

Tractor Overturns and Farm Safety Exposure Data- Farms and Ranches, U.S. 2006

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Abstract

Hazard surveillance is a valuable tool for assessing the prevalence of known injury and health risks in a variety of settings. These data are also useful in tracking the adoption of interventions within specific groups. The following are selected results from a national farm hazard survey conducted for NIOSH by the USDA, National Agricultural Statistics Service (NASS) in 2006. Topics covered include farm tractor overturns, manure pits, all-terrain vehicles (ATVs), grain storage, and the use of underground power lines on farms across the U.S.

Methods

A telephone survey of 25,000 farm operators was conducted during the month of September 2006, for NIOSH by USDA, NASS. The sample was obtained from the NASS sampling frame of active farms and ranches, and was stratified by region of the country.

There were a total of 12,278 completed telephone interviews with operators of active farms, and an additional 1,881 operators that were contacted but were no longer actively farming. There were 4,704 farm operators who were contacted but refused to participate in the survey. Finally, there were 6,137 operators who could not be reached by phone during the survey period. The adjusted survey response rate, excluding non-contacts, was 75%.

Survey weights were derived using farm counts published by USDA, NASS, for calendar year 2006. To calculate the survey weights, farms were post-stratified within regions of the U.S. by three broad categories of the farm operation's gross value of sales (<\$10K, \$10K-\$99K, \$100K+).



Picture 1- Farm youth in fenced safe play area (Monongalia County, WV 2007)

Results

Results- Tractor Overturns

There were 4.2 million agricultural production tractors (excluding antiques and riding mowers) on 2.1 million farms in the U.S. during 2006 (Table 1). The prevalence of ROPS-equipped tractors was estimated at 59% in 2006.

An estimated 6,650 tractors overturned on farms in the U.S. during a one year time period based on the question-- "In the last 12 months, did any of your tractors overturn?" Sixty-three percent of the overturned tractors were not equipped with a ROPS. Low income farms (less than \$10,000 in total sales) accounted for 55% of the tractor overturns, with 77% of these overturned tractors lacking a ROPS (Figure 1).

Table 1- Number of Tractors & Tractor Overturn Rates, ROPS Equipped by Total Sales, U.S. Farms 2006

Total Sales	Farms	Tractors	% ROPS	Tractor Overturns [Rate/1,000 Tractors]
< \$10K	1,153,900	1,486,500	51%	3,630 [2.4 / 1,000]
\$10-99K	597,400	1,368,700	56%	2,290 [1.7 / 1,000]
≥ \$100K	338,500	1,380,400	70%	730 [0.5 / 1,000]
Total	2,089,800	4,235,600	59%	6,650 [1.6 / 1,000]

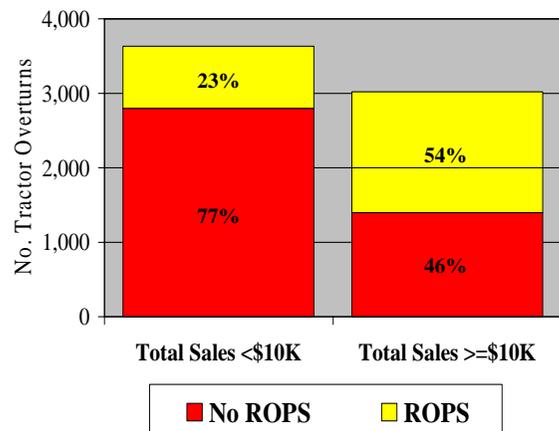


Figure 1. 6,650 Tractor Overturns-- ROPS Equipped by Total Sales

Tractor Overturns and Farm Safety Exposure Data- Farms and Ranches, U.S. 2006 (Continued)

Results- *continued*

Results- Manure Storage

A total of 71,700 farm operators reported manure storage facilities on their farms. There were 56,900 manure pits on 35,900 farms (Figure 2); 60% of the manure pit openings were covered with grates, concrete lids, or some other type of guarding. Sixty-three percent of the farm operators reported never entering the pit during the previous 12-months, 19% reported entering the pit 1-5 times, and 19% stated they entered the pit 6 or more times. There were a total of 47,900 manure lagoons on 38,600 farms; only 25% of the lagoons had warning signs posted.

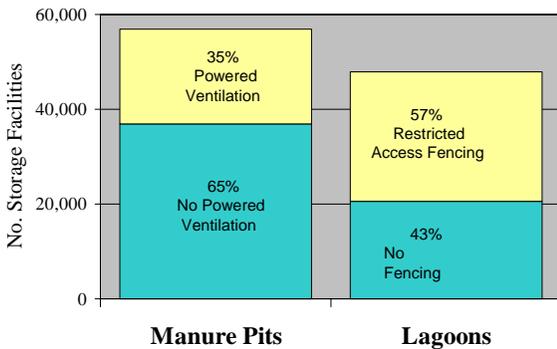


Figure 2. Manure Storage on Farms

Results- ATVs

Of the 2.1 million farms, 43% (900,000) had at least one ATV. There were a total of 1.2 million ATVs, with the majority (1.1 million) used for work tasks at least some of the time. Fifty-one percent (296,200) of farms with youth living on them had at least one ATV compared to 40% (593,300) of farms without youth (Figure 3).

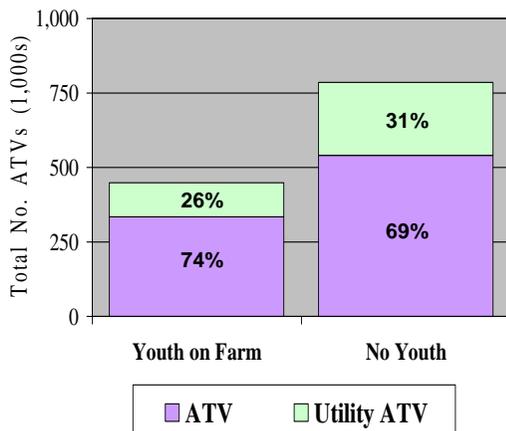


Figure 3. Type of ATV by Youth Living on Farm

Results- *continued*

Results- Farmstead Electrical Service

Underground power lines were found on 48% (980,000) of all farms (Figure 4). Large farms classified as grain production, swine, or poultry were more likely to have underground power lines. It is possible that the high power demand for on-farm grain storage lead to the underground lines being installed during electrical renovations as recommended per best farm management and safety practices.

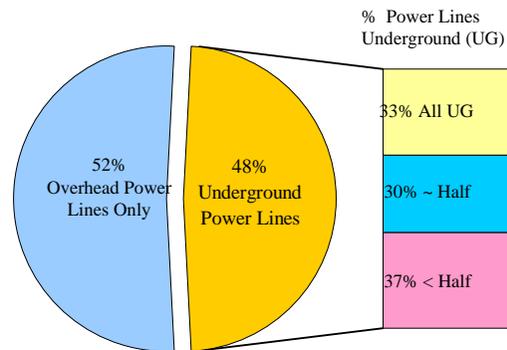


Figure 4. Farmstead Electrical Service by Percent of Power Lines Underground

Conclusion

Developing quantitative measures for farming hazards will provide for more complete risk assessment. Results from this survey show that such data can be successfully collected using a telephone survey approach in a cost effective manner. In addition, these data provide a bench mark to measure trends in the prevalence of farm hazards over time. One limitation of these data is that they are self-reported by the farm operators and have not been independently verified by "on-farm" hazard assessments.

The findings and conclusions in this poster have not been formally disseminated by the National Institute for Occupational Safety and Health and should not be construed to represent any Agency determination or policy.

