

Purdue University

Agricultural Safety and Health Program

2005 Indiana Farm Fatality Summary

Compiled by the Purdue University Agricultural Safety and Health Program

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The 2005 Indiana farm fatality report was compiled by Purdue's Agricultural Safety and Health Program through a variety of sources, including a contracted news clipping service, Google search engine, voluntary reporting from Extension educators and individuals and personal interviews. No cases were identified from the nationwide farm injury surveillance effort at the Great Plains Center for Agricultural Health at the University of Iowa because that project was discontinued this year due to lack of funding. Neither were any cases identified using official death certificates due to the lack of access to these records at the Indiana Department of Health.

The report includes a summary of 16 farm work-related fatalities¹ that occurred in 2005—the same number of fatalities that occurred in 2004 and 1998, the years that the lowest number of fatalities were recorded since Purdue began keeping records in the 1940's. For over 30 years there has been a steady downward trend in the number of farm work-related fatalities. Despite the fact that the same number of documented fatalities were reported for 2004 and 2005, the general trend in the frequency of identified farm-related fatalities continues to go down.

The average age for farm work-related fatality victims in 2005 was 52.2 (Table 1); similar to the average age of 54.9 over the past ten years. All but four documented cases involved males. Two (12.5%) of the fatalities identified involved a child or adolescent under the age of 18; the same number as the previous year. The ages of the youth victims were 15 and 17, near the peak age range for fatal farm-related incidents nationwide.

Incidents involving tractors accounted for six (37.5%) of the recorded fatalities. This is a much lower percentage than that recorded in 2004 and in some years in the past when over 75% involved tractors. Only one of the six tractor-related incidents was a roadway collision, and the tractor operator was the victim in that incident. Tractor roll-overs were the leading type of fatal farm-related incident in the

¹ A **farm work-related fatality** is defined as any fatal injury to a farm or ranch worker (or bystander) occurring in the course of performing an agricultural work-related task, or as a result of exposure to hazards in the agricultural workplace. Motor vehicle incidents not clearly involving agricultural equipment or vehicles are excluded.

state accounting for three or 18.8% of all identified fatalities. (Roll-overs continue to be the leading cause of farm work-related fatalities nationally accounting for approximately 25% of all fatalities.)

Gender	Age Distribution					Total	%
	1-17	18-35	36-59	60+	Unkown		
Males	1	1	5	4	1	12	75
Females	1	-	2	1	-	4	25
Total	2	1	7	5	1	16	100
%	12.5	6.3	43.7	31.2	6.3	100	
Average Age	16	20	50.8	75.2	Unknown	52.2	

Table 1. Age distribution of Indiana farm work-related fatalities in 2005.

Table 2 summarizes the specific types of incidents associated with Indiana’s farm fatalities in 2005. One type of fatality, falls, that has been historically common to Indiana agriculture occurred in only one incident during the year. It is important to note that one of the roadway collisions involved a tractor, and this incident is listed separately from the tractor or machinery-related incident categories. Figure 1 displays a distribution of farm-related fatalities by general types of incidents.

Type of Incident	Fatalities	
Entrapments, suffocations, or asphyxiation	Grain entrapments	1
	Drownings	1
	Buried in trench	-
	Gas asphyxiation (manure pit)	-
Livestock-related incidents	Trampled by livestock	-
	Kicked by horse	-
	Horse-drawn wagon incidents	-
Machinery-related incidents	Entanglements	-
	Crushings/pinnings	-
	Runovers	1
Tractor-related incidents	Roll-overs	3
	Runovers	1
	Crushings/pinnings	1
Roadway collisions	While on tractor	1
	With tractor	-
	With pull-behind machinery	1
	With agricultural truck	3
	With livestock	-
Other incidents	Explosion-equipment repair	1
	Fall	1
	Silo collapse	1
Total	16	

Table 2. 2005 Indiana farm work-related fatalities by specific type of incidents.

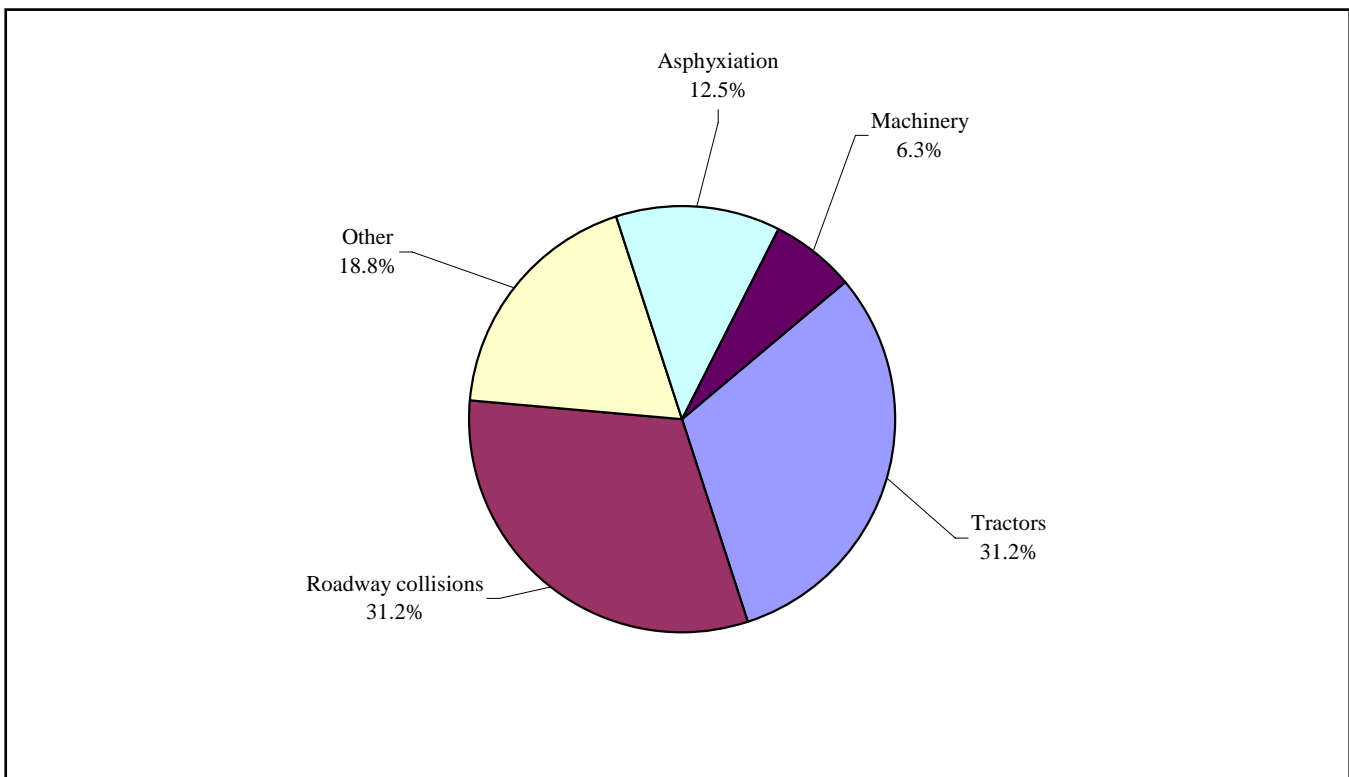


Figure 1. Distribution of 2005 Indiana farm work-related fatalities by general type of incidents.

Table 3 provides a more detailed listing of fatalities that occurred in Indiana counties in 2005. Fatal farm work-related incidents are described here by (1) date of incident, (2) county of incident, (3) age of victim, (4) gender of victim, (5) description of circumstances surrounding the incident, and (6) the Farm and Agricultural Injury Classification (FAIC) Code. The FAIC code is used to facilitate consistent and accurate classification of farm and agriculture-related injuries. Additional information on the FAIC code is available from the American Society of Agricultural and Biological Engineers² or by contacting Purdue's Extension Safety Specialist.

The FAIC code system:

- parallels, to the extent appropriate, current nationally established methods for classifying and assigning work-related injury cases to an industry;
- provides a systematic scheme for separating farm production work cases from non-farm-production work cases; and
- permits the identification of cases that uniquely reflect the situational exposures predominate to the agricultural industry.

² ASABE Standard S575.1, 2002. ASABE, 2950 Niles Road, St. Joseph, MI 49085. Tel: 616-429-0300

Date	County	Age	Sex	Description of Incident	FAIC ³
2/7	Boone	40	M	Operator of tractor in collision with truck	1
2/25	Blackford	43	F	Passenger in van, collision with farm feed truck	9
4/6	Owen	unk	M	Trapped under sickle bar mower and tractor	1
4/18	Randolph	54	F	Bystander run over by tractor	6
5/4	Carroll	63	F	Passenger in car, collision with field cultivator	9
5/30	Dekalb	75	M	Buried under soybeans outside of bin door	1
6/1	Marion	55	M	Explosion during equipment repair	1
6/21	La Grange	54	M	Operator fell off tractor, run over by mower	1
7/6	Jay	15	M	Tractor overturn , moving bale	1
7/16	Bartholomew	54	M	Fell hitching livestock trailer	1
8/8	Huntington	79	M	Tractor overturn mowing by pond	1
9/17	Vigo	55	M	Driver of pick-up truck and horse trailer, ran off road	1
10/1	Madison	80	M	Mowing tractor slid into pond, died wading out	1
10/3	Cass	20	M	Emptying silo for demolition, silo collapsed	1
10/12	Franklin	79	M	Tractor overturn, climbing hill	1
10/30	Wabash	17	F	SUV driver, collision with farm grain truck	9

Table 3. Listing of 2005 Indiana farm work-related fatalities.

Figure 2 represents a geographic distribution of Indiana's documented farm-related fatalities in 2005. No county had more than one fatality in 2005, and only Wabash and Dekalb had fatalities in both 2004 and 2005. Figure 3 represents a geographic distribution of 678 of Indiana's 751 documented farm-related fatalities in the years 1980 through 2005 where the county of residence was known. The counties with 12 or more identified fatalities over the past 26 years are as follows:

Elkhart	21	Allen	12
LaGrange	19	Huntington	12
Dubois	16	Randolph	12
Greene	15	Morgan	12
St. Joseph	13	Franklin	12
Jennings	12	Ripley	12
Adams	12	Jefferson	12

³ FAIC-1 Farm production work

FAIC-6 Farm hazard exposure, non-workers: equipment, tools, objects and products

FAIC-9 Farm hazard exposure, roadway collision (victim not a farm worker)

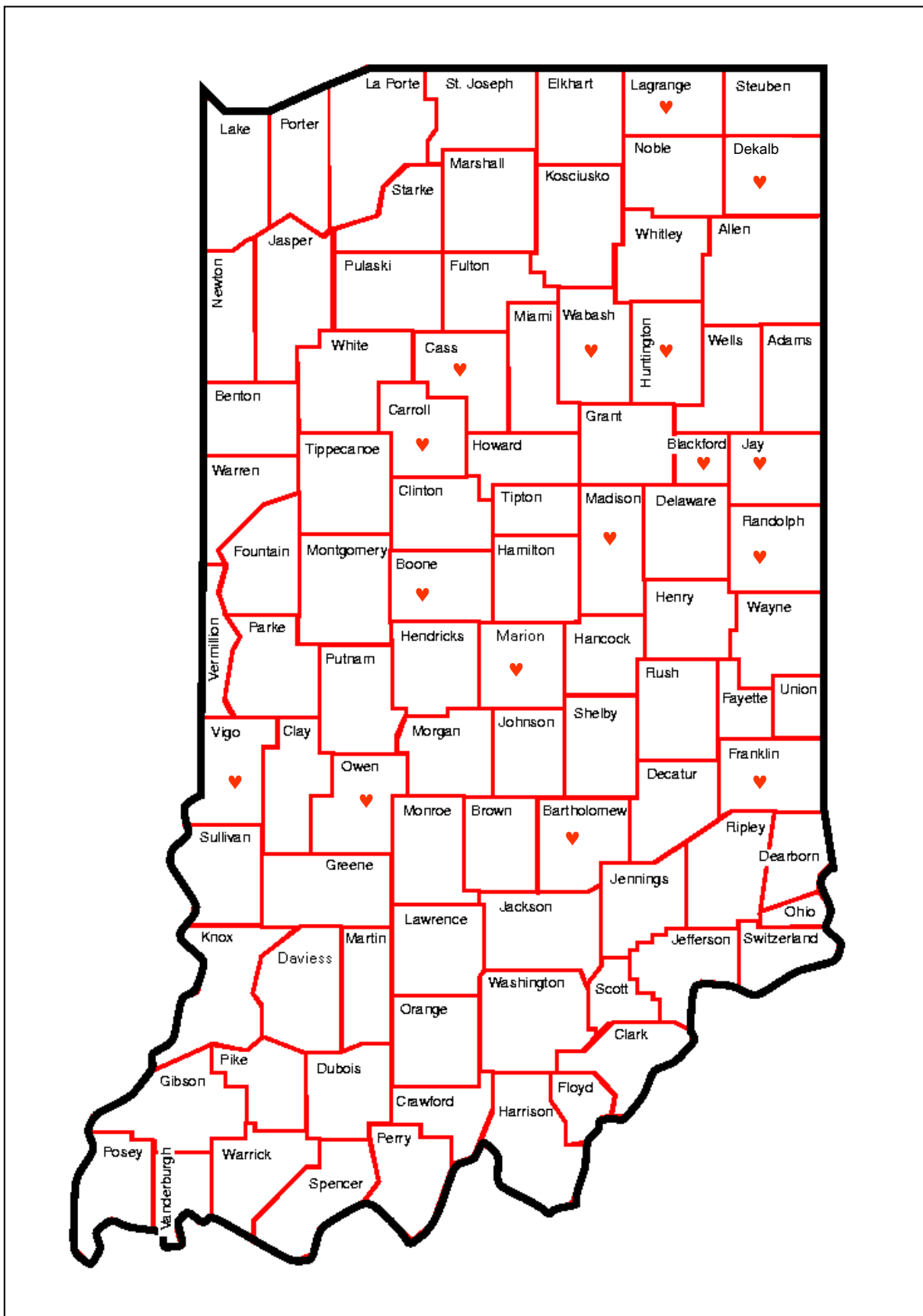


Figure 2. Geographic distribution of 2005 Indiana farm work-related fatalities.

Figure 4 displays the general downward trend of identified farm-related fatalities over the past 36 years. The 1998, 2004 and 2005 years each recorded the lowest number of fatalities (16) since Purdue's Agricultural Safety and Health Program has been keeping records. The number of identified fatalities increased in 1999 and 2000; decreased in 2001, 2002, 2003, and 2004; and stayed at the same level for 2004 and 2005.

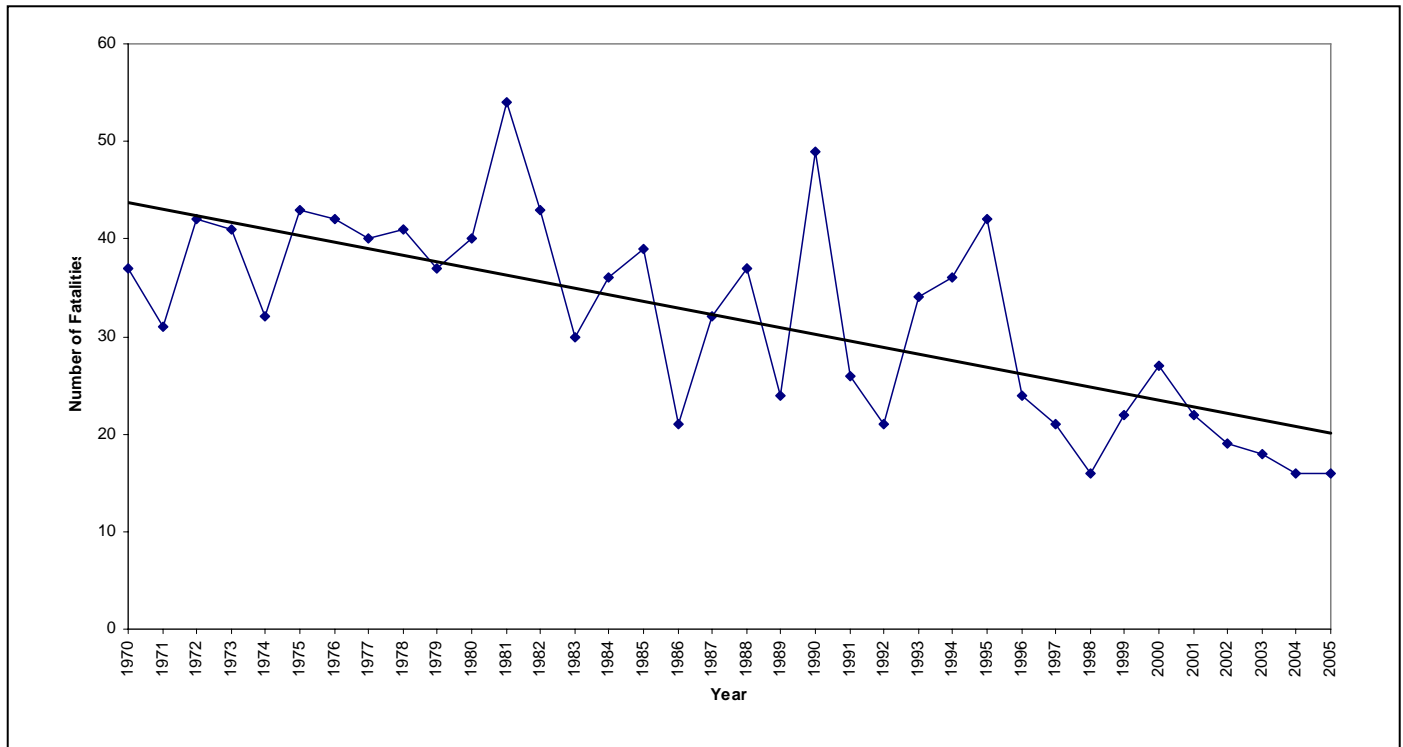


Figure 4. Annual summary of farm work-related fatalities.

Using the number of 60,296 productive farms in Indiana with a sales of over \$1,000, it was estimated for 2005 that 1 out of every 3,769 farms experienced a farm-related fatality.³ Using a population of 143,000 operators and hired workers on farms in Indiana, the death rate was approximately 11 per 100,000 farm workers.⁴ The rate compares to an estimated national death rate of 3.9 per 100,000 for workers in all industries and 21.3 per 100,000 for those engaged in agricultural production.⁵ It is believed, however, that the Indiana and national rates would be lower if unpaid family labor was included in the population of those exposed to farm hazards on a regular basis. Furthermore, the National Safety Council data does not include 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.

³ **Estimated number of farms** from the final report of the 2002 US Census of Agriculture

⁴ **Estimated farm population** of operators and hired workers on farms from the final report of the 2002 US Census of Agriculture

⁵ **Estimated death rates** from the National Safety Council Injury Facts, 2002 edition

Summary of Reported Fatalities Not Included in Table 3

Eight fatalities in seven incidents were reported by the clipping service or other sources in 2005 but were not included in the previous tables and graphs because they were determined to be not directly farm-work related, but because of their similarity to farm-work-related fatalities are included in the following list: (1) tractor rollover, (2) farmer suicide, (3) farmer pinned between excavator and barn door post, (4) knife cut while cutting corn in a field, (5) vehicle collision with a semi hauling farm equipment, (6) vehicle collision with a semi hauling dirt, (7) barn roof collapse, (8) tractor and wagon runover on a farm during Halloween hayride. Though not directly related to farm work, all of these incidents have similarities to typical farm-related fatalities, or other types of rural injuries. Intervention strategies that address farm-related injuries should have a carry over impact on preventing these other types of incidents.

Summary of Indiana's Farm-Related Injuries and Their Economic Impact

Farm-related injuries are not comprehensively documented by any source in the state; therefore, there is little data on the frequency and severity of injuries that occur during farm work. However, many of Indiana's non-fatal farm-related injuries that were identified in 2005 were severe. The incidents reported included tractor rollovers and run-overs, auger entanglement, fires, ATV incidents, grain entrapments, and several roadway collisions. Commonly, the victims had to be airlifted to regional trauma centers. These nonfatal incidents included: (1) high pressure washer blast in the eyes of a female farmer that caused short term blindness in one eye and was expected to cause permanent blindness in the other, (2) entanglement in an auger that required a leg amputation, (3) two-hour entrapment in corn in a grain bin (4) driver of a team of horses who fell and was run over by a disc when her team of horses spooked, and (5) teenager who fell off a skid steer and broke his arm. These incidents resulted in the following severe injuries: massive head injuries and other bone fractures, crushed pelvis, severe internal injuries, amputations, eye damage and blindness, and severe burns. Three of the victims were females, and known ages of recorded victims ranged from 5 to 64.

Although no fatalities were reported to youth under 10 years old, incidents causing severe injuries did occur to : (1) a four year old who fell off a tractor and was run over by a mower, (2) a five year old who fell off a tractor and was run over, and (3) a six year old with a crushed pelvis from an unspecified farm incident.

One fatality from an explosion is listed in Table 2, and thirteen other incidents involving fires and explosions were reported. A farm tank exploded and threw a farmer and the welder operator through the air but suprisingly caused no major injuries. Severe burn injuries were caused by some of the twelve reported fires in: a grain truck, dust collector, two backhoes, grain dryer, two tractors, and four combines. One of the combine fires caused a smokey field fire that obscured the vision of motorists on a nearby highway and caused a six car pileup. One passenger was airlifted to an Indianapolis hospital, while two drivers were transported to local hospitals.

In addition to the five roadway fatalities reported in Table 2, three nonfatal collisions between vehicles and farm tractors and equipment were reported, and a roadway collision between an ATV and farm truck caused massive head injuries to the teenage ATV driver. Other nonfatal roadway collisions

with serious injuries involved the transport of the following farm products: fertilizer, cattle, hogs, grain, and bales.

Although no reported fatalities were caused by farm animals in Indiana in 2005, injuries did occur when a deer knocked a farm worker unconscious, and a cow with calf knocked down a farmer and stepped on him. No fatal bull incidents were recorded in Indiana in 2005, but they have been happening in the U.S. at a pace of one or two per week during the last year.

It is estimated, based upon prior research, that approximately 1 out of every 9 farms annually experiences a farm-related injury requiring medical attention. Based upon the estimated 60,296 farms in the state, it can be projected that in 2005 there were approximately 6,700 treated injuries. Prior research by the National Safety Council suggests that 2% of reported farm injuries result in permanent disabilities which indicates that approximately 134 such cases occurred in the state in 2005.

To gain a perspective of the potential economic impact of farm injuries to the state, a conservative estimated medical treatment cost of \$12,000 per injury would result in an economic loss of \$128 million excluding the costs of transportation to receive medical services, replacement labor, property damage, emergency services, and long-term rehabilitation services. This estimated total, however, would be substantially increased if both the direct and indirect costs associated with the 16 fatalities and the 134 permanent disabilities were included. For example, the estimated cost of medical and rehabilitation care for a person experiencing a permanent spinal cord injury now exceeds \$1 million.

Even though the total number of fatalities and injuries have been on the decline, it is believed that the economic impact on the state is 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 do not carry or cannot afford sufficient health care insurance. A single serious injury can result in almost insurmountable financial disaster for an otherwise successful farm family.

Another issue that can create significant hardships for both Indiana farm families and hired farm labor is that most are not covered by or are not eligible for coverage by state workers compensation programs that nearly all employees of other industries have available to them. Therefore, an on-the-job injury can result in both excessive personal debt 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 are complex issues that need attention to ensure that the economic impact of work-related injuries on the state's farm families and agricultural workforce is minimized.

The Changing Agricultural Workforce

Over the past 25 years, the agricultural workforce in Indiana has changed dramatically. In 1976, when the Occupational Health and Safety Act (OSHA) was passed by Congress, there were fewer than 100 farm operations in Indiana that were required to comply with the workplace safety and health provisions of the act due to their workforce exceeding 10 non-family member employees. In 2002, the estimated number that could be interpreted as needing to be in compliance has grown to around 850. Many of the farms have grown slowly and quietly, and their owners may not even realize that they should be in compliance with OSHA.

Another major change has been the rapid growth in the number of Hispanics that are now employed in agricultural production operations on a full-time basis. This trend is especially notable on 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 new workforce, attention must be given to developing new and innovative instructional material that addresses the hazards of newer and more complex farm operations. That material needs to be culturally sensitive and delivered in a format that can be interpreted by the target audience.

Farm-related Injuries in the Amish/Old Order Communities

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 is doubling in population approximately every 20-22 years. In 1996 one third of all documented farm-related fatalities occurred in Amish communities. Elkhart, LaGrange, Adams, and Allen counties, home to some of the largest Amish communities, are also counties with the largest number of farm-related fatalities over the past 30 years.

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

Over the past 10 years, Purdue Extension has undertaken an aggressive effort to raise the awareness level within the Amish community of the hazards being identified by the injury data collection efforts. Intervention strategies have been developed which include new safety material that is more culturally acceptable, and have been facilitated over 20 family safety days that have attracted several thousand Amish family members.

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 and restricted to on-line access. Most commercially available farm safety videos and DVD's have become so expensive that they are now out of reach to most public schools and groups such as 4-H and FFA. The Purdue Audio Visual Library, once a major source for renting safety-related videos has closed its doors to non-Purdue related organizations. 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. To make matters worse, USDA eliminated all farm safety funds from the 2005/2006 budget leaving several states with no, or greatly diminished farm safety programs. Due to the foresight of Purdue's earlier Extension directors,

Purdue's commitment to farm safety and health had already been incorporated into line item budgets and was not impacted as much as most states.

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, if you belonged to one of the 751 Indiana farm families that experienced the loss of a family member over the past 26 years, including the 16 in 2005, you know personally the impact these events can have. In some cases, the effects last a lifetime.

If you are interested in 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.

For additional information, contact 765-494-1191 or visit www.farmsafety.org.