safety*. 2004

• Presentations:

Peer Reviewed Journal

D.M. Kingman, A.D. Spaulding, W.E. Field. “Predicting the Potential of Engulfment Using an On-Farm Grain Storage Hazard Assessment Tool,” Journal of Agricultural Safety and Health, American Society of Agricultural Engineers, Vol. (10) 4: Pf. 237-245. November, 2004.

• Education/ Training/ Outreach:

Training Seminars:

Ag Awareness Week, Child Safety Demonstrations, Illinois State University Research Farm, March 2004.

Academic Training:

One graduate student assistant beginning September 2004.

One undergraduate assistant student beginning February 2004.

G. STATES THE PROJECT WAS ACTIVE IN: Illinois**A. PROJECT TITLE:** Farm-Related Asthma**B. PROJECT OFFICER(s):**

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C. PROJECT DESCRIPTION

This project has been identifying and interviewing all farmers and family members treated for asthma over a two-year period between the ages of 18 to 65 who obtained their health insurance through the Michigan Farm Bureau. There were approximately 900 adults with asthma among the members during the two-year period. All eligible subjects who agreed to participate were interviewed with a standardized questionnaire. Individuals who did not have documented pulmonary function testing showing hyper-reactive airways were offered such testing. Using questionnaire data, we classified subjects as having or not having work-related asthma and their type of work-related asthma. We used the current National Institute for Occupational Safety and Health (NIOSH) Sentinel Event Notification System for Occupational Risks (SENSOR) criteria for work-related asthma to perform this classification. All subjects who met the NIOSH SENSOR criteria for work-related asthma were offered electronic peak flow and Forced Expiratory Volume in one second testing over a two-week period, to determine if there were changes on pulmonary function testing in relation to their farm work. The OASYS software system, developed in England, was used to interpret the results of the pulmonary function testing done over this two-week period. Prevalence rates were calculated for farm-related asthma. Additionally, we compared prevalence rates using individuals who met the NIOSH SENSOR criteria, without objective documentation of asthma and pulmonary function changes associated with farm work, versus those individuals who met the criteria because they have objective documentation of asthma and pulmonary function changes associated with farm work. This project is on going as we have received funding to continue the project over another two years. Accordingly, data collection and analysis has not been finalized.

The incidence and mortality associated with asthma have been increasing. There has been increased awareness of work-related asthma, which has been reported by some authors to

be the most common occupational lung disease. Approximately 400 agents are recognized to cause work-related asthma. The magnitude of the problem is appreciably greater if the effect of work on aggravating pre-existing asthma is included.

Various attempts have been made to estimate the proportion of asthma that is work-related. Estimates have varied widely, ranging from 5 to 710 cases per million adults per year or 3-21% of all adult asthma cases. Some of these differences are probably real and are based on a higher proportion of industries with higher risks in certain geographic areas. Much of the difference, however, is probably artificial and based on different degrees of under-reporting in different surveillance systems and/or the different criteria used to define a case of work-related asthma. Some estimates are based on clinical history alone, while others require objective pulmonary function testing showing an association with work. Some estimates are based on self-reports of patients, while others require an awarded workers' compensation claim. Some estimates include aggravation of pre-existing asthma, while others only include asthma caused by sensitization to a workplace allergen.

The American Thoracic Society published a consensus document on Respiratory Health Hazards in Agriculture. One of the conclusions of the document is that "Agents in the agricultural environment clearly aggravate and may cause asthma". Table I shows a list of known allergens related to farming. In addition, there are a number of chemicals used on farms that have been associated with the form of asthma that occurs after an acute spill or leak without a latency period of exposure, Reactive Airways Dysfunction Syndrome (RADS). Substances reported to cause RADS include anhydrous ammonia used as a fertilizer, the herbicide Metam, disinfectants, and cleaners containing acids, ammonia, chlorine and glutaraldehyde.

Table I: Known Allergens Related To Farming

Plant

Grain dust (all types of grain)

Animal

Grain mite	Poultry dander
Grain weevil	Poultry mites
Cow dander	Egg yolk proteins
Cow urine	Meal worm
Pig urine	Fungi (Alternaria, Aspergillus,
Pig dander	Cladosporium)

Chemicals

Antibiotics used in feed
(spiramycin, amprolium)
Formaldehyde, Glutaraldehyde

There is limited data on the frequency of occurrence of asthma among farmers and even less information on the percentage of asthma in farmers which is work related.

Asthma from farmers becoming allergic to cow dander is the most common cause of work-related asthma in Finland. The highest risk for asthma in the European Community Respiratory Health Survey was for farmers. In France, asthma prevalence was reported to be increased among farmers; in New Zealand, wheezing and airway hyperresponsiveness was significantly increased in farmers; in Canada, grain farming was a significant risk factor for asthma, in Norway, farmers in animal production had an increased prevalence of asthma; in the United States, wheezing was associated with pesticide use by farmers; and in Sweden, farmers were reported to have increased mortality from asthma.

On the other hand there have been an increasing number of articles on the “Hygiene Hypothesis” of asthma suggesting a lower prevalence of asthma among individuals brought up on a farm particularly those exposed to animals. A possible explanation for a decreased risk of asthma in the farming population would be that children exposed to the varied blend of irritant, allergic and infectious agents on a farm will have promotion of TH1 type T helper cells as opposed to Th2 type helper cells, the latter type cells which are associated with allergic and asthmatic conditions. A number of recent studies have reported a reduced prevalence of asthma or atopy in children brought up on a farm. Since children brought up on farms are the primary labor pool for future farmers, this would lead to a reduced incidence of asthma among farmers.

D. PROJECT START AND END DATES: September 1, 2003 to August 31, 2004

E. PROJECT ACTIVITIES / ACCOMPLISHMENTS:

Michigan Blue Cross/Blue Shield has identified and conducted 2 mailings to all farmers or their family members who met the criteria for asthma in the year 2001.

The Michigan State University Institutional Review Board approved contact letters and consent forms used in these mailings and subject recruitment.

The questionnaire used to interview participants was finalized and approved by the Michigan State University Institutional Review Board.

The medical literature on asthma in farmers has been compiled. All data management forms and computer programs have been finalized.

Contracts to perform spirometry, pre/post bronchodilator testing and methacholine testing are in effect at 10 strategically placed hospitals around the state.

Four Easy One computerized, portable spirometers have been purchased, software modified and developed to receive over phone lines and to print reports of participant results of pulmonary function tests performed on the participant's farm. The OASYS-2 software developed by Dr. Burge and his group in England has been obtained from them

and adapted to use with the Easy-One equipment. The plan is to use the OASYS-2 software to interpret the multiple pulmonary function test results performed by the subject over a two-week period. The OASYS-2 software provides a “work effect index” that indicated the likelihood that work exposures on the farm are effecting the pulmonary function results.

A booth was set up and staffed at two Annual Agriculture Expositions from 7/22/03 – 7/24/03 and 7/20/04-7/22/04. The purpose of the booth was to promote the project and possibly recruit more participants.

During the 2004 Annual Agricultural Exposition, 197 farmers or family members completed information cards and 18 used the computerized spirometer for demonstration on the device. We distributed asthma Fact Cards, Project Information Brochures, bookmarks on a Michigan asthma website and pencils with our 800 number. Pictures from this year’s exposition have been provided electronically.

The preliminary data presented is derived from the questionnaires completed by farmers or their dependents with asthma who have been identified from insurance records or volunteers who signed up at the Agricultural Exposition. SENSOR criteria for work-related asthma were used to determine if the asthma was classified as work-related. The pulmonary function test results that are presented below were obtained both from testing performed as part of the subject’s regular medical care, which we reviewed, and testing performed as part of the project.

Mailings were sent to 1,141 subscribers. Another 122 individuals heard about the project and contacted us. One hundred and eighteen of the 122 individuals who contacted us, signed up at the 2003 or 2004 Agricultural Exposition. Only a few of these individuals were on our original mailing. To determine this Blue Cross/Blue Shield checked their names against the original mailing. This is a prevalence of asthma in adults who live or work on a farm who received medical care in one year of 4.2%.

We were contacted by a total of 365 individuals. Forty-one were not eligible (outside age limits, not farmers or their dependents), 32 refused to be interviewed, 27 still need to be interviewed, and 265 individuals were interviewed.

Of the 265 individuals interviewed, 182 have had spirometry, 64 have had pre/post bronchodilator testing and 15 have had methacholine testing as part of their regular medical care.

We have performed 11 pre/post bronchodilator, and 27 methacholine tests. Eleven individuals have completed the computerized spirometry/peak flow on their farm.

Ninety-seven individuals met the SENSOR criteria for work-related asthma related to farm exposures. Sixty-four reported their symptoms were worse with exposure to a known workplace allergen, 17 reported their symptoms were worse with exposure to a substance

not previously associated with work-related asthma, 3 had onset of symptoms consistent with RADs and 13 had symptoms consistent with work aggravated asthma.

Based on reports to the SENSOR system the prevalence of work-related asthma among farmers was 19/100,000 (37). The prevalence among farmers from this current project using the same clinical history criteria used in the SENSOR program is 309/100,000. This difference, which indicates the SENSOR system is missing 94% of cases, is large but is consistent with our published estimate that SENSOR misses 82% of cases (19).

Among the 97 individuals with potential farm-related asthma, 80 (82.4%) have been tested as part of their medical care or by this project for hyperreactivity. Thirty-three of the 68 (48.5%) for whom we have reviewed their pulmonary function test results have evidence of hyperreactivity. Eleven individuals tested to date that met the SENSOR criteria for work-related asthma by history and had evidence of hyperreactivity did not have evidence of pulmonary function changes on the computerized spirometry in relation to farm exposures. We are still evaluating the computerized spirometry results since farmers are not spending sufficient time away from their farm to obtain measurements during non-exposed periods that can be compared to measurements during periods when they are exposed.

We are also still testing additional individuals and reviewing additional pulmonary function test results. The percentage of individuals meeting the SENSOR criteria for farm work-related asthma is high (97 of 265, 37%). We have had a limited response rate and potentially individuals with farm-related problems were more likely to participate, although our contact letters did not indicate we were studying asthma in relationship to farm exposures. The percentage of individuals who met the SENSOR criteria for farm work-related asthma and who had tests of hyperreactivity as part of their regular medical care was 38 of 97, 39.2%. This is less than the result of 65% having such testing in the overall SENSOR database (16). Among the 55 tested and reviewed who met the SENSOR criteria for work-related asthma, 35 (49.3%) had negative results for hyperreactivity and the 11 individuals with tests done in relationship to work had negative results. This is consistent with data from Quebec indicating the SENSOR criteria based on history are sensitive but not specific (38). The data from the Quebec study which compared a history of symptoms in relation to work with specific antigen testing reported the history of symptoms in relation to work had a specificity of only 33-45% using a positive specific antigen test as the “gold standard”.

F. PROJECT PRODUCTS:

- **Presentations:**

“Preliminary Results: Farm-Related Asthma,” *Michigan Society for Respiratory Care*. Frankenmuth, MI. 2004 Fall Seminar.

• **Publications:**

Fact sheets/ Brochures/ Technical Publications:

“Farm Asthma: Study of Asthma in Rural Michigan Residents,” brochure. *Michigan State University, College of Human, Medicine Department of Medicine*. East Lansing, MI. May 2003.

Other Publications

“Asthma Facts for Adults,” Fact Card. *Center for Michigan Agricultural Safety and Health*.

“Get Asthma Help,” Informational bookmark. *Asthma Initiative of Michigan*.

“Michigan State University Farm Asthma Project,” Contact Request Card. *MSU: College of Human Medicine*.

“Study to investigate farm breathing problems.” *Michigan Farm News* 15 February 2004, Vol. 81 No. 3, pg. 1

G. STATES THAT PROJECT WAS ACTIVE IN: Michigan

INTERVENTION / PREVENTION CORE

A. PROJECT TITLE: Audiovisual Approach to Train WV Farmers on Prevention Effectiveness of ROPS in Reducing Traumatic Injury

B. PROJECT OFFICER(s):

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C. PROJECT DESCRIPTION: The overall goal of the project is to use a locally developed video to inform West Virginia farmers about the risks associated with tractor rollovers and the effectiveness of rollover protective structures (ROPS) in reducing traumatic injuries and determine whether the video influences change in tractor safety.

Specific aims include: 1) creation of a tractor safety video based on feedback gathered from farmer focus groups; 2) distribution of the video to West Virginia farmers; and 3) evaluation to determine if the video changes farmer's knowledge and actions concerning rollover risks, causal factors, and ROPS as a means of injury prevention.

D. PROJECT START AND END DATES: October 1, 2003 to September 30, 2005

E. PROJECT ACTIVITIES / ACCOMPLISHMENTS:

1. Conducted 4 regional farmer focus group meetings in February and March 2004 drawing a total of about 30 farmers from 14 WV counties. Shared results of the ROPS Use Prevalence Survey (through a slide presentation) and had an open discussion of tractor safety. Farmers were explained the purpose of the focus meetings, consented and paid \$150 each (at a later date) for participating.

2. WVU Radio and Television Services has completed initial filming of background scenes, interviews, static shots and safety commentary at various locations around the state incorporating and addressing many of the concerns/suggestions raised during the focus group meetings.

F. PROJECT PRODUCTS:

• **Presentations:**

“Prevalence of ROPS use among West Virginia Farmers: Attitudes, Experiences, and Concerns,” poster. *2004 Symposium on Agricultural Health and Safety*, Keystone Resort, CO, June 20-24, 2004.

• **Publications:**

Peer Reviewed Journal:

Helmkamp, J.C., Lundstrom, W.J., Ramprasad, J. “The Prevalence of ROPS use Among West Virginia Farmers: Attitudes, Experiences, and Concerns.” *JASH* submitted electronically 24 June 2004 and reassigned to new Associate Editor 7 September 2004.

• **Other Education/ Training/ Outreach**

Farmer Focus Group meeting, Moundsville, WV, 12 February 2004.

Farmer Focus Group meeting, Buckhannon, WV, 19 February 2004.

Farmer Focus Group meeting, Summersville, WV, 24 February 2004.

Farmer Focus Group meeting, Ripley, WV, 9 March 2004.

G. STATES THE PROJECT WAS ACTIVE IN: West Virginia

A. PROJECT TITLE: Effectiveness of Sun Safety Intervention Approaches to Change Sun Protection Behaviors of Agricultural Workers

B. PROJECT OFFICER(s):

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C. PROJECT DESCRIPTION: There are approximately 256,000 farmers in the eastern Corn Belt region, which includes Ohio (USDA, 2001). It has been estimated that approximately 2% of the adult population in Ohio is involved in agricultural work. These farmers work an average of 36-45 hours per week during the spring and summer months. Epidemiology studies have shown farmers to be at increased risk of skin cancer as a consequence of the increased time spent outdoors (Reding, 1994). Factors associated with increase risk include: the duration of sun exposure, the time of day in the sun, the limited use of protective clothing, and unwillingness to wear sun screen, and a reluctance to wear a wide-brimmed hat (Rosenman, 1995; Marlenga, 1995; Smith, 1997).

The specific aims of this project were to:

1. Use an experimental design to evaluate the effectiveness of a skin cancer risk reduction program for agricultural workers and pesticide applicators.
2. Evaluate the effectiveness of sun safety training, the use of sun safe headgear, and the impact of the Dermascan® sun exposure screening equipment for changing skin cancer risk reduction practices of a selected population of agricultural workers and pesticide applicators.
3. Evaluate the acceptability of the design of sun safe headgear for use in agricultural work situations.
4. Explore the influence of the affective domain and peer response to use sun safe headgear among a selected population of agricultural workers and pesticide applicators.

D. PROJECT START AND END DATES: This project was funded from October 1, 2001 to October 1, 2003. A no-cost extension was granted until May, 2004.

E. PROJECT ACTIVITIES / ACCOMPLISHMENTS:

1. Conducted sun safety intervention programs at 8 different Pesticide Training sites around Ohio reaching 342 Ohio participants. Three control groups matched the geographic regions of the state and included 118 participants.
2. Conducted a replication study in Iowa through the National Education Center for Agricultural Safety (NECAS). Six programs were delivered, reaching 152 participants. The control group included 49 farmer participants.
3. Twenty Ohio individuals who completed both initial and follow-up surveys were selected from the control and treatment groups to participate in focus group interviews. Four different geographic sites in Ohio were selected to accommodate participants.
4. As part of the prevention/intervention efforts of the study, all participants received a sun safe hat. All individuals in treatment groups were given a sun safe hat the same day of their educational program. Subjects were asked to wear the hat when working outdoors in the sun. Subjects in the control group received a sun safe hat several months later, having completed a follow-up mail questionnaire. As another incentive, all participants (control and treatment) received a tube of soy-based sunscreen, manufactured by Soy Smooth, Inc. The SPF rating of this product was 15.

F. PROJECT PRODUCTS:

- **Presentations:**

Jepsen, D. "Using Mandated Pesticide Training Programs for Skin Cancer Intervention Strategies for Agricultural Workers," presentation. *National Symposium on Agricultural Safety and Health*. Keystone, Colorado, 2004.

Jepsen, D., Smith, J., Jackson-Smoot, B. "Reducing the American Farmer's Risk for Skin Cancer," poster. *American Farm Bureau Annual Conference*. Honolulu, Hawaii, 2004.

Jepsen, D., Smith, J., Jackson-Smoot, B. "Effectiveness of Sun Safety Intervention Approaches for Agricultural Workers," poster. *Fifth International Symposium: Future of Rural Peoples*. Saskatchewan, Canada, 2003

• **Other Publications:**

Jepsen, D. "Protection for Healthy Skin." *Ohio's Country Journal*. September 2004. pg. 55.

• **Education/ Training/ Outreach:**

Training Seminars:

Conduct skin cancer and sun safety educational sessions at various farm safety day camps, extension events, and Ohio Farm Bureau functions around the state of Ohio.

Collaborating with American Farm Bureau staff to conduct national train-the-trainers programs for their grass root safety directors to offer skin cancer educational programs. Anticipated time to begin training sessions is September 2005.

Academic Training:

Supported two undergraduate student assistants over the two-year funding period.

G. STATES THAT PROJECT WAS ACTIVE IN: Ohio, Illinois, and Iowa

A. PROJECT TITLE: Adapting the ASHBMP for the Insurance Industry

B. PROJECT OFFICER(s):

Dennis J. Murphy

221 Department of Agricultural and Biological Engineering
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University Park, PA 16802
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C. PROJECT DESCRIPTION:

The specific aims of this Prevention/Intervention project are threefold. The first aim is to take an experimentally evaluated farm hazard audit tool and further develop it so that it is more useful to insurers of agricultural work sites, work activity, and farm residences. The second aim is to evaluate specific loss control efforts by farmers when the specific effort is requested by their insurer and facilitated by the ASHBMP document. The third aim is to provide a mechanism by which an insurance company can reliably correlate a farm hazard score to actual hazard reductions and claims costs. Hazard audits are a fundamental tool for identifying and correcting hazards of any type. Best Management Practices (BMPs) normally incorporate flexible and practical guidelines for addressing a specific topic or area of concern. The format of a Penn State developed hazard audit tool, formally known as Agricultural Safety and Health Best Management Practices (ASHBMP) used hazard gradation scales and other features to objectively and efficiently describe the condition of a particular hazard, thus the ASHBMP hazard audit tool conveys important intervention information to users by its very use. The use of gradation scales in the ASHBMP provides a mechanism for an objective means of evaluating hazards and risks.

The objectives of this project are to:

1. Develop additional hazard gradation scales for hazards and risks identified by the cooperating insurance company.
2. Develop a flexible format for creating customized hazard audits utilizing the www and personal digital assistance (PDA) technology.
3. Develop a tracking system regarding use of the ASHBMP by the cooperating insurance company and their clients.
4. Begin regular use of the ASHBMP by the cooperating insurance company
5. Document the impact on hazard levels and insurance claims from use of the ASHPMB based on the experimental design implemented through Objective 4.

Agricultural insurance providers strive to provide each client with full-service insurance coverage, including all types of property and liability coverage. The vast majority of hazard scales developed for the current ASHBMP are directed toward machinery risks: hazard scales for many major property and liability risks of interest to insurers are missing. These must be developed for the ASHBMP to be useful to the insurance industry.

D. PROJECT START AND END DATES: October 1, 2003 to September 30, 2006

E. PROJECT ACTIVITIES / ACCOMPLISHMENTS:

1. Developed 73 new audit items using gradation scales to characterize the hazard/risks. These new audit topics were identified by the cooperating insurance company as typical of the types of hazards and risks they inspect for when they write insurance policies and perform hazard audits. Ten of the new hazard/risk topics and 13 existing hazard/risk topics (23 total) were selected by the insurance company for use with their clients. The 73 new hazard/risk topics are listed in the Appendix.
2. Developed a database driven computer program for data collection, viewing, and hazard gradation scale printing. Data collection may be from Personal Data Assistant (PDA) or input by keyboard. In the long term, database format for hazard gradation scale will allow web-based audit activity and customized audit programs to be formulated by the user.
3. Develop a protocol for use of the ASHBMP by the cooperating insurance company.

F. PROJECT PRODUCTS:

• Education/ Training/ Outreach:

Identified, with Westfield Insurance, the specific topics that would be useful to the entire insurance industry for quantifying hazards and risks. Westfield Insurance reviewed the specific hazard/risk audit topics to ensure they are characterized in a practical way.

Developed, with Westfield, a communications protocol with farmer clients that matches well with how they normally communicate with clients regarding loss control audits and recommendations.

G. STATES THE PROJECT WAS ACTIVE IN: Pennsylvania

EDUCATION/OUTREACH CORE

A. PROJECT TITLE: Evaluating for Impact GLCASH Fellows Program

B. PROJECT OFFICER(s):

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C. PROJECT DESCRIPTION

The objective of the Great Lakes Center for Agricultural Safety and Health Fellows

program is to increase the level of evaluation for impact conducted related to agricultural/rural safety and health outreach and educational programs. Evaluation for impact is the documentation of the effect outreach and educational programs have on participants. This impact includes sustained and substantial change in agricultural health and safety behaviors and practices. These changes are documented through quantitative and qualitative research methods.

To achieve this objective the project is developing a cadre of safety and health education practitioners (fellows) who will have the skills to conduct and analyze quantitative and qualitative research. These practitioners will use these skills to assess the impact of the outreach and education programs developed within their organizations and in selecting health and safety outreach and education programs to implement.

Through the program, fellows from an eight state region will participate in the 20-month GLCASH Fellows program. During that time, they will work with a mentor who will guide and support their development of evaluation impact skills. The fellows will participate in a web-based training program on evaluation and will conduct a research project to evaluate for impact an agricultural safety and health outreach or educational program. The fellows, along with their mentors, will share the results of their evaluations with stakeholders and other health and safety professionals. The mentors, and the advisory committee guiding this project, will use the web-based training with others involved with health and safety outreach/educational programs and will share the results of the fellows' program evaluations with others implementing educational/outreach programs.

D. PROJECT START AND END DATES: October 1, 2003 to September 30, 2006

E. PROJECT ACTIVITIES / ACCOMPLISHMENTS:

1. Advisory committee was formed and has met
2. Fellows application packet developed
3. Outline developed for mentors' component of the program
2. Fellows program website developed and posted
3. Fellows program marketed to potential candidates in the 8-state Great Lakes Center region
4. Outline of the 20-month on-line learning program developed, template for the online program created and 2 of the 20 learning modules were created.

F. PROJECT PRODUCTS:

- **Other Publications:**

Website <http://glcfellows.osu.edu/> developed for the GLCASH Fellows program

• **Education/ Training/ Outreach:**

Academic Training

One graduate student supported through the program (.5 FTE) from November 03 to present

• **Conferences/ Meetings Sponsored:**

Sponsored one advisory committee meeting (March 2004)

Conducted three conference calls for advisory committee meetings

G. STATES THE PROJECT WAS ACTIVE IN: Illinois, Kentucky, Ohio, Pennsylvania, West Virginia, and Wisconsin

IV. PROGRESS REPORT ON FEASIBILITY PROJECTS (AS APPROPRIATE)

The GLC Directors solicited for 2004-2005 feasibility grants in August of 2004. The following feasibility grants were successful and subcontracts were recently arranged. These, most recent feasibility grants have just begun and are in the infant stages of development: Vehicle-in-the-loop Virtual Reality Simulation of Tractor Rollover, PI, Dr. Quin Zhang, Department of Agricultural and Biological Engineering, University of Illinois at Urbana-Champaign; Midwest Landscape Intervention Evaluation Pilot Program, PI, Dr. Larry Chapman, University of Wisconsin-Madison and Simulation of a PTO Environment, PI, Mr. Don Stredney, Ohio Supercomputer Center, The Ohio State University-Columbus.

V. REPORT ON SPECIFIC IMPROVEMENTS IN AGRICULTURAL SAFETY AND HEALTH THAT RESULTED FROM CENTER ACTIVITIES (RESEARCH TO PRACTICE).

The GLC outreach program is in the planning stages of taking the results of the Effectiveness of Sun Safety Intervention Approaches to Change Sun Protection Behaviors of Agricultural Workers Project into practice by developing a state, regional or national program with a partnership with the Farm Bureau. It is expected that the outreach program will be ready for delivery in the fall of 2005.

VI. COLLABORATION

- Culver Elevator Cooperative; Athens, IL
- Grain Department Evergreen FS INC; Bloomington, IL

- Illinois Farm Bureau; Bloomington, IL
- Illinois State University; Normal, IL
- McLean County Farm Bureau; Bloomington, IL
- University of Illinois; Extension Program Support; Urbana, IL
- University of Illinois- Urbana-Champaign; Department of Agricultural Engineering
Urbana, IL
- National Safety Council (NSC); Chicago, IL
- National Education Center for Agricultural Safety (NECAS), Chicago, IL
- University of Kentucky; Program and Staff Development; Lexington, KY
- University of Kentucky; Department of Curriculum and Instruction; Lexington, KY
- University of Kentucky; College of Nursing; Lexington, KY
- Michigan Farm Bureau; Lansing, MI
- Ted Scharf; National Institute for Occupational Safety & Health; Cincinnati, OH
- Janet Ehlers; National Institute for Occupational Safety & Health; Cincinnati, OH
- Carroll County Extension Office; Carrollton, OH
- The Ohio State University; Health Sciences; Columbus, OH
- The Ohio State University; College of Food, Agricultural, and Environmental
Sciences; Department of Human and Community Resource Development;
Columbus, OH
- The Ohio State University; School of Public Health; Department of Environmental
and Health Sciences; Columbus, OH
- Ohio Farm Bureau Federation (OFBF); Columbus, OH
- The Pennsylvania University; Cooperative Extension; University Park, PA
- The Pennsylvania University; Department of Agricultural and Extension Education;
University Park, PA
- Westfield Insurance; Agribusiness Group; Lancaster, PA
- American Farm Bureau Federation (AFBF), Washington, DC
- Teri Palermo; National Institute for Occupational Safety & Health; Morgantown, WV
- West Virginia University; Rural Safety and Health; Morgantown, WV
- Davis College of Agriculture, Forestry, and Consumer Science; Division of Resource
Management; Morgantown, WV
- West Virginia Farm Bureau; Morgantown, WV
- NIOSH-funded Fatality Assessment and Control Evaluation Program;
Morgantown, WV
- University of Wisconsin-Madison; College of Agricultural and Life Sciences;
Department of Biological Systems Engineering; Madison, WI

APPENDIX

a. TOTAL CENTER BUDGET FOR FY 2004

The figures below are an estimate as of September 30, 2004. They do not contain \$354,482.57 in commitments yet unpaid. Exact figures for FY 2004 will not be available until January 2005, 90 days after the end of FY 2004.

1. **Total NIOSH Expenditures:** \$266,666.61
2. **In-Kind Contributions:** \$0
3. **Other Outside Funding:** \$817,070 (other external grants and contracts)

II. CENTER PROJECTS / ACTIVITIES FOR FY 2004

1. **Ongoing Projects:** 5
2. **Projects Completed:** Effectiveness of Sun Safety Behavior of Agricultural Workers
3. **New Projects:** None
4. **Feasibility Projects:**

Vehicle-in-the-loop Virtual Reality Simulation of Tractor Rollover, PI, Dr. Quin Zhang, Department of Agricultural and Biological Engineering, University of Illinois at Urbana-Champaign

Midwest Landscape Intervention Evaluation Pilot Program, PI, Dr. Larry Chapman, University of Wisconsin-

Simulation of a PTO Environment, PI, Mr. Don Stredney, Ohio Supercomputer Center, The Ohio State University-Columbus.

III. CENTER INVESTIGATORS

1. **Scientific Investigators:** 13
 - ii. **Program Support Staff:** 1

IV. CENTER PRODUCTS

1. Presentations:

“Adherence to the NAGCAT and Injury Risk Reduction.” *National Symposium on Agricultural Health and Safety NIFS Annual Conference*. Keystone Resort, Colorado, June 20-24, 2004.

“Development and pilot testing of a web-based version of the Farm Grain Hazard Assessment Tool.” *National Institute for Farm Safety*, 2004.

“Liberty Tube™- Prototype Plastic grain Rescue Tube.” Poster. *National Institute for Farm Safety*, 2004.

“Evaluating the Effectiveness of the NAGCAT (North American Guidelines for Children’s Agricultural Tasks) with a Randomized Controlled Trial.” *National Symposium on Agricultural Health and Safety NIFS Annual Conference*. Keystone Resort, Colorado, June 20-24, 2004.

“Sharing Rural Roads with Farm Equipment.” *National Symposium on Agricultural Health and Safety NIFS Annual Conference*. Keystone Resort, Colorado, June 20-24, 2004.

“Prevalence of ROPS use among West Virginia Farmers: Attitudes, Experiences, and Concerns.” Poster. *2004 Symposium on Agricultural Health and Safety*. Keystone Resort, CO, June 20-24, 2004.

Jepsen, D. “Using Mandated Pesticide Training Programs for Skin Cancer Intervention Strategies for Agricultural Workers.” *National Symposium on Agricultural Safety and Health*. Keystone, CO, 2004.

Jepsen, D., Smith, J., Jackson-Smoot, B. “Reducing the American Farmer’s Risk for Skin Cancer.” Poster. *American Farm Bureau Annual Conference*. Honolulu, Hawaii, 2004.

“Enhancing the Health and Well-Being of Plain Communities.” *Ohio’s Amish Transportation Safety Program*. June 2004.

“Preliminary Results: Farm-Related Asthma.” *Michigan Society for Respiratory Care*. Frankenmuth, MI, 2004 Fall Seminar.

Papers Presented in October of 2003, Not reported in 2003 annual report as the 2003 report was prepared prior to presentation.

“A Case-Controlled Study of Injuries among Central Ohio Farm Youth.” *Fifth International Symposium - Future of Rural People*. October 2003.

“Task Specific Injury Rates for Youth Exposed to Agricultural Hazards.” *Fifth International Symposium- Future of Rural People*. October 2003.

Jepsen D., Smith, J., Jackson-Smoot, B. “Effectiveness of Sun Safety Intervention Approaches for Agricultural Workers.” Poster. *Fifth International Symposium: Future of Rural Peoples*. Saskatchewan, Canada, 2003

“Evaluating Time-Dependent Errors in Daily Injury Self-Reports form Youth in a Longitudinal Study.” *Fifth International Symposium - Future of Rural People*. October 2003.

“Evaluating Time-Dependent Errors in Daily Injury Self-Reports From Youth in a Longitudinal Study of Agricultural Hazards.” *National Occupational Injury Prevention Research Symposium*. October 2003.

“Using Composite Measurements Scales to Model Injury Hazards.” *National Occupational Injury Prevention Research Symposium*. October 2003.

“Farm Youth Can Be Reliable Reporters of Their Daily Injury Experiences.” *National Occupational Injury Prevention Research Symposium*. October 2003.

“Task-Specific Injury Rates for Youth Exposed to Agricultural Hazards.” *National Occupational Injury Prevention Research Symposium*. October 2003.

“A Case-Controlled Study of Injuries among Central Ohio Farm Youth.” *National Occupational Injury Prevention Research Symposium*. October 2003.

2. Publications

- a. Peer Reviewed Journal: 3**
- b. Trade Journals: 2**
- c. Fact Sheets / Brochures / Technical Publications: 1**
- d. Other Publications: 20**

3. Education / Training / Outreach

- a. Training Seminars: 4**
- b. Short Courses: 0**
- c. Hazard Surveys / Consultations: 0**

- d. **Academic Training:** Graduate Students Sponsored: 2
Undergraduate Students Sponsored: 3
- e. **News Letters:** 1
- f. **CD-ROMs or other Computer Based Training Programs:** 0
- g. **Other:**
 - Farmer Focus Group Meeting, Moundsville, WV, February 12, 2004
 - Farmer Focus Group Meeting, Buckhannon, WV, February 19, 2004
 - Farmer Focus Group Meeting, Summersville, WV, February 24, 2004
 - Farmer Focus Group Meeting, Ripley, WV, March 9, 2004
 - Quantifying Hazards and Risks for Insurance Purposes
 - Communications Protocol developed concerning audits and recommendations between farmer clients and the insurance industry
 - Website: <http://www.ag.ohio-state.edu/~agsafety/glc/>

4. Conferences / Meetings Sponsored:

- Sponsored one advisory committee meeting (March 2004)
- Conducted three conference calls for advisory committee meetings
- National Conference entitled “Improving Agricultural Health and Safety Programs through Evaluation: Rigorous and Practical Strategies,” Columbus, Ohio, March 15-16, 2004
- Midwest Symposium for Extension Agricultural safety Specialists, Chicago, Illinois, May 5-6, 2004

V. ADMINISTRATIVE REPORT

First the Center Directors would like to take this moment to thank NIOSH for making available the opportunity for the GLC to apply for additional funding to support its outreach efforts and the opportunity to apply for grants to support the National Agricultural Tractor Safety Initiative.

Second, regarding personnel matters, Dr. Catherine Heaney, obtained a position at another university and resigned from the Center as Director of Prevention/Intervention and has been replaced in that position by Dr. Tom Archer, Program Development and Evaluation, OSU Extension Service. Dr. Heaney will remain active in the Center Fellows Program in 2005. In addition, the GLC Office Associate resigned from her position in September 2004, her position has been reclassified to better serve the needs of the Center and applications are currently being received for a new GLC Program Manager to assist in the management of the GLC grant, subcontracts and programs. The position is expected to be filled January 1, 2005.