

August 2015 Alive & Well Updates: Recent Farm Injury Research

The Hierarchy of Control in the Epidemic of Farm Injury. Dosman, J., Hagel, L., King, N., et al. *Journal of Agromedicine* 20(3):360-369.

The application of the hierarchy of control (HOC) is a well-established approach to hazard reduction in industrial workplaces. However, it has not been generally applied in farm workplaces. The objective was to determine current practices of farmers in the context of a modified HOC, and the effect of these practices on farm injury outcomes. A self-reported mail survey of 1196 Saskatchewan farm operations was conducted in 2013. Selected survey questions were used as proxy measures of the farm owner-operator's practices relevant to each of the six steps of increasing importance in a modified HOC: (1) hazard identification; (2) risk assessment; (3) personal protection; (4) administrative controls; (5) engineering controls; and (6) elimination of the hazard. Analysis used basic descriptive statistics and logistic regression to examine associations of interest. When four of the six HOC steps were adhered to, there was a significant protective effect: odds ratio (OR) = 0.32 (95% confidence interval [CI]: 0.14–0.74) for any injury and OR = 0.27 (95% CI: 0.07–0.99) for serious injury in the overall study population. For farm owner-operators utilizing four of the six steps in the modified HOC, there was a significant protective effect for any injury (OR = 0.30, 95% CI: 0.11–0.83). Although there is a considerable absence of use of elements of the HOC among farm operators, for farmers who adhere to these steps, there is a significant reduction in their risk for injury. Prevention strategies that embrace the practice of these principles may be effective in the control of farm workplace injury.

Risk Assessment of Cattle Handling on Pasture Using Work Environment Screening Tool. Geng, Q., Field, W.E., Salomon, E. *Journal of Agromedicine* 20(2) April 2015: 116-124.

ABSTRACT: Working with beef cattle in an open area or while on pasture has been shown to expose workers to a high risk of work-related injury. Prior research on this problem has been conducted using mail surveys, interviews, self-reporting of work practices and injury experiences, and summaries of published injury data, including media reports. Prior research on injury prevention has largely focused on worker education in a specific cultural or geographical setting. A pilot study was conducted to test the cross-cultural usability of the Working Environment Screening Tool in Agriculture (WEST-AG), a modification of the WEST, developed for Swedish industrial applications, to assess risk factors associated with farmers working with cattle being raised largely on pasture as compared with cattle raised in confined feeding operations. Swedish and English language versions of WEST-AG were developed and pilot-tested on a convenient sample of eight Swedish and eight Indiana farms that raise beef cattle primarily on pasture. On-site observations were conducted independently by Swedish and US agricultural safety professionals and documented using photography and a 15–risk-of-injury component on an 11-degree linear scale. Comparisons were made between independent observations documented from the Swedish and Indiana application of the WEST, including collective assessment of photographic record, and the results reported. Key findings included (a) a higher level of observed risks on Indiana farms studied as compared with their Swedish counterparts; (b) high levels of worker exposure to cattle, especially mature breeding bulls, on both sets of farms; (c) a higher frequency of self-reported farm-related injuries than anticipated on both Swedish and Indiana farms; (d) substantially different economic, social, cultural, and regulatory forces that influence small-operation Swedish and Indiana beef producers' decisions regarding adoption of safer work practices, including use of new and safer technology; and (e) differences between the interpretations of the levels or severity of risks observed between the Swedish and US researchers conducting the assessments based upon regulatory and cultural context. Recommendations for enhancing the methodology of applying the WEST-AG to beef production are discussed, along with utilizing the findings to recommend steps to enhance worker safety on small beef farms, regardless of cultural setting. The most significant contribution of this study was to explore the viability of an assessment tool for agricultural workplaces that could be used internationally to enhance worker safety and health regardless of cultural and political differences.

Occupational and Nonoccupational Farm Fatalities Among Youth for 2000 Through 2012 in Pennsylvania.

Gorucu, S., Murphy, D., Kassab, C. *Journal of Agromedicine*, 20(2) April 2015: 125-139.

ABSTRACT: Agriculture is one of the most hazardous industries in the United States. It is crucial to analyze the previously collected farm fatality data in Pennsylvania involving youth to identify fatality sources and to delineate prevention strategies to mitigate future occurrences. The Penn State Farm and Agricultural Injury Database was updated to include the Occupational Injury and Illness Classification System (OIICS) for source and event or exposure. Occupational and nonoccupational incidents were compared based on age groups, religious sect, source of injury, and the injury event or exposure. A total of 82 fatalities to youth under 20 years were identified. Youth under 5 years old had the highest fatality rate of 87.1 fatalities per 100,000 farm household youth per year. The percentages of occupational and nonoccupational fatalities were 30.5% and 62.2%, respectively. Three primary sources accounted for 76% of the 82 farm fatalities: vehicles, machinery, and structures and surfaces. The majority of fatally injured youth (78%) were Anabaptist. The Anabaptist youth were 7 times more likely to be involved in occupational incidents than the non-Anabaptist youth. Youth <10 years of age who were not alone at the time of the fatal incident accounted for about half of the deaths, indicating the peril of adults attempting to supervise youth in the workplace. This fatal injury analysis to youth has identified common fatality injury patterns and risk factors to youth. The data can be used to identify intervention strategies for youth and underserved populations (Anabaptists) and can be used to help motivate adults and parents to adopt safety practices to prevent future injury occurrences. This paper also helps to illustrate the value of state-based monitoring of farm injury to youth using methods available to many states and territories.