



**Agricultural-Related Fatalities  
Reported Through Newspapers  
In Nine Midwestern States:**

**Illinois**

**Iowa**

**Kansas**

**Minnesota**

**Missouri**

**Nebraska**

**North Dakota**

**South Dakota**

**Wisconsin**



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## **Introduction**

Although a rewarding and increasingly important industry, agriculture is consistently one of the most hazardous occupations in the United States. In 2011, the agriculture, forestry, fishing, and hunting sector had the third highest number of fatalities (n=557), but had the highest fatality rate of all industrial sectors at 24.4 per 100,000 full-time equivalent workers (Bureau of Labor Statistics, 2012). This is an especially important issue in the Midwestern states, which has a higher proportion of farmland and farming income than most other regions of the United States (United States Department of Agriculture, 2012). The states included in this program included Illinois, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, and Wisconsin – states which include some of the most productive farmland in the world.

The purpose of this project was to describe agricultural-related fatalities using newspaper clippings. Tracing deaths to agricultural activities is difficult, as no single source of information accurately identifies these activities. Understanding the trends and characteristics of agricultural fatalities can help us intervene with safety engineering, policies, education, and environmental change.

## Methods

Newspaper clippings were captured by Newz Group, a media monitoring service with partnerships in a number of Midwestern states. The precise number of publications covered by Newz Group and its partners fluctuates, but the coverage for our project area included over 2,000 publications. Search criteria used by Newz Group to capture the clippings used in our program included deaths occurring on farms, ranches, and agricultural industries; deaths of pilots of crop dusters and individuals involved in agricultural work while on roadways; and deaths in agricultural industries such as vendors, cooperatives, hunting, fishing, and trapping.

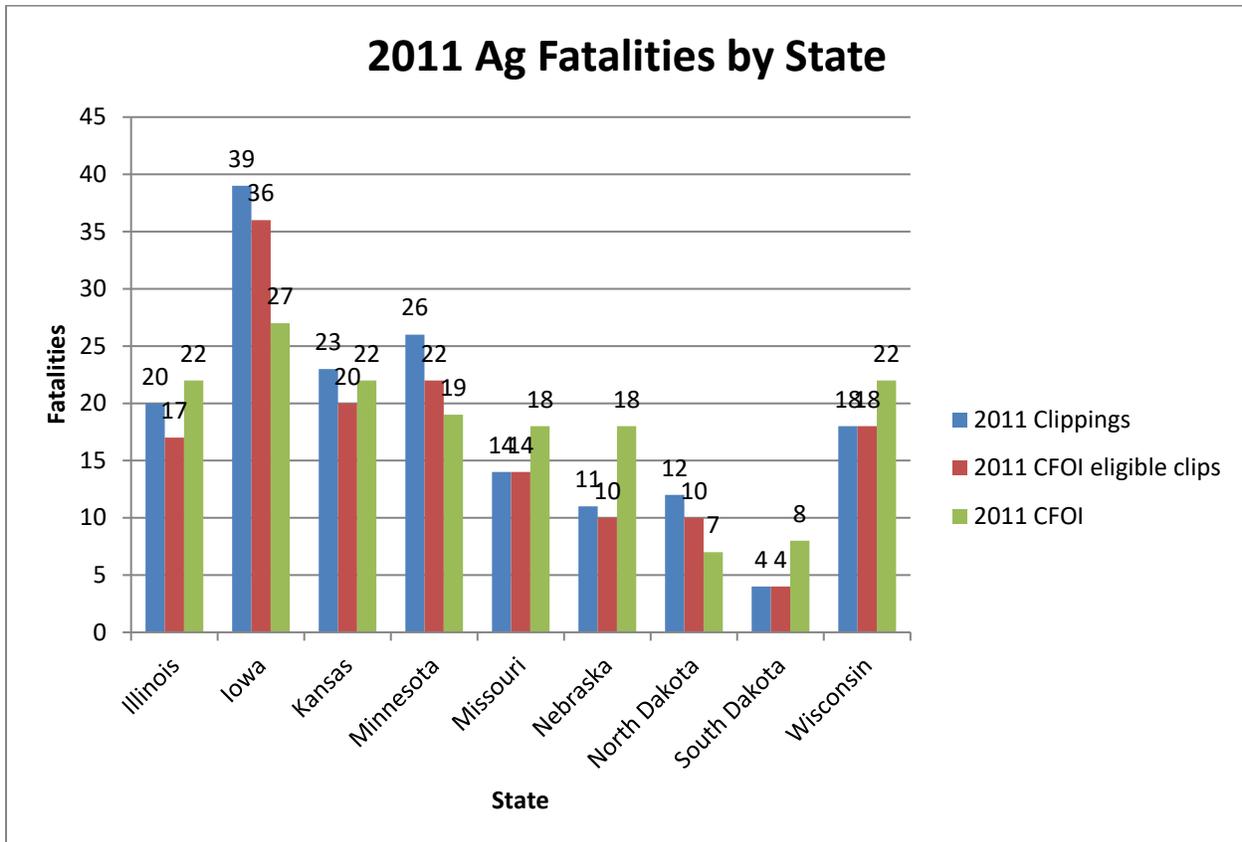
Of the nine states included in the program, Newz Group reports that they have direct, comprehensive coverage of all newspapers in Iowa, Kansas, Missouri, North Dakota, and South Dakota. As of February, 2012, this included 342 newspapers in Iowa, 249 in Kansas, 320 in Missouri, 118 in North Dakota, and 156 in South Dakota. A Newz Group representative has stated that their service works with other bureaus in Minnesota, Nebraska, Wisconsin, and Illinois to provide coverage for our project. The service in Minnesota reportedly considers their full publication list to be proprietary information, so we were unable to obtain an exact number of Minnesota publications. The Nebraska service reportedly covers all 175 newspapers in that State, the Wisconsin service has covered nearly 300 newspapers, and Illinois has reported that they cover approximately 400 publications.

After receiving the clippings from Newz Group, duplicates were identified and collated. Data was abstracted and entered into an Access database. Incident level information included date and time of the incident, city and state, location, number of victims, and the source of the press clipping. A brief description of the incident was also entered into the database. The location of the incident was coded as home, farm, mine, industry, street/highway, other specified place, or unknown/unspecified place.

Person-level information included name, age, gender, relation to agricultural activities, the external cause of the injury, whether or not agricultural machinery was involved, the type of agricultural machinery involved, and the outcome of the incident. Relation to agricultural activities was classified as either direct or indirectly related to agriculture. For example, a tractor rollover would be classified as directly related to agriculture, but a passenger in a car that died in a crash with a tractor would be classified as indirectly related to agriculture. Classifications for external cause of injury included motor vehicle, agricultural machinery, fall, fire or smoke, injury caused by animal, poisoning, electrocution, suffocation, and struck by/against or crushed. Outcome of incident classifications included died at scene, died at hospital, died at unknown location, no treatment required, treated at hospital, and treatment refused. A brief narrative description of the activity that the victim was engaged in at the time of the incident was also entered into the database.

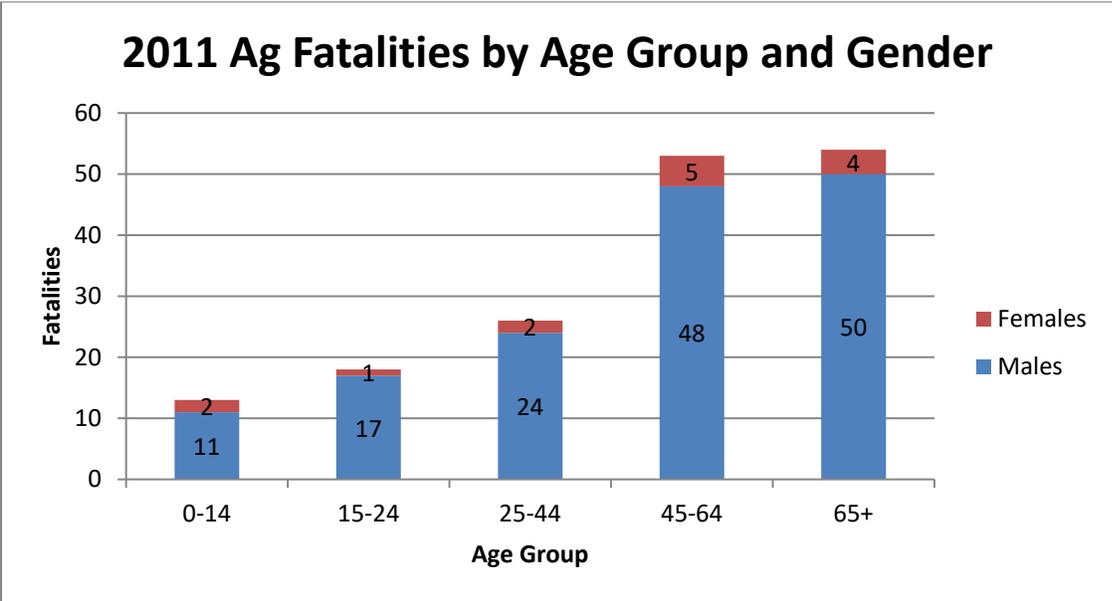
The number of agricultural-related fatalities captured by the newspaper clippings service was compared with deaths in the agricultural industry in the Census of Fatal Occupational Injuries for each state.

## Results

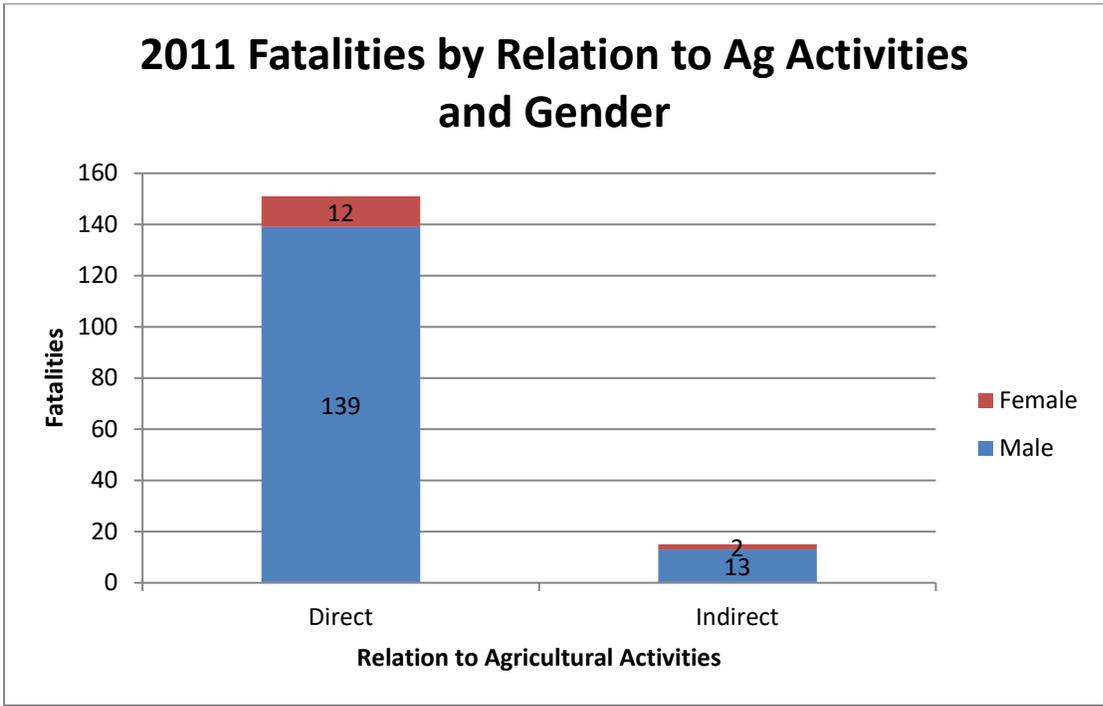


When comparing the total number of agricultural fatalities captured by the 2011 newspaper clippings to the total number of fatalities reported by CFOI, we observed that the clippings service was not a highly reliable method of collecting comprehensive information on agricultural fatality cases. Results varied between states, with some states showing a higher number of fatalities in CFOI and others showing a higher number of fatalities in the newspaper clippings. In no state were the CFOI and newspaper clipping numbers equal. CFOI does not allow individual linkages with other data sources so we were not able to compare overlap between the two sources.

Iowa had the most fatalities in both collection methods, with 39 fatalities identified through clippings and 27 reported by CFOI. Iowa also had the largest difference between sources, with nine more fatalities identified through clippings than CFOI. Iowa also had the highest number of newspapers in the clipping services. Nebraska had the fewest fatalities according to the clippings with 11 total, but CFOI reported that Nebraska had 18 agriculture related fatalities in 2011. According to CFOI, North Dakota that had the fewest fatalities at 7, but the clippings service captured 12.

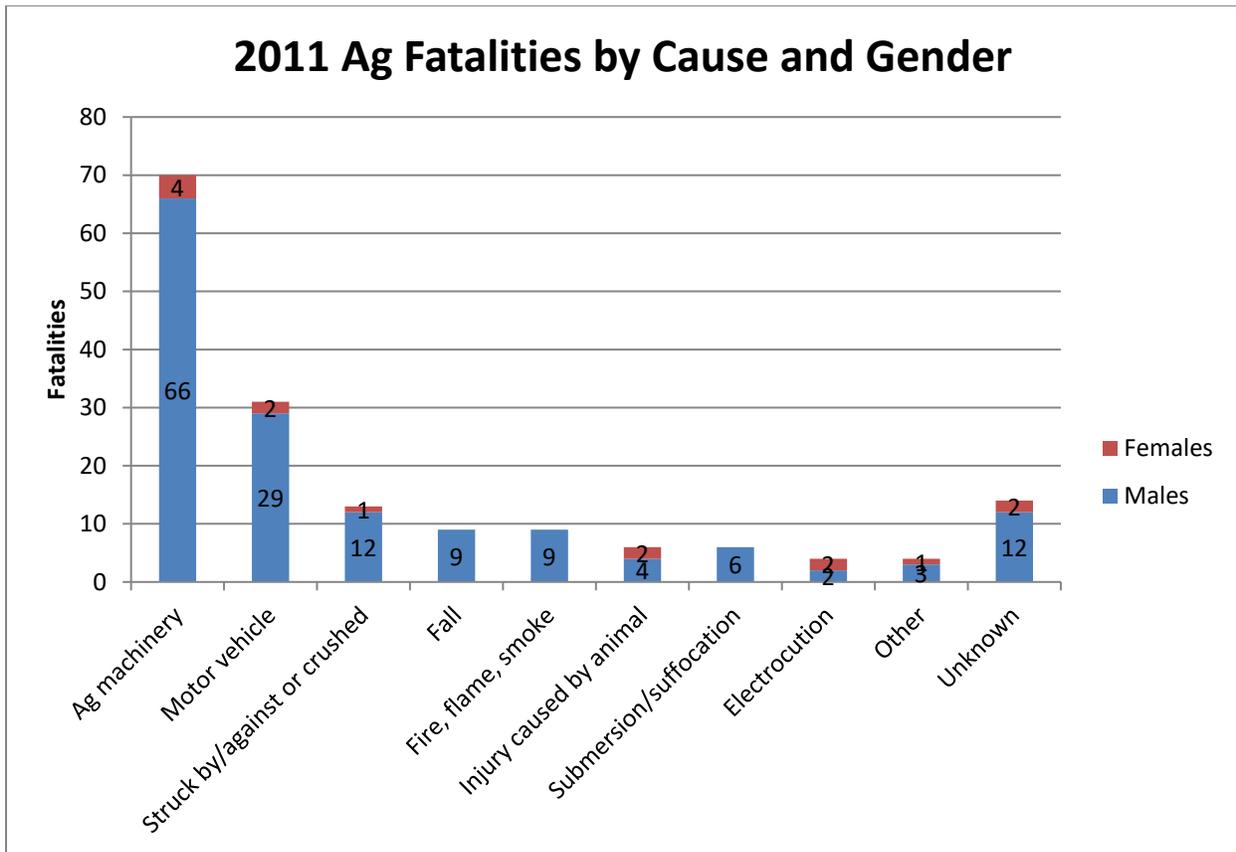


Overall, newspaper clippings identified 167 agricultural fatalities in 158 incidents in 2011. Of the 164 agricultural-related fatalities in which the age of the victim was provided, 64% of the victims were age 45 or older and nearly a third were age 65 or older. Age was unknown in three of the cases, and gender was unknown in one of the cases.



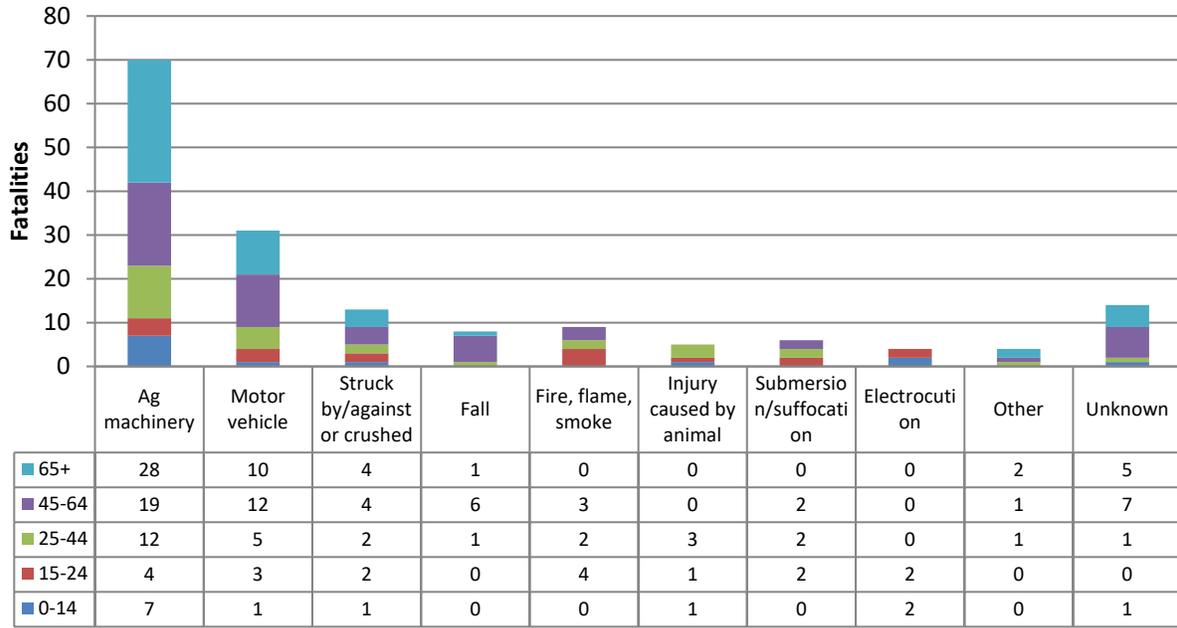
We examined fatalities based on whether the victim was directly conducting agriculturally-related activities or was indirectly killed because of other’s conducting agricultural activities. The overwhelming majority of deaths reported in newspaper clippings were due directly to agricultural activities. All fatal injuries that were indirectly related to agriculture were the result of motor vehicle crashes with agricultural machinery. All but one of them occurred on streets or highways. It is likely that newspaper clippings under-report indirect deaths associated with agricultural activities. For example, a newspaper clipping that identifies the death of a motor vehicle occupant may not identify that the other vehicle in the collision was a farm vehicle.

## 2011 Ag Fatalities by Cause and Gender

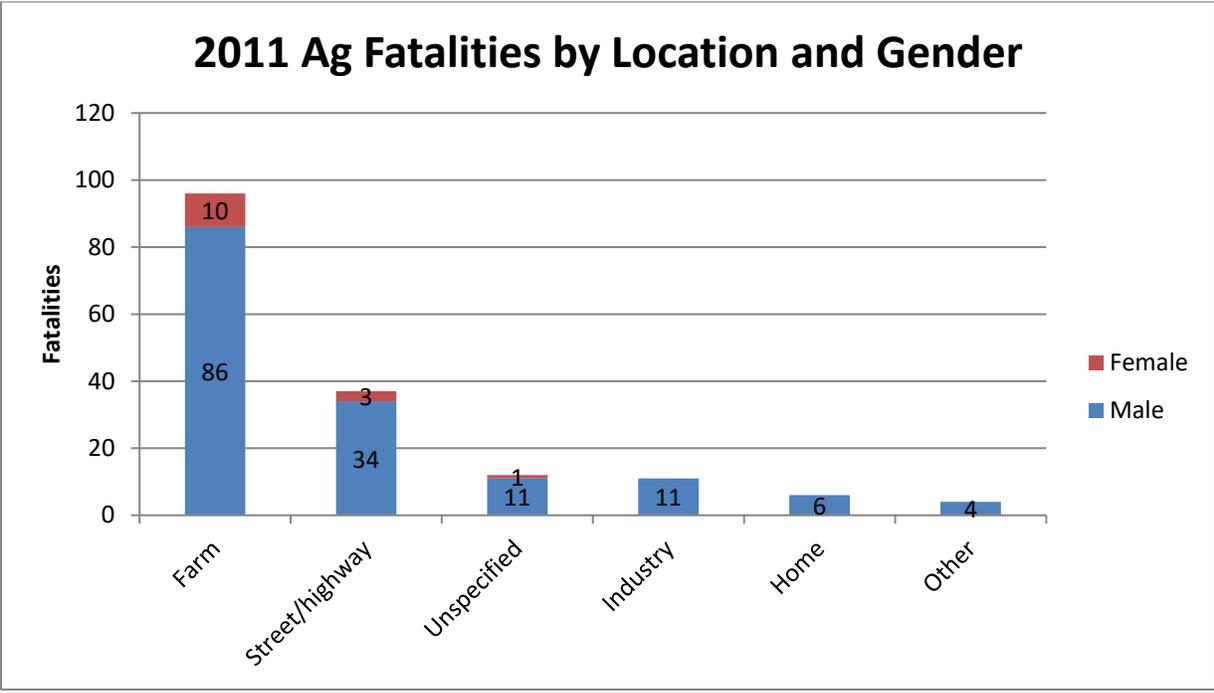


Agricultural machinery was the leading cause of injury among both males and females, accounting for 70 of the 166 fatalities in which gender of the victim was known (42.17%). Motor vehicles were the second leading cause of fatal injury, responsible for 31 fatalities (18.7%). According to the newspaper clippings, no females died as a result of agriculture related falls, fire or smoke, or suffocation.

## 2011 Ag Fatalities by Cause and Age Group

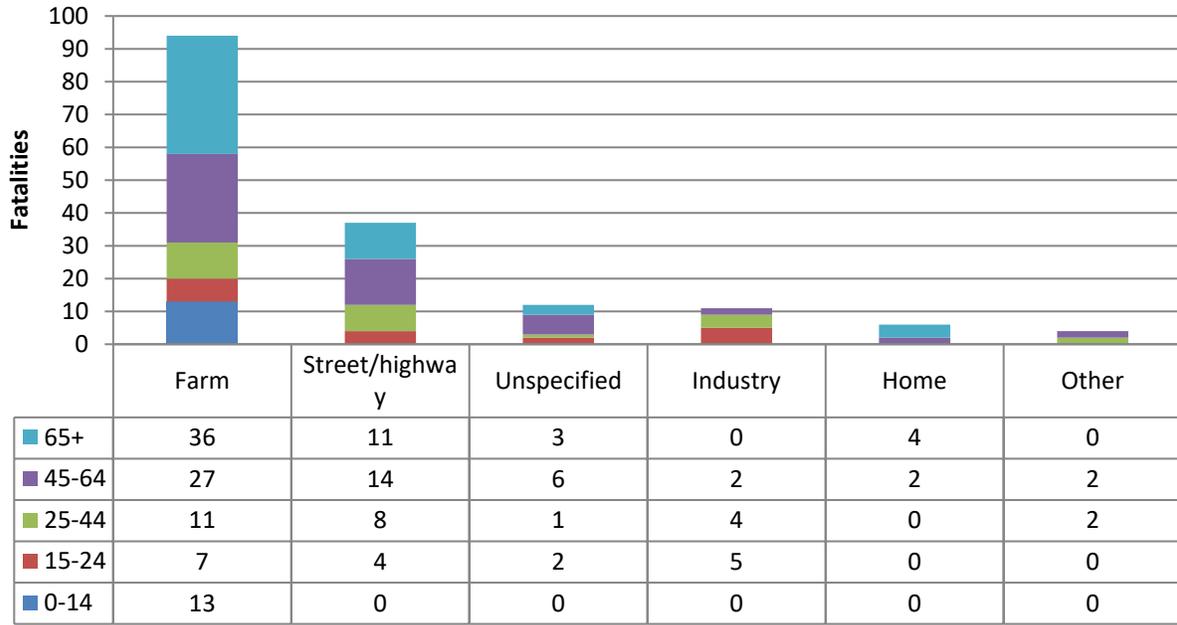


Injury related to agricultural machinery was the primary cause of death in 70 (42%) of the cases in which the age of the victim was known. Agricultural machinery was also the leading cause of fatal injury in each age group. The age of the victim was unavailable in three of the cases. Fire, flame, and smoke inhalation deaths appear to be disproportionately high for 15-44 year olds, but all six of these deaths were the result of one large incident.

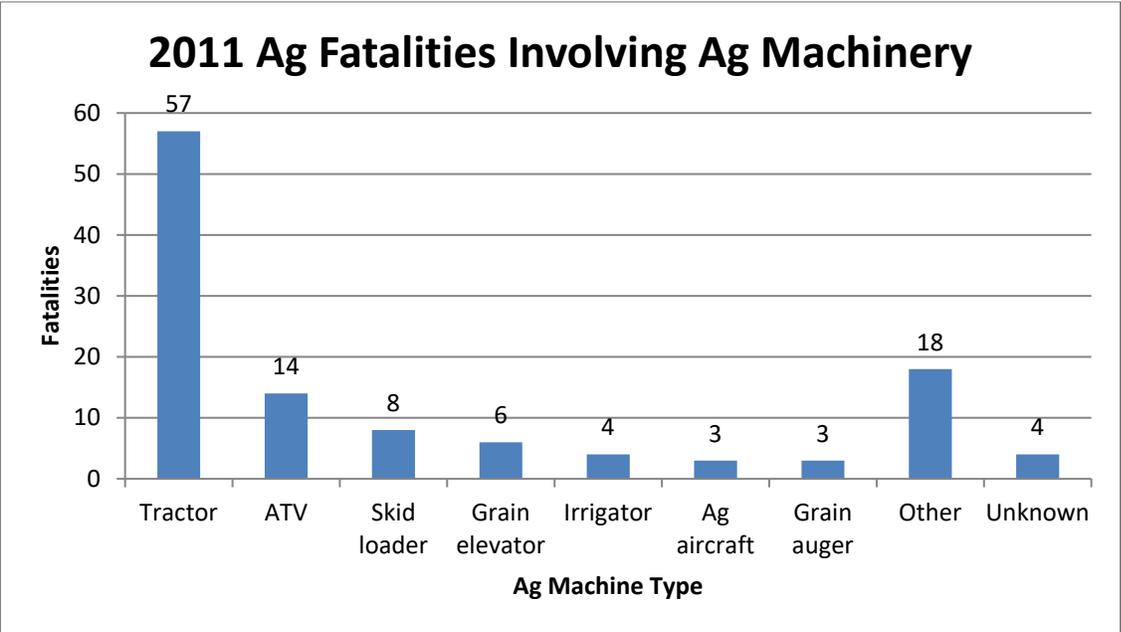


Of the 152 cases in which location of incident was known, 96 (63.16%) occurred on a farm. The second most common location for agricultural fatalities was streets or highways. All but one of the fatal injuries sustained by females occurred on farms or roadways.

## 2011 Ag Fatalities by Location and Age Group

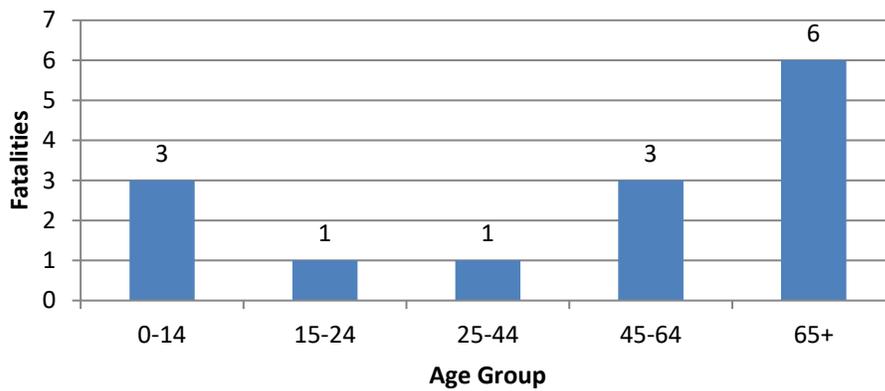


Fatal injuries were most likely to occur on a farm for each age group. Industrial injuries appear to be high in 15-44 year olds, but as with injuries related to fire, flame, or smoke; six of these industrial fatalities occurred due to a single incident.



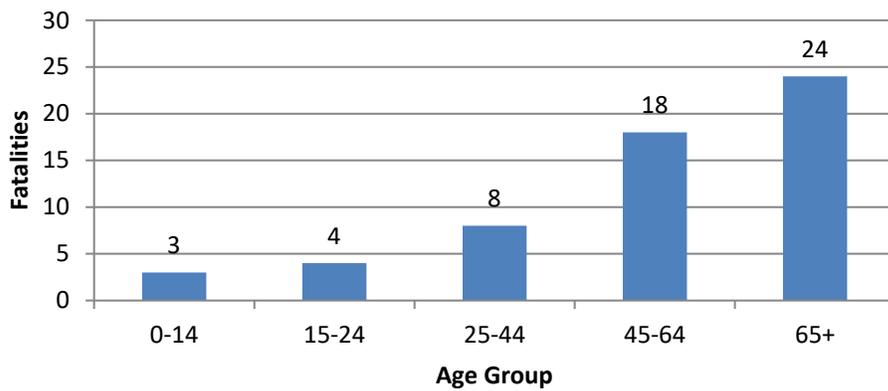
Of the 117 fatalities in which agricultural machinery was either the primary or secondary cause of injury, 57 (48.72%) involved tractors. The second most common piece of machinery involved in fatal agricultural incidents was the ATV (n=14, 12%). The “other” category included machinery such as combines, hay mowers or rakes, cattle feeding equipment, and animal powered equipment; none of which accounted for more than two fatal injuries. Four press clippings contained information that indicated agricultural machinery was involved in a fatal incident, but the type of machinery was not specified.

## 2011 Ag Fatalities Related to ATVs by Age Group



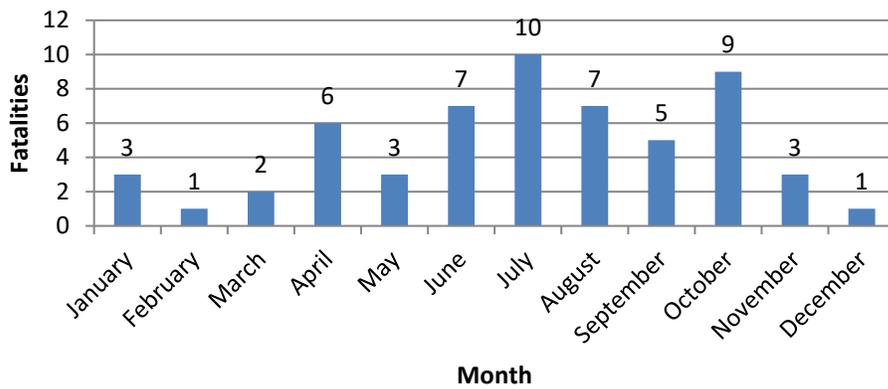
ATV fatalities were most prevalent in the 65+ age group (n=6, 42.86%). It was expected that younger age groups would account for more ATV fatalities on the farm, but it turned out that most youth ATV fatalities are not related to agricultural activities. The newspaper clippings captured a number of fatal ATV crashes involving young people that were excluded from our report because they were not clearly related to agriculture.

## 2011 Ag Fatalities Related to Tractors by Age Group



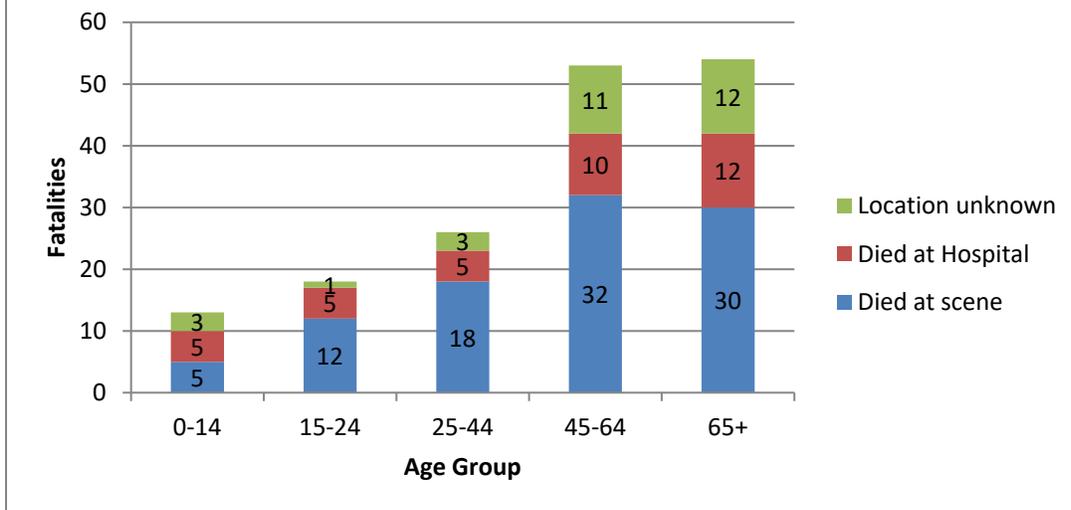
Twenty-four (42.11%) of the agricultural fatalities involving tractors occurred in individuals age 65 and over. Eighteen (31.58%) occurred in 45-64 year olds. Only 15 (26.32%) tractor related fatalities occurred in individuals under the age of 45.

## 2011 Ag Fatalities Related to Tractors by Month



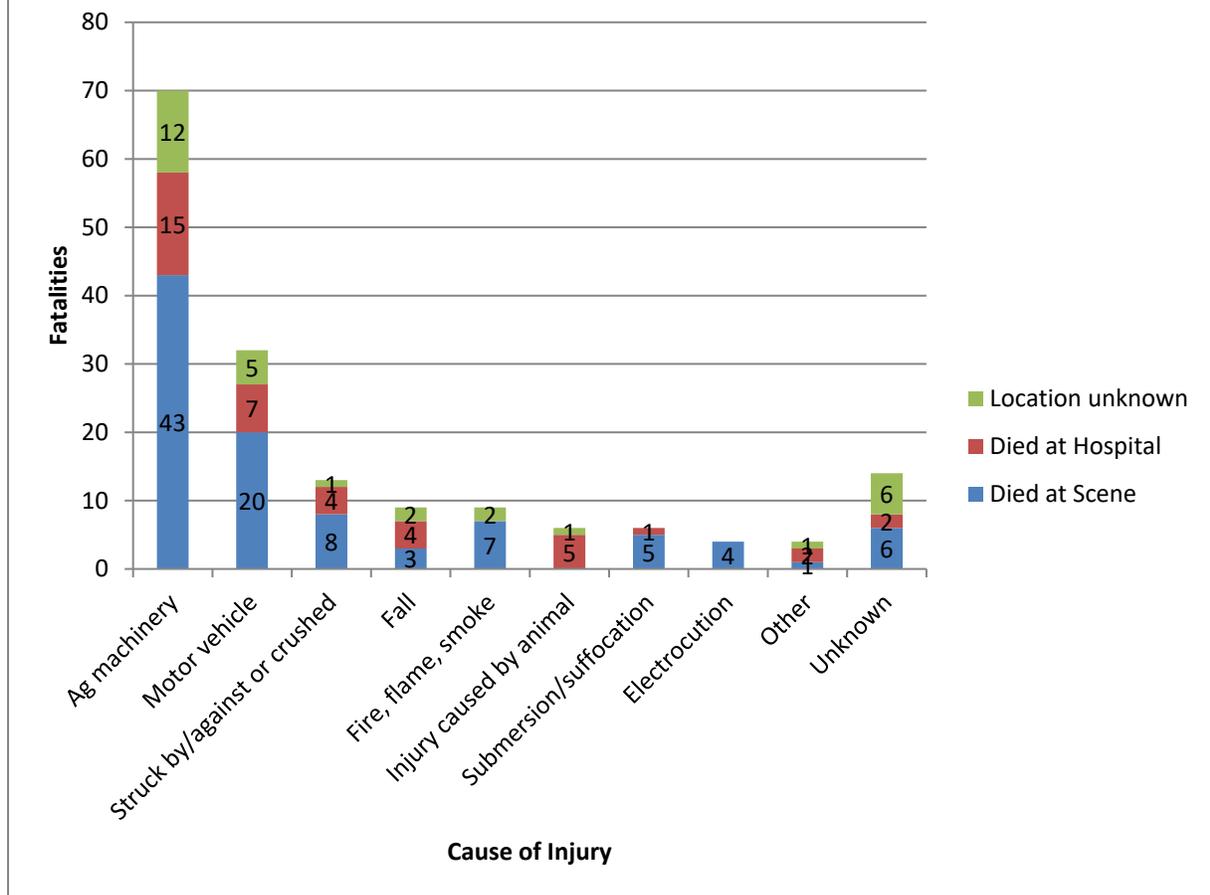
Tractor-related fatalities were most common during the late spring through early fall months, which for crop harvesting have particularly high tractor activity. July and October had the highest number of deaths.

## 2011 Ag Fatalities by Location of Death and Age Group



The victim died at the scene in 97 (59.15%) of the 164 fatal incidents in which the age of the victim was known, 37 (22.56) of the victims died after being transported to a hospital, and 30 died at an unidentified location.

## 2011 Ag Fatalities by Location of Death and Cause of Injury



Of the 137 victims of fatal agricultural injuries in which location of death was known, 97 (70.8%) died at the scene. Location of death was unknown in 30 of the cases. Similarly, 74% of the victims injuries related to agricultural machinery or motor vehicles died at the scene. All victims of fire, flame, or smoke related injuries in which location of death was known died at the scene. None of the victims who sustained injuries from animals died at the scene; however, location of death was unknown in one of the cases. All four electrocution victims died at the scene.

## Conclusions

Newspaper clippings of agricultural deaths had high variance in their agreement with agricultural deaths reported through the Census of Fatal Occupational Injuries. Some states had a higher number of deaths reported by newspaper clippings and some by CFOI. Because the variance in reporting was so great between states, this report does not compare findings by state (as they would likely be unreliable). This disparity is likely due to many factors, such as:

- Newspaper coverage is very different between states, with some states such as Iowa having a much higher number of local newspapers.
- The clipping service did not have equal coverage of newspapers in all states.
- CFOI and newspapers have different case criteria. CFOI collects information only about directly-related occupational activities. Newspapers have wide variance on what they choose to report on, which also varies based on other competing news stories. However, newspapers may capture indirect deaths as well as deaths to individuals for whom agriculture might not be the primary occupation.

Although newspaper clippings may not be a good source for surveillance on the incidence of agricultural deaths, they can provide some insight into the main causes and characteristics of agricultural-related fatalities. The major trends are summarized below:

- Over 90% of agricultural fatalities were men; females comprised less than 10%.
- Over a third of agricultural fatalities were to individuals aged 65 and over.
- Agricultural machinery and motor vehicle crashes were the two leading causes of fatality.
- Among agricultural machinery deaths, tractors, all-terrain vehicles, skid loaders, and grain elevators accounted for three-quarters of all deaths, with tractors alone accounting for nearly half.
- A disproportionately high number of deaths among those age 65 and above were machinery-related.

## References

United States Department of Agriculture (2012). U.S. and State Farm Income and Wealth Statistics. Retrieved on October 17, 2012 from <http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics.aspx>

Bureau of Labor Statistics (2012). Number and Rate of Fatal Occupational Injuries, by Industry Sector, 2011. Retrieved on October 17, 2012 from <http://www.bls.gov/iif/oshwc/foi/cfch0010.pdf>