Purdue University
Agricultural Safety and Health Program

2015 Indiana Farm Fatality Summary With Historical Overview

Compiled by the Purdue University Agricultural Safety and Health Program[1]

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Abstract

Purdue University's Agricultural Safety and Health Program has been monitoring farm-related fatalities in Indiana for over 50 years. The earliest identified summary of cases was published in 1960. This database, though recognized as not being comprehensive of all farm-related deaths, provides a unique capacity to explore trends that have occurred over several decades during which agricultural production has experienced considerable transformation in technology and practices. Analysis of only recent fatality data, for example, fails to recognize that during the 1940's and early 1950's; the leading cause of identifiable deaths was livestock, primarily horses and bulls. These animal-related causes of injury and death have been replaced, at a much lower frequency, with tractors and machinery. The data shows a clear downward trend that closely parallels the decline in the number of farm operations. Fatalities involving children and youth aged 1-17 also have continued to decline in number from 5-9 per year to an average of less than one per year over the last 5 years. On the other hand, incidents involving those over the age of 60 continue to account for about 50% of all documented fatalities, with this age group accounting for 61% in 2015. For the past two decades, tractors accounted for 45% of all farm fatalities, including some years when the percentage of cases was as high as 75%. Tractor overturns have, over the past 50 years, accounted for the overwhelming majority of farm-related deaths. In 2015, 39% of all documented fatalities involved tractors of which nearly all were related to an overturn. Findings suggest that the diversity of agents involved is increasing, the problem remains male centric with ages that exceed the average age of Indiana farmers, children no longer make up a significant number of cases and that the Amish/Old Order communities in the state account for a disproportionate share of farm-related deaths. Hazards identified as needing special attention include the use of older, non-ROPS equipped tractors by older workers, working in wood lots and tree felling on farms, operating self-propelled lawn mowers on farms, working with livestock, including horses, and falls from agricultural structures. Findings are being used to aid in allocation of injury prevention resources.

Introduction

The 2015 Indiana Farm Fatality summary was compiled by Purdue's Agricultural Safety and Health Program through a variety of sources, including published news reports, web searches, voluntary reporting from Extension educators and individuals, and personal interviews. No cases were identified from sources outside of the state, including Federal government sources such as the Census of Fatal Occupational Injuries or Bureau of Labor Statistics. Findings were compared with findings by the Indiana Department of Labor and

[1] Appreciation is extended to Executive Director Kenneth Boucher, BLS Coordinator Joseph Black and Survey Assistant Stacy Wart with the Indiana Department of Labor Quality Metrics & Statistics Division for contributing to this report.

adjusted to reflect differences due to data interpretation and data collection sources. There is no claim made that the presented data are comprehensive but rather represent the best assessment currently available.[2]

As for the past 50 years, there is still no mandatory requirement to report farm-related injuries or fatalities to a central location, as is mandated for most other industry classifications. Currently, there are no efforts being made to enhance the quality of farm-related fatality and injury statistics beyond the level of reporting found in these annual summaries.

Summary

A total of 28 farm-related fatalities were documented in Indiana during 2015. This is very close to the average number of fatalities documented annually since 1970 (29.7). The total reflects an approximate 10% increase from the 2014 total of 25. The lowest number ever documented in the last 50 years was 8 in 2006. The increase in 2015 represents a significant jump in the downward trend that has occurred over the last two decades. Though there has been a continued downward trend, the increase in 2015 results in a 10-year average of nearly 22 fatalities per year. The data also show a continued decline in the frequency of farm-related fatalities involving children and youth under the age of 18, which historically accounted for a disproportionate share of total farm deaths including some early years in which nearly one third of fatalities were children and youth. In 2015, only one youth, age 15, was involved in a fatal incident involving an ATV on a farm. Fifty years ago the use of ATVs was almost non-existent on Indiana farms.

There were slight differences in reporting of fatalities between Purdue and the Indiana Department of Labor due to differences in how workers and events are classified. For example, the Purdue summary has traditionally not included most motor vehicle crashes not involving transport of agricultural equipment, or fatalities due to heart attacks or heat stress while working as farm-related, but records them separately. Children involved in farm work have also been historically included in the Purdue report, where as they may not be in the Department of Labor summary. As noted by the annual Census of Fatal Occupational Injuries, deaths on Indiana farms have had a long history of representing a disproportionate share of the state's workplace fatalities. The Indiana Department of Labor documented 27 fatalities in 2014 and classified agriculture as the most hazardous industry. [3]

Tractors and farm machinery remained as the most frequently identified agents of fatal injuries during 2015, as they have been for the last 50 plus years. Approximately 39% of all documented fatalities in 2015 involved an overturned tractor.

Even with the substantial increase in fatalities in 2015, there continues to be a slight downward trend in the annual frequency since 1970. Contributing factors to this trend include the decline in the number of Indiana residents who live and work on farms, advancements in machinery safety, durability, and productivity of agricultural equipment, reduced dependency on child and youth labor, increasing expectations for safer and healthier workplaces and continued efforts to enhance the level of awareness of the importance of managing risks in agriculture to reduce the economic impact of deaths, injuries, property losses, and failure to comply with applicable regulations. Advancements in medical science and emergency medical services, such as improved access to medical air transport in rural areas of the state, have also made major contributions towards reducing the fatality rates by increasing the probability of surviving injuries once considered to be most likely fatal. Achieving zero incidents may be an unrealistic goal, but the record clearly shows that the problem is diminishing, however slowly, and that many tragic incidents have been prevented during the same time as Indiana farmers have become more productive and efficient than at any time in history.

It should be noted that several other Midwestern states no longer have the capacity to document and report on these incidents beyond the limited data available from the Census of Fatal Occupational Injuries that has historically underreported farm-related fatalities. Some key agricultural states have done away with or diminished their land grant university-based farm safety efforts and, due to prohibitions in federal

[2] Differences may be found in reporting of prior years due to the addition of previously unidentified cases to the database.
[3] 2014 Indiana Census of Fatal Occupational Injuries.

appropriation language, federal and state OSHAs have generally maintained a hands-off approach to most agricultural production sites.

Findings

Description, dates, and locations of the 28 fatalities documented as agricultural workplace incidents are provided in Table 1. Again, it should be noted that the list may not be comprehensive due to the lack of consistent reporting requirements, Indiana residents dying at medical facilities in neighboring states, farm injuries sustained within the state, and victims dying after the injury event due to related medical complications. The list does not include fatalities to farmers due to motor vehicle crashes involving farm trucks, heart attacks or heat stress occurring during work activities and medical complications from workplace health hazards. Little or no data exists on the impact these agents have on Indiana farmers and farm workers.

Table 1. Description of 2015 farm-related fatalities

Date	County	Age	Sex	Description
1/7/2015	Howard	56	M	Hydrogen Sulfide exposure in hog building
1/16/2015	Jackson	76	M	Struck by falling tree
1/20/2015	LaPorte	78	M	Tractor overturned
2/24/2015	Bartholomew	82	M	Pinned under object
4/17/2015	Whitley	71	M	Tractor overturned
4/21/2015	Elkhart	51	M	Drown in livestock water trough
5/4/2015	Hamilton	76	M	Tractor overturned
5/6/2015	Randolph	67	M	Self-propelled lawnmower overturned on farm
5/11/2015	Huntington	23	F	Self-propelled lawnmower overturned on farm
5/19/2015	Miami	73	M	Tractor overturned
5/21/2015	Clay	49	F	Kicked by a horse
5/22/2015	White	83	M	Self-propelled lawnmower overturned
6/5/2015	Wabash	59	M	Rammed and trampled by steer
6/19/2015	Knox	35	M	ATV incident on farm
7/7/2015	Franklin	15	M	ATV incident on farm
7/19/2015	St. Joseph	55	M	Tractor overturned
7/27/2015	Clark	60	M	Self-propelled lawn mower overturned, drowned in pond
7/28/2015	Kosciusko	62	M	Pinned under farm equipment
8/22/2015	Adams	85	M	Pickup truck incident
8/31/2015	Kosciusko	61	M	Fell from horse
9/1/2015	Shelby	34	M	Tractor overturned
9/11/2015	Elkhart	61	M	Crushed by drill press
9/17/2015	Decatur	85	M	Crushed under collapsed grain elevator
10/13/2015	Benton	61	M	Asphyxiation from smoke inhalation
10/31/2015	Blackford	84	M	Fell in barn
11/3/2015	Ohio	69	M	Struck by falling tree
11/19/2015	Carroll	29	M	Crushed when tile trench collapsed
12/9/2015	Miami	57	M	Tractor overturned in woods

Figure 1 provides a historical look at the frequency of documented fatalities since 1970. The frequency of these events has been rather erratic over the years, but there has been an overall decline in the annual number of incidents. It should be noted that during early years the likelihood of incidents not being documented was higher making the decline even more notable.

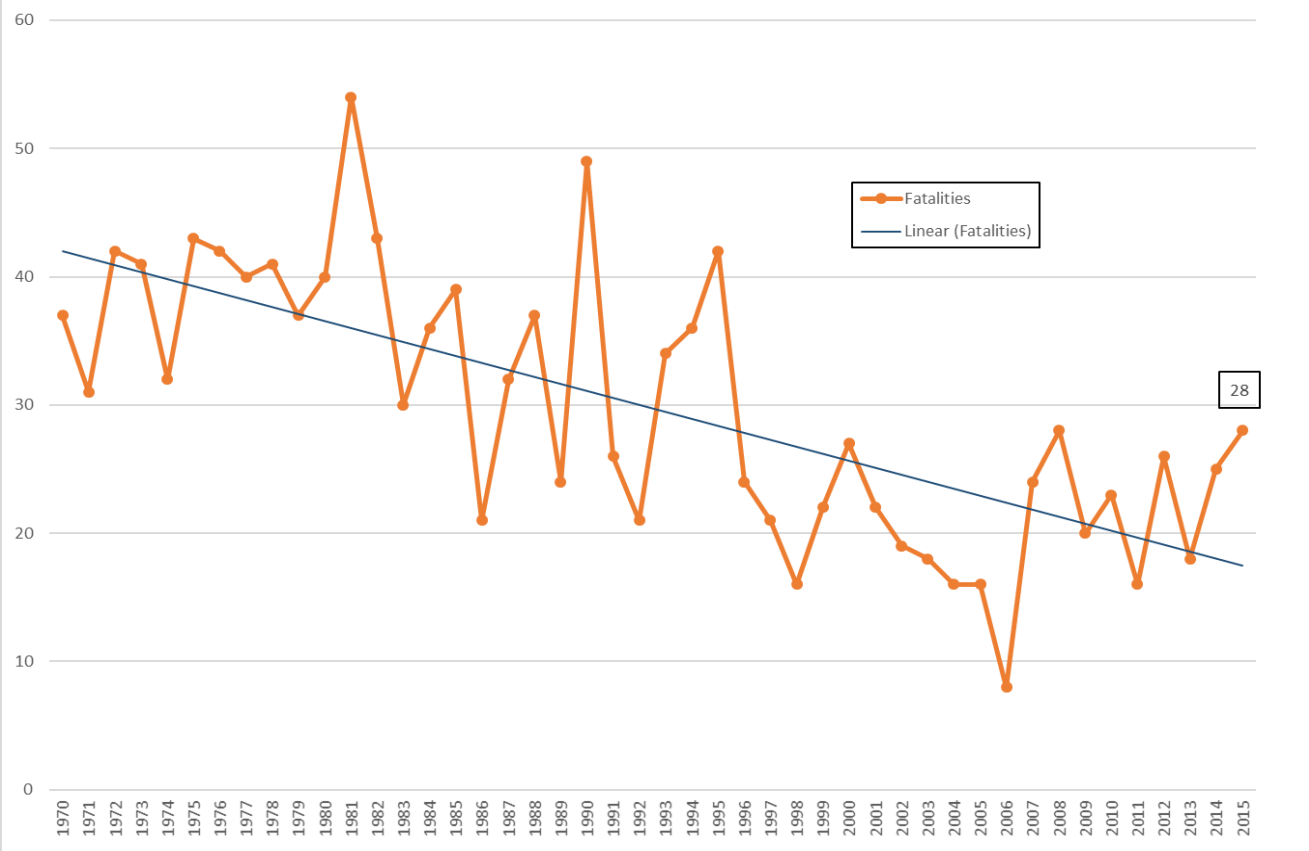

Figure 1. Annual summary of farm-related fatalities: 1970-2015

No specific factor(s) has been identified that has contributed to the reoccurring spikes in frequency. Other than incidents involving tractors and farm machinery, agents of injury have varied widely. This lack of consistency makes the targeting of limited prevention resources difficult, with the exception of tractor-related incidents where a greater focus on the value of Rollover Protective Structures (ROPS), especially on tractors used for mowing, could prove be beneficial.

The age of the victims in 2015 ranged from 15 to 85 and averaged 60.6, which is slightly higher than the average age of Indiana farmers, currently at 58. Historically, farmers over the age of 60 have accounted for a disproportionate number of farm-related injuries, including many who work only part time. The average age of victims continues to increase reflecting the increasing average age of farmers and fewer fatalities involving children and youth.

The overall decline in the number of children and young adults being reported as dying in agricultural work places is an extremely positive trend. It is believed that the changing expectations of parents and the general public towards having children and youth employed in some types of farm work, considered especially hazardous, has had a significant influence on the continuing downward trend in fatalities involving this group. The introduction of larger, more complex and expensive equipment has also made many producers less comfortable using young or inexperienced workers to operate it.

Table 2 summarizes documented incidents during the period 1994 to 2015 with respect to youth and those over 60. During those 21 years, there were no fewer than 495 fatalities of which 55 were under the age of 18 and 242 were over the age of 60. Again, these two groups have historically represented a disproportional share of the total deaths, accounting for nearly 60% of the total. In 2015, these two age groups accounted for 64% of documented fatalities, reflecting little change in over the past two decades with the exception that more of the victims are over 60, including victims in their 80s and 90s.

Table 2. Analysis of "youth" and "over 60" fatalities as percent of total farm-related fatalities

Year	Deaths Ages 1-17	Youth Deaths as % of Total	Deaths Age 60+	Over 60 Deaths as % of Total	Deaths of Both Youth & Over 60	Percent of Both Youth and Over 60 Deaths	Average Age of Victim	Total Farm-Related Fatalities
2015	**1**	**4%**	**16**	**57%**	**17**	**61%**	**61**	**28**
2014	2	8%	17	38%	19	76%	62	25
2013	1	6%	10	56%	11	61%	61	18
2012	2	8%	9	35%	11	42%	51	26
2011	0	0%	8	50%	8	50%	54	16
2010	5	22%	9	39%	14	61%	47	23
2009	3	15%	12	60%	15	75%	53	20
2008	2	7%	11	39%	13	46%	49	28
2007	4	17%	10	42%	14	58%	50	24
2006	1	13%	3	38%	4	50%	49	8
2005	2	13%	5	31%	7	44%	52	16
2004	2	13%	9	56%	11	69%	54	16
2003	2	11%	8	44%	10	56%	55	18
2002	2	11%	9	47%	11	58%	53	19
2001	1	5%	11	50%	12	55%	56	22
2000	5	19%	16	59%	21	78%	55	27
1999	2	9%	6	27%	8	36%	49	22
1998	0	6%	11	69%	11	75%	66	16
1997	3	14%	18	86%	21	100%	46	21
1996	2	8%	13	54%	15	63%	59	24
1995	9	21%	12	29%	21	50%	43	42
1994	4	11%	19	53%	23	64%	52	36
Total/ Average	**55**	**11%**	**242**	**49%**	**297**	**60%**	**54**	**495**

Table 3 summarizes over 20 years of tractor-related fatality data. During these years, tractors accounted for 229 or 46% of the total of all Indiana fatalities. The most frequent incident continues to be tractor upsets or overturns followed by falling from the tractor and being run over. Only one fatality involving a tractor overturn was known to have involved a tractor equipped with a Rollover Protective Structure (ROPS), with all other past incidents occurring on tractors not equipped with ROPS.

Table 3. History of Indiana tractor-related fatalities

Year	Number of Tractor-Related Fatalities	Number of All Farm Fatalities	Percent of Tractor Related Fatalities in Total Fatalities
2015	**11**	**28**	**39%**
2014	13	25	52%
2013	6	18	33%
2012	12	26	46%
2011	6	16	38%
2010	11	23	48%
2009	11	20	55%
2008	12	28	43%
2007	7	24	29%
2006	2	8	25%
2005	6	16	38%
2004	10	16	63%
2003	10	18	56%
2002	10	19	53%
2001	13	22	59%
2000	16	27	59%
1999	8	22	37%
1998	12	16	75%
1997	8	21	38%
1996	11	24	46%
1995	19	42	45%
1994	15	36	42%
1994-2015	229	495	46%

With approximately 59,000 productive farms in Indiana with sales of over $1,000, it was estimated for 2015 that one out of every 2,107 farms experienced a farm-related fatality.[4] Using a population of 143,000 operators and hired workers on farms in Indiana, the death rate was approximately 19.6 per 100,000 farm workers.[5] Indiana is often referred to as an agricultural state, although less than 1% of the workforce is employed in production agriculture. However, the agriculture industry has traditionally been responsible for one of the highest number of work-related fatalities in Indiana (Indiana Department of Labor, 2014).

The estimated fatality rate of 19.6 per 100,000 Indiana farm workers in 2015 compares to an estimated national death rate of 3.3 per 100,000 for workers in all industries and 24.9 per 100,000 for those engaged in agricultural production nationwide.[6]

[4] Estimated number of farms from the final report of the 2012 U.S. Census of Agriculture.
[5] Estimated farm population of operators and hired workers on farms from the final report of the 2012 U.S. Census of Agriculture. This number does not include unpaid family labor.
[6] Estimated death rates from the U.S. Bureau of Labor Statistics (2014).

It is believed, however, that the Indiana and national agricultural fatality rates would be lower if unpaid family laborers were included in the population classified as being exposed to farm hazards on a regular basis. For example, older family members may still be engaged in farm work but are not considered as employed labor in order to meet social security eligibility requirement. As noted this group accounted for 61% of the reported fatalities in 2015. Furthermore, the National Safety Council data and the Census of Fatal Occupational Injuries have not historically included children under 16 in their calculation of rates, while Purdue's Agricultural Safety and Health Program does if the children were involved with or exposed to farm-work activities.

Figure 2 shows the distribution of all farm-related fatalities over the past 36 years when the county of location was known. It can be noted that no county has escaped a fatality and some counties have experienced an unusually high number. Counties with the highest number of documented cases are as follows:

- Elkhart – 30
- LaGrange – 28
- Greene – 23
- Dubois – 19
- St. Joseph – 18
- Adams – 17
- Franklin – 17
- Harrison – 15

Elkhart and LaGrange counties are home to the state's largest Old Order/Amish population that have historically accounted for a disproportionate share of farm-related fatalities. In one recent annual summary, this population accounted for approximately one-third of all documented fatalities.

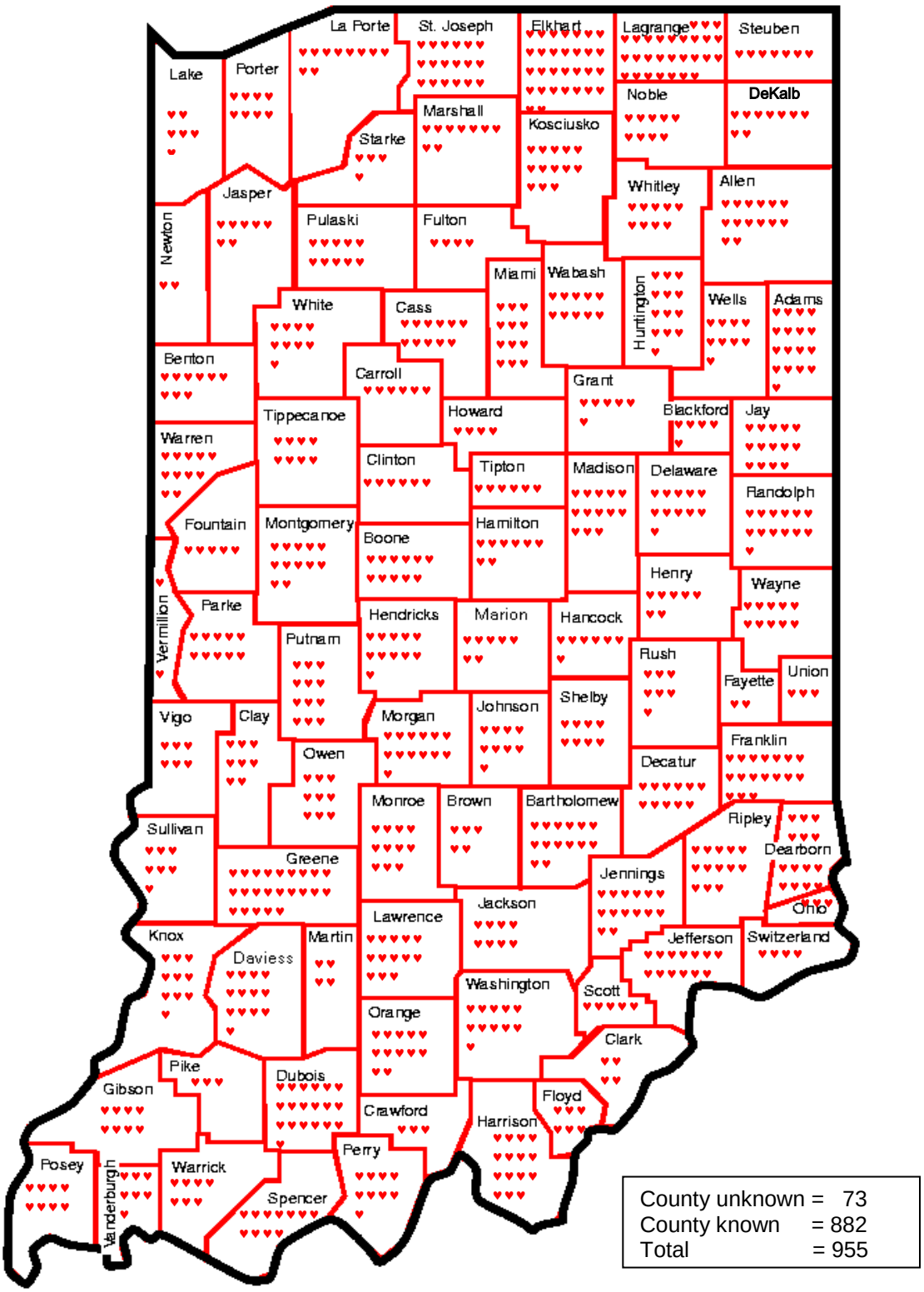

Figure 2. Geographic distribution by county of Indiana's farm-related fatalities from 1980 through 2015

Summary of Indiana's Farm-Related, Non-Fatal Incidents and Their Economic Impact

While the Purdue Agricultural Safety and Health Program's surveillance of farm work-related fatalities attempts to be thorough, farm-related non-fatal injuries are not well documented by any source in the state; therefore, there is little data on the frequency and severity, and causes of injuries that occur annually during farm work. However, the relatively few Indiana non-fatal farm-related injuries that were identified in 2015 as part of the fatality surveillance efforts, were severe.

Several of the incidents resulted in amputations, head, and spinal cord injuries and involved the use of medical helicopters for transport to a trauma center. In several cases, victims had to be extricated from entanglements in machinery and grain bins requiring large members of emergency rescue personnel. See Table 4 for examples of the types of documented incidents.

Table 4. Representative example of farm-related non-fatal incidents

Date	County	Age	Sex	Description
1/19/2015	N/A	20	M	Grain entrapment requiring rescue
3/9/2015	Cass	23	M	Burned with anhydrous ammonia
3/31/2015	Vermillion	N/A	N/A	Collision between train and tractor
5/10/2015	Rush	N/A	M	Tractor overturned
7/18/2015	Cass	17	M	Hand and arm caught in the farm equipment
8/27/2015	Fulton	N/A	N/A	Grain cart fell on victim crushing pelvis
9/6/2015	Elkhart	54	M	Cattle attack
9/10/2015	Elkhart	57	M	Collision between tractor and concrete truck
9/30/2105	Wayne	N/A	N/A	Collision between combine and train
10/2/2015	Tipton	47	M	Collision between train and grain cart
10/17/2015	Steuben	32	M	Collision between truck and crop sprayer

It is estimated, based upon prior research, approximately one out of every nine farms experiences annually a farm-work-related injury requiring medical attention. Based upon the estimated 59,000 farms in the state, it can be extrapolated that in 2015 there were approximately 6,555 treated injuries. Prior research by the National Safety Council indicated that 2% of reported farm injuries result in permanent disability. Applying the 2% estimate to Indiana's estimated 6,555 injuries, approximately 131 such cases occurred in the state in 2015. Many of these incidents, however, are not reported in the media, and there is no requirement to report such incidents, including severe injuries, to any official agency. The need for a more comprehensive trauma registry, that includes farm-related injuries, remains and could be helpful in targeting prevention efforts at high risk activities.

To gain a perspective of the potential economic impact of farm injuries to the state, a very conservative estimated cost of $1,200 for medical treatment per injury[7] would result in nearly $8,000,000 in economic losses, not including the costs of transportation to receive medical services, replacement labor, property damage, emergency services, and long-term rehabilitation services. This estimate, however, would be substantially increased if both the direct and indirect costs associated with the 28 fatalities and the 131 permanent disabilities were included. For example, the estimated cost of medical and rehabilitation care for a person with permanent spinal cord damage now exceeds $1 million. Even though there has been a decline in the number of farm-related injuries, it is believed that the economic impact has been on the rise due to the significant increase in medical and rehabilitation costs. This is especially problematic considering that a disproportionate number of farm families and part-time farm workers still do not carry or cannot afford

[7] Estimated cost per injury based upon research conducted at the University of Illinois.

sufficient health care insurance, or have very high deductibles. A single serious injury can result in an almost insurmountable financial disaster for an otherwise successful farm family. The impact of the Affordable Health Care Act on farm families remains unclear, but provisions should be benefitting those farm families who currently have limited access to affordable health care insurance.

Another unknown cost to Indiana farmers is associated with chronic musculoskeletal injuries caused by over use of joints. An estimated one third of all farm operators have symptoms of arthritis and are primary candidates for joint replacement. Little attention has been given to reducing the risk of joint damage due to agricultural work practices. (For more information see www.agrability.org).

Farm operators have also become more vulnerable to civil litigation due to incidents that result in economic loss to workers, neighbors or the environment. Recent settlements have, in some cases, exceeded the farm's insurance coverage, placing farm assets at risk.

Another issue that can create significant hardships for both Indiana farm families and hired farm labor is that most are not covered by, nor can they afford, state workers compensation insurance programs that nearly all employees of other Indiana industries have available to them. Therefore, an on-the-job injury can result in both excessive personal debts due to medical costs and long-term loss of income.

The lack of both affordable health care insurance and insurance for lost wages due to injury in the agricultural sector are complex public policy issues that still need attention to ensure that the economic impact of work-related injuries on the state's farm families and agricultural workforce is minimized.

Farm-related Injuries in the Amish/Old Order Communities

Amish are a part of the Old Order Anabaptist subculture, and Indiana is home to the third largest Amish community in North America. This group is closely associated with agriculture, has a larger than average number of children per household, and their population is doubling approximately every 20-22 years. In 1996, one third of all documented farm-related fatalities in Indiana occurred in Amish communities. Elkhart, LaGrange, Adams, and Allen counties, home to some of the largest Amish communities, are also counties with the highest number of farm-related fatalities over the past 40 years.

Summary of Old Order/Amish Buggy-related Incidents Involving Agricultural Equipment

Table 5 provides a description of documented incidents involving collisions between Amish buggies and motor vehicles. These incidents resulted in one infant fatality. There were seven documented incidents in 2015, and five incidents involving more than one injury. It should be noted that this type of incident is under reported or access to incident reports is difficult to achieve. There is a need to give more attention to both farm-related injuries and incidents involving Old Order/Amish vehicles on public roadways.

The Changing Agricultural Workforce

Over the past 30 years, the agricultural workforce in Indiana has changed dramatically. In 1970, when the Occupational Safety and Health Act (OSH Act) was passed by Congress, the U.S. Census of Agriculture showed there were fewer than 100 farm operations in Indiana that were required to comply with certain workplace safety and health provisions of the Act due to their workforce exceeding 10 non-family member employees or providing seasonal/migrant worker housing. The estimated number of current farm operations that could be interpreted as needing to be in compliance with certain OSHA provisions due to the number of employees or providing temporary housing, is approaching 1,000. It is assumed that this number will continue to increase with additional farm consolidation and expansion into non-agricultural production enterprises that are not exempt from OSHA oversight such as commercial grain storage, processing facilities and trucking. Many farms have grown slowly and quietly, and their owners may not even realize that they should be in compliance with certain provisions of the OSHA regulations.

Table 5. Description of 2015 Amish buggy-related incidents

Date	County	Age	Sex	Description	Fatality
4/26/2015	Elkhart	23	F	Collision between pick-up truck and buggy	N
4/26/2015	Elkhart	N/A	N/A	Collision between pick-up truck and buggy	N
6/3/2015	Kosciusko	29	F	Collision between vehicle and buggy	N
6/3/2015	Kosciusko	Newborn	N/A	Collision between vehicle and buggy	N
6/3/2015	Kosciusko	2	N/A	Collision between vehicle and buggy	N
6/3/2015	Kosciusko	4	N/A	Collision between vehicle and buggy	N
6/11/2015	Elkhart	N/A	M	Collision between dump truck, semi-truck and buggy	N
6/16/2015	Parke	19	F	Collision between vehicle and buggy	N
7/23/2015	Elkhart	27	F	Collision between truck and buggy	N
7/23/2015	Elkhart	25	M	Collision between truck and buggy	N
7/23/2015	Elkhart	6 month	N/A	Collision between truck and buggy	N
7/23/2015	Elkhart	2	F	Collision between truck and buggy	N
8/14/2015	LaGrange	11 month	N/A	Collision between vehicle and buggy	Y
8/14/2015	LaGrange	2	M	Collision between vehicle and buggy	N
8/14/2015	LaGrange	3	F	Collision between vehicle and buggy	N
11/30/2015	LaGrange	16	F	Collision between vehicle and buggy	N
11/30/2015	LaGrange	N/A	N/A	Collision between vehicle and buggy	N

Another major change has been the rapid growth in the number of Hispanics who are now employed in agricultural production operations on a full-time basis. This trend is especially notable on larger dairy, poultry, and hog operations. Many of these workers have limited English speaking skills and lower literacy levels that make traditional agricultural safety and health resources ineffective. To address the workplace safety and health needs of this workforce, attention must be given to developing new and innovative instructional materials and strategies that address the hazards of newer and more complex farm operations. Instructional materials need to be culturally sensitive and delivered in a format that can be interpreted by the target audience.

Based upon the most recent agricultural census data, the increasing number of small farms is another important change occurring in rural communities. These audiences of part-time "hobby ", or small highly diversified farmers have very different educational needs as compared to larger commercial operations. A review of fatality data over the last few years suggests that these smaller operations account for a disproportionate share of all documented fatalities, as much as 25% of current incidents. A significant contributing factor is the use of older, less safe machinery on these smaller operations, especially older tractors without ROPS. In some cases, horses are being considered as a "greener" alternative to tractors without recognition that horses were once the leading cause of farm-related fatalities in the states. It has been determined that one of the best ways to reach this population is through online resources.

The recent claims regarding the increasing numbers of women engaged as owner/operators of Indiana farms cannot be proven by any increase in the number of women dying or being injured as the result of farm work. Historically over 95% of all farm workplace fatalities have been male. Considering that there are an estimated 6,400 principal farm operators identified as female, it could be expected that there would be a larger number of fatalities or work-related injuries involving women. Of the 108 documented fatalities over the previous five years only one was female. There were two female fatalities in 2015.

There are several contributing factors to the higher number of cases being historically reported from these communities. These include the widespread use of horses and horse drawn vehicles on public road ways, more labor intensive farm practices, greater use of children in completing farm work, and the recent acceptance of skid loaders and certain hybrid equipment that is engine powered yet still horse drawn.

Grain-Related Entrapments and Engulfments

Since 1978, Purdue has been documenting agricultural confined space incidents throughout the United States. Approximately 1,850 cases have been documented and entered into Purdue's Agricultural Confined Spaces Incident Database. For a summary of these incidents visit www.agconfinedspaces.org.

Indiana ranks number one historically in the number of documented grain entrapments. In 2015 there were no documented fatalities and only one incident requiring extrication from grain by emergency personnel. It is believed that the high national ranking for this type of fatality has more to do with the aggressive nature of Purdue's surveillance efforts in Indiana rather than the actual number of incidents that occur in other states.

With support from an OSHA Susan Harwood Grant, Purdue has been engaged in the most aggressive public awareness effort it has ever conducted on the grain safety topic. For the past four years there have been as many as three grain safety displays at the Indiana State Fair each year, over 17,000 copies of a safe grain handling brochure have been distributed, over 80 classes conducted for over 2,600 emergency first responders on grain rescue, over 3,400 young and beginning workers have been trained on the hazards of confined spaces, grain safety exhibits have been on display at farm events across the state, and a new website was developed (www.agconfinedspaces.org).

Diminishing Resources

As budgets have tightened and legislators at the state and federal levels have explored ways to reduce expenditures, farm safety efforts have not gone untouched. In Indiana, reduced travel budgets and increased fuel costs for Extension staff have made coordination and participation in local safety initiatives more difficult. Educational material that was once free and readily available is now expensive or largely restricted to on-line access. Most commercially available farm safety videos and DVDs have become so expensive that they are now out of reach to most public schools and groups such as 4-H and FFA. The Indiana Rural Safety and Health Council, the only non-profit group in the state with its sole mission being to promote agricultural safety and health, has a budget of only a few thousand dollars per year to spend on exhibits, displays, and information dissemination.

Farm safety and health is not, nor will it ever be, a topic that will make the front page of the paper, turn the heads of legislators, or generate an outpouring of public support. However, the no fewer than 955 Indiana farm families who experienced the loss of a family member since 1980, including the 28 in 2015, know personally the effect these events can have. In many cases, these effects last a lifetime.

If you are interested in learning more or supporting the work of Purdue's Agricultural Safety and Health Program or the Indiana Rural Safety and Health Council, please feel free to call 765-494-1191 or visit www.farmsafety.org.

Other online resources that may be helpful include:

- www.agrability.org
- www.agconfinedspaces.org
- www.youtube.com/USagCenters
- www.agsafety4youth.info
- www.eXtension.org
- www.necasag.org