and rounded to integers for ease of use. For each variable in the model, an integer score is obtained based on the youth's characteristics, and a total score determined by summing the individual scores. The magnitude of the total score reflects that individual youth's injury risk for the specific task. Over the 3-year study period, 407 youth and their "parent partners" provided usable data (4,098 youth weeks, 2,788 injury events). Empirically-derived CMS models for at least five specific tasks will be presented along with conclusions and recommendations.

B5.4

Title: Managing Human Risk in Livestock Handling
Authors: Isaccs SG, Powers L, Lineberry GT, Scharf T, Wiehagen WJ

According to the 1997 Census of Agriculture, 66.7% of farms in the United States produce some form of livestock. Similarly, 63.4% of Kentucky farms have livestock. Considering that agriculture typically occupies one of the top three rankings of hazardous occupations, research opportunities exist for studies identifying causes of traumatic injuries on livestock farms. This project addresses the human risk and injury prevention in livestock handling practices.

Using the precepts of the Work Crew Performance Model (Wiehagen, Lineberry, et al, 1994), a critical-factor assessment tool from the mining and construction industries, this project attempted to identify and prioritize critical tasks in both routine and emergency livestock handling situations. Tasks were identified and ranked by farm-family focus groups on the basis of the seriousness of economic consequences resulting from the failure to perform the task correctly. Focus group results for both routine and emergency livestock handling situations will be presented.

Kentucky Cooperative Extension Agents for Agriculture completed a validation of the tasks identified by these farm families. County agents assisted in identifying and ranking the most critical tasks when handling livestock. The results of this validation process will also be presented.

A livestock handling safety checklist has been developed that will become part of multi-disciplinary extension education programming in Agricultural Economics, Agricultural Engineering, and Animal Science. The likelihood and economic consequences of injury events in livestock handling can be compared to the costs of practices, technologies, and facilities for safe handling to aid livestock producers in choosing less risky courses of action.

B5.5

Title: Investigation of Vehicle Jarring/Jolting on Self-Propelled Farming Equipment
Authors: Mayton AG, Ambrose DH, Jobes CC, Matty TJ

This presentation will update an ongoing, NORA-sponsored project in which NIOSH researchers are studying the injury risk associated with operator exposure to vehicle jarring/jolting on mobile farming equipment. Field and laboratory data collection are described and findings from the analysis of data are discussed. Field data were collected for tractor operators during baling, mowing, and tilling and a skid-steer loader operator during removal of a small tree. Preliminary results show the operator of the skid-steer loader is exposed to higher levels of vehicle jarring/jolting than the tractor operators for the said operations. Moreover, the results are highlighted for health and work history data collected from 50 farmers and farm equipment operators attending a major farm bureau convention and annual meeting. Further, researchers discuss a computer-based, seat suspension model that will enable researchers to determine how effective the seat suspension will attenuate jars and jolts. The model will also aid in the evaluation of engineering controls to lower the risk of worker injury. The results of this project could be used to significantly reduce operator lost-time injuries associated with vehicle jarring/jolting.

Session C1.0
Title: Childhood Agricultural Injury Prevention
Moderator: David Hard

C1.1

Title: The NIOSH Childhood Agricultural Injury Prevention Initiative
Author: Hard DL

The NIOSH Childhood Agricultural Injury Prevention Initiative builds upon previous NIOSH research and objectives, as well as the goals, recommendations and strategies in the 2002 report "Childhood Agricultural Injury Prevention: Progress Report and Updated National Action Plan from the 2001 Summit" and the earlier 1996 report "Children in Agriculture: Opportunities for Safety and Health–A National Action Plan (NAP)." These reports recommend leadership, surveillance, research, education, and public policy. The NAP plan specifically recommended that NIOSH serve as the lead federal agency in preventing childhood agricultural injury.

In implementing the Childhood Agricultural Injury Prevention Initiative, NIOSH has assumed a leadership role by identifying, funding and developing childhood agricultural injury prevention activities. Efforts by NIOSH and its extramural partners have resulted in substantial progress. Twenty-five research

grants specific to childhood agricultural safety and health research have been funded and completed. Early grants focused on surveillance, intervention strategies, evaluation of educational/training programs, and the evaluation of farm safety day camps. New grant proposals were called for in FY2003 for research to 1) develop and evaluate new or existing enhanced control technologies, 2) develop and evaluate incentives which encourage adults to protect youth, or 3) identify the economic and social consequences of youth working on farms. Additionally, a RFA was announced for renewal of the National Center for Childhood Agricultural Injury Prevention in FY 2003, which is an integral part of the overall initiative. A national surveillance plan for childhood agricultural injuries is being developed and implemented by NIOSH. A website featuring publications and summaries of the research conducted under this initiative has been implemented and updated for public access. Finally, receiving external input for the Initiative has been addressed by reinstituting the Federal Task Force on Childhood Agricultural Injury Prevention and planning for another stakeholder input meeting in 2005.

C1.2

Title: Surveillance of On-Farm Injuries to Youth in the United States

Author: Myers JR

In 1997, the National Institute for Occupational Safety and Health (NIOSH) began a national initiative to prevent fatal and nonfatal injuries to youth on farms in the United States. A major component of this initiative is the development of a surveillance program for injuries to youth that occurred on farms. This surveillance program is an internal NIOSH activity, and has the goal of providing national and regional surveillance on injuries occurring to a variety of youth populations exposed to farm hazards. The populations at risk include: youth farm workers and the children of farm workers; children of farm operators; and, children visiting farming operations. Development of the surveillance program included the assessment of existing data sources for their utility in providing on-farm youth injury information, and the development of new data collection systems to cover populations not adequately addressed by existing data systems. Existing data systems that have been examined include the Bureau of Labor Statistics' Census of Occupational Fatal Injuries, the Consumer Product Safety Commission's National Electronic Injury Surveillance System, and the National Center for Health Statistics' Vital Statistics Mortality data system. New data collection efforts include periodic farm operator surveys conducted in cooperation with the National Agricultural Statistics Service, periodic youth farm worker surveys conducted in cooperation with the Department of Labor through the National Agricultural Workers Survey, and the annual collection of farm-related death certificates through the cooperation of State Vital Statistics Registrars. By combining information from all these data sources, NIOSH intends to create a workable and cost effective approach to providing injury surveillance for the three broad youth populations at risk to farm hazards. Finally, this surveillance program will undergo an external review by experts in the area of agricultural safety and health surveillance to ensure the scientific soundness and appropriateness of this program.

C1.3

Title: Hmong Children as Farm Workers in Minnesota: Hazards, Tasks and Safe Work Practices

Authors: Shutske JM, Schermann M

The purpose of this NIOSH-funded research project has been to 1) examine the extent and nature of children's agricultural labor in farm families of Hmong origin in Minnesota; 2) investigate culture-specific health behavior patterns and culturally appropriate health promotion methods for farm families of Hmong origin; and 3) analyze the North American Guidelines for Children's Agricultural Tasks (NAGCAT) manual labor guidelines for applicability and appropriateness for use by Hmong farming families. Qualitative and quantitative research methods were used, including extensive literature review; review of secondary data; semi-structured interviews of parents, grandparents, and other care providers; focus groups; field observations of children and families performing work; and height and weight measurements of children. Text narratives, field notes, and photographs were analyzed using Atlas.ti software used to manage and organize qualitative data. Numerical data were analyzed with SPSS. Hmong farm children are engaged in different work tasks, roles, and responsibilities compared to mainstream North American farm children. Hmong children perform tasks in four temporal phases: preharvest, harvest, post-harvest, and at the market. The characteristics and intensity of tasks performed by children differ in each phase. Tasks differ by age and gender. Girls work longer hours and carry heavier loads than boys of the same age. Standard health and safety materials are not widely accepted by Minnesota Hmong farmers. Participants in this project helped develop culturally appropriate and relevant materials for Hmong farm parents and children. These materials and the development process will be presented and discussed.

C1.4

Title: Lessons Learned from the Process and Outcome of a Summit on Childhood Agricultural Injury Prevention

Authors: Lee BC, Marlenga BL, Gallagher SS,
Hard DL, Phelan CH

Background: Following a five-year infusion of public and private dollars to implement a national action plan on childhood agricultural injury prevention (for which NIOSH serves as lead agency), a comprehensive progress review was warranted. The

NOIRS 2003 ABSTRACTS

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DAY ONE —TUESDAY, OCTOBER 28, 2003

CONCURRENT SESSION: A
10:30am - 12:00pm