

June 2015 Alive & Well Updates: Farm Equipment Safety

Nonfatal tractor-related injuries presenting to a state trauma system. Swanton, AR; Young, TL; Leinenkugel, K ; Torner, JC; Peek-Asa, C. June 2015. JOURNAL OF SAFETY RESEARCH 53: 97-

Purpose: To identify tractor-related injuries using data from a statewide trauma system, to characterize the mechanisms of nonfatal tractor-related injury, and to determine which injuries are associated with higher severity injury.

Methods: A retrospective observational study was conducted using the Iowa State Trauma Registry to identify cases of nonfatal tractor-related injuries over an 11-year period from 2002 to 2012. Frequency of injury was reported by age, sex, severity, and nature. Injuries were classified by mechanism and a polytomous regression model was used to predict injury severity adjusting for sex and age.

Results: Five-hundred thirteen nonfatal tractor-related injuries were identified with 18% classified as severe. Injuries were most frequent among males and among those ≥ 45 years of age. Rollovers were the most frequent mechanism of both total (25%) and severe injury (38%), although the frequency of injury mechanism varied by age. Falls were the next most frequent mechanism of injury (20%) but resulted in fewer high-severity injuries. Collision (adjOR = 1.89, 95% CI = 1.01-3.51), rollover (adjOR = 2.03, 95% CI = 1.21-3.40), and run over/rolled on (adjOR = 2.06, 95% CI = 1.17-3.62) injuries were significantly associated with higher injury severity. Advanced age was also a significant predictor of higher severity injury (adjOR = 1.82, 95% CI = 1.06-3.12).

Summary: Mechanisms of nonfatal tractor-related injuries are heterogeneous, differ by age, and are associated with varying level of severity. Practical Applications: This work shows the burden of nonfatal tractor injuries on a rural state trauma system. These findings also demonstrate the heterogeneous nature of nonfatal tractor injuries and underscore the need for a multi-level approaches to injury prevention.

Integrating Cost-effective Rollover Protective Structure Installation in High School Agricultural Mechanics: A Feasibility Study. Mazur, J; Vincent, S; Watson, J; Westneat, S. April 3 2015. Journal of Agromedicine 20(2): 149-159.

This study with three Appalachian county agricultural education programs examined the feasibility, effectiveness, and impact of integrating a cost-effective rollover protective structure (CROPS) project into high school agricultural mechanics classes. The project aimed to (1) reduce the exposure to tractor overturn hazards in three rural counties through the installation of CROPS on seven tractors within the Cumberland Plateau in the east region; (2) increase awareness in the targeted rural communities of cost-effective ROPS designs developed by the National Institution for Occupational Safety and Health (NIOSH) to encourage ROPS installations that decrease the costs of a retrofit; (3) test the feasibility of integration of CROPS construction and installations procedures into the required agricultural mechanics classes in these agricultural education programs; and (4) explore barriers to the implementation of this project in high school agricultural education programs. Eighty-two rural students and three agricultural educators participated in assembly and installation instruction. Data included hazard exposure demographic data, knowledge and awareness of CROPS plans, and pre-post knowledge of construction and assessment of final CROPS installation. Findings demonstrated the feasibility and utility of a CROPS education program in a professionally supervised secondary educational setting. The project promoted farm safety and awareness of availability and interest in the NIOSH Cost-effective ROPS plans. Seven CROPS were constructed and installed. New curriculum and knowledge measures also resulted from the work. Lessons learned and recommendations for a phase 2 implementation and further research are included.

Concept Identification for a Power Take-Off Shielding Campaign. Tinc, PJ; Madden, E; Park, S; Weil, R; Sorensen, JA. January 2 2015. JOURNAL OF AGROMEDICINE 20(2): 55-63.

Machinery entanglements, specifically power take-off (PTO) entanglements, are a leading cause of injuries and fatalities on farms. In order to address this life-threatening issue, a social marketing campaign is being developed to reduce barriers and emphasize motivators to shielding. This article discusses the process of designing, testing, and selecting concepts to be used in the campaign. Small-group discussions (triads) were held to test 13 message concepts. Participants were asked to provide feedback and select the two messages that they believed to be most powerful. Upon completion, three message concepts were selected to be finalized.