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Purdue University
Agricultural Safety and Health Program

2004 Indiana Farm Fatality Summary

Compiled by the Purdue University Agricultural Safety and Health Program

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The 2004 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, voluntary reporting from Extension educators and individuals, personal interviews, and a nationwide farm injury surveillance report provided by the Great Plains Center for Agricultural Health at the University of Iowa. No cases were 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 fatalities[1] that occurred in 2004. This is two less fatalities than the 18 fatalities reported in 2003, and the same as 1998, the year that the lowest number of fatalites 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. With the slight decrease in the number of documented fatalities in 2004 as compared to 2003, the trend in the frequency of identified farm-related fatalities continues to go down.

The average age for farm work-related fatality victims in 2004 was 53.9 (Table 1); similar to the average age of 53.6 over the past ten years. All but two 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 youth were 12 and 16, a peak age range for fatal farm-related incidents nationwide.

Incidents involving tractors accounted for ten (62.5%) of the recorded fatalities. This is a slightly higher percentage than that recorded in 2003, but lower than some years in the past when over 75% involved tractors. Four of the ten tractor-related incidents were roadway collisions. In three of these, the victim was operating a vehicle that collided into a tractor or tractor-implement combination.

[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.

Tractor roll-overs were the leading type of fatal farm-related incident in the state accounting for five or 31.3% 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.)

	Age Distribution						
Gender	**1-17**	**18-35**	**36-59**	**60+**	**Unkown**	**Total**	**%**
Males	**2**	**2**	**2**	**8**	**-**	**14**	**87.5**
Females	**-**	**-**	**1**	**1**	**-**	**2**	**12.5**
Total	**2**	**2**	**3**	**9**	**-**	**16**	**100**
%	**12.5**	**12.5**	**18.8**	**56.2**	**-**	**100**	
Average Age	**14**	**22**	**48.7**	**71.6**	**-**	**53.9**	

Table 1. Age distribution of Indiana farm work-related fatalities in 2004.

Table 2 summarizes the specific types of incidents associated with Indiana's farm fatalities in 2004. One type of fatality, falls, that has been historically common to Indiana agriculture did not occur during the year, or none were identified. It is important to note that all four of the roadway collisions involved a tractor, and these incidents are 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	-
	Buried in trench	1
	Gas asphyxiation (manure pit)	-
Livestock-related incidents	Trampled by livestock	2
	Kicked by horse	-
	Horse-drawn wagon incidents	-
Machinery-related incidents	Entanglements	1
	Crushings/pinnings	-
	Runovers	-
Tractor-related incidents	Roll-overs	5
	Runovers	-
	Crushings/pinnings	-
Roadway collisions	While on tractor	1
	With tractor	3
	With pull-behind machinery	-
	With agricultural truck	-
	With livestock	-
Other incidents	Cattle chute handle – hit on head	1
	Electrical transformer fell and hit tractor driver	1
Total		**16**

Table 2. 2004 Indiana farm work-related fatalities by specific type of incidents.

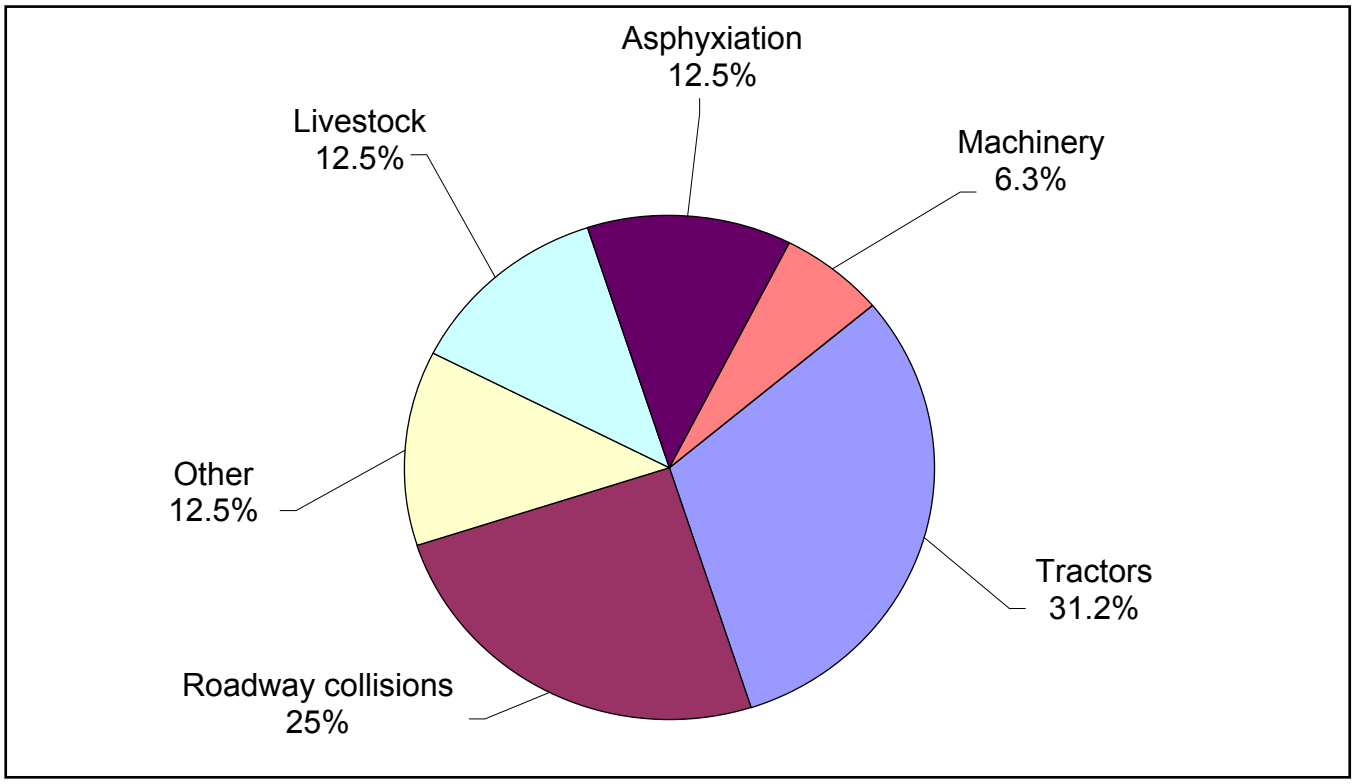

Figure 1. Distribution of 2004 Indiana farm work-related fatalities by general type of incidents.

Table 3 provides a more detailed listing of fatalities occurring in Indiana counties in 2004. Fatal farm work-related incidents are described here by (1) date of incident, (2) county of report, (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 Engineers[2] 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] ASAE Standard S575.1, 2002. ASAE, 2950 Niles Road, St. Joseph, MI 49085. Tel: 616-429-0300

	Date	County	Age	Sex	Description of incident	FAIC[3]
1	Jan. 3	Dubois	60	M	Tractor rollover with bale in loader	1
2	Jan. 21	Sullivan	69	M	Tractor rollover with bale in loader	1
3	Feb. 2	Newton	71	M	Trampled by buffalo	1
4	April 19	Lawrence	72	M	Tractor rollover on a sandy embankment	1
5	May 8	Jennings	87	M	Tractor rollover, rolled on roadway incline	1
6	June 4	Elkhart	60	F	Tractor/car collision, victim was passenger in car	9
7	June 9	Gibson	41	F	Tractor hit electric-pole guy wire; transformer fell on operator	1
8	June 21	Dearborn	20	M	ATV/tractor collision on roadway, ATV driver-victim	9
9	June 21	Dearborn	16	M	ATV/tractor collision on roadway, ATV passenger-victim	9
10	July 6	Rush	12	M	Suffocated in corn in gravity wagon	1
11	July 29	Benton	72	M	Handle of grooming chute hit victim in head	1
12	Aug. 11	DeKalb	49	M	Buried in trench collapse	1
13	Aug. 18	Posey	56	M	Tractor rollover, mowing	1
14	Oct. 25	Wabash	89	M	Tractor/car collision, victim was operating tractor	1
15	Dec. 1	Clinton	24	M	Entangled in auger of feed truck	1
16	Dec. 5	St. Joseph	64	M	Trampled by wildebeest-an African antelope	1

Table 3. Lisiting of 2004 Indiana farm work-related fatalities.

Figure 2 represents a geographic distribution of Indiana's documented farm-related fatalities in 2004. Dearborn county had two fatalities which resulted from the same collison, and no other county had more than one. Figure 3 represents a geographic distribution of 662 of Indiana's 735 documented farm-related fatalities in the years 1980 through 2004 where the county of residence was known. The four counties with the most identified fatalities over the past 25 years were Elkhart with 21, LaGrange with 19, Dubois with 16, and Greene with 15.

[3] FAIC-1 Farm production work.
FAIC-9 Farm hazard exposure, roadway collision (victim not a farm worker).

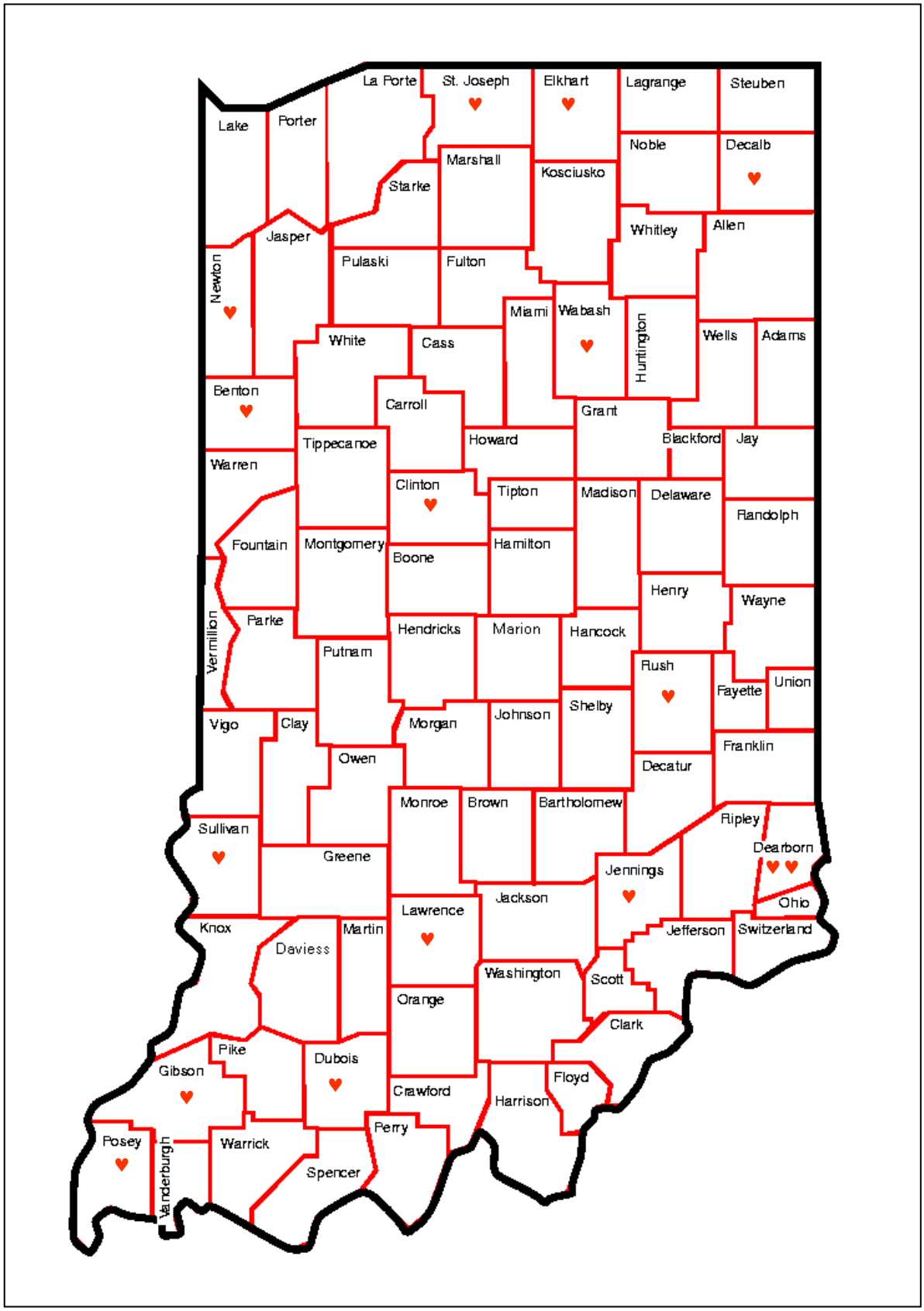

Figure 2. Geographic distribution of 2004 Indiana farm work-related fatalities.

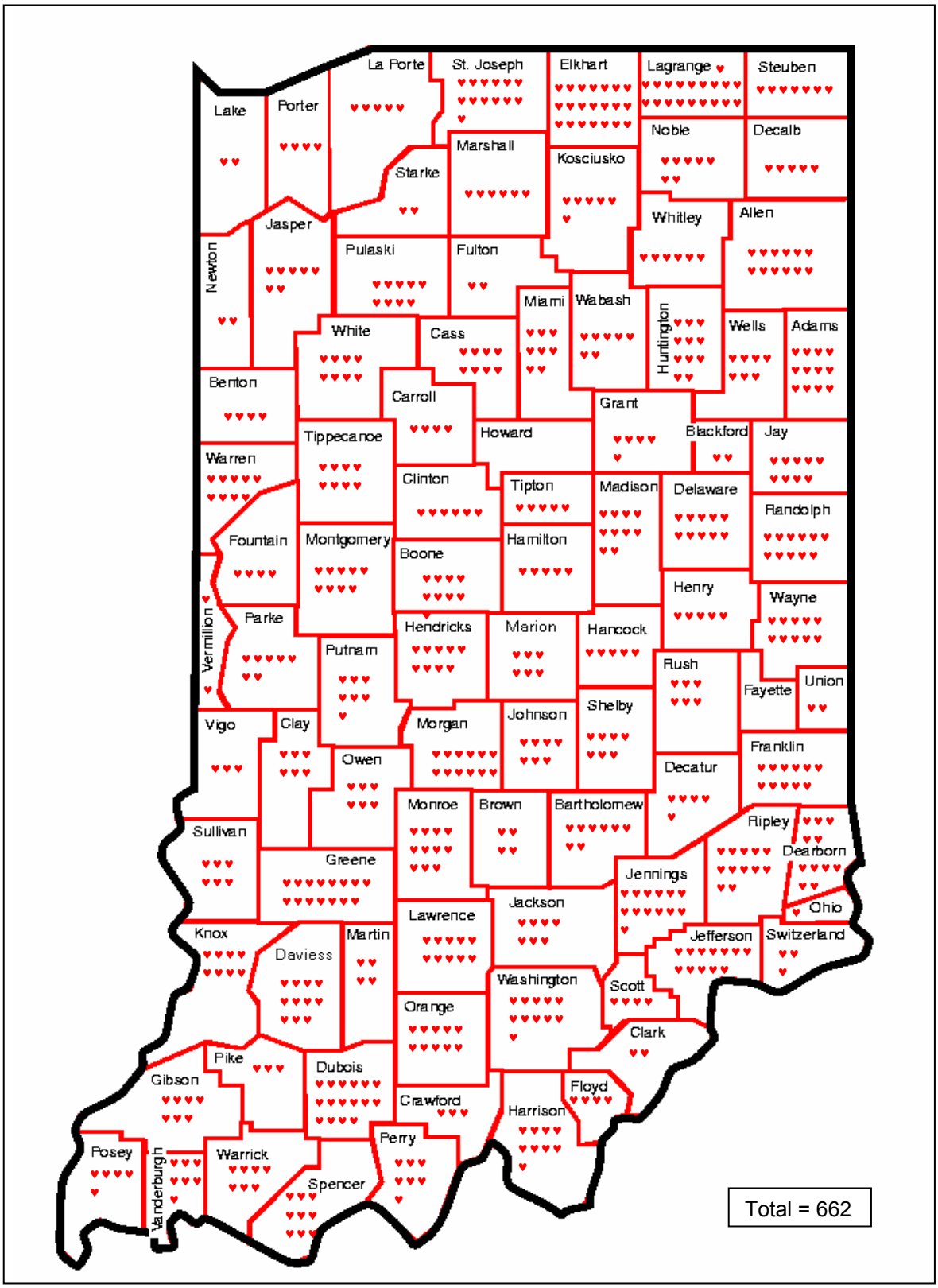

Figure 3. Geographic distribution by County of Indiana's farm work-related fatalities from 1980 through 2004.

Figure 4 presents a trend of identified farm-related fatalities over the past 35 years. It is believed that 1998 and 2004 recorded the lowest number of fatalities of any year since Purdue's Agricultural Safety and Health Program has been keeping records. Through 1999 and 2000, identified fatalities increased but the trend continued to be decreasing. Fatalities again decreased in 2001, 2002, 2003, and 2004.

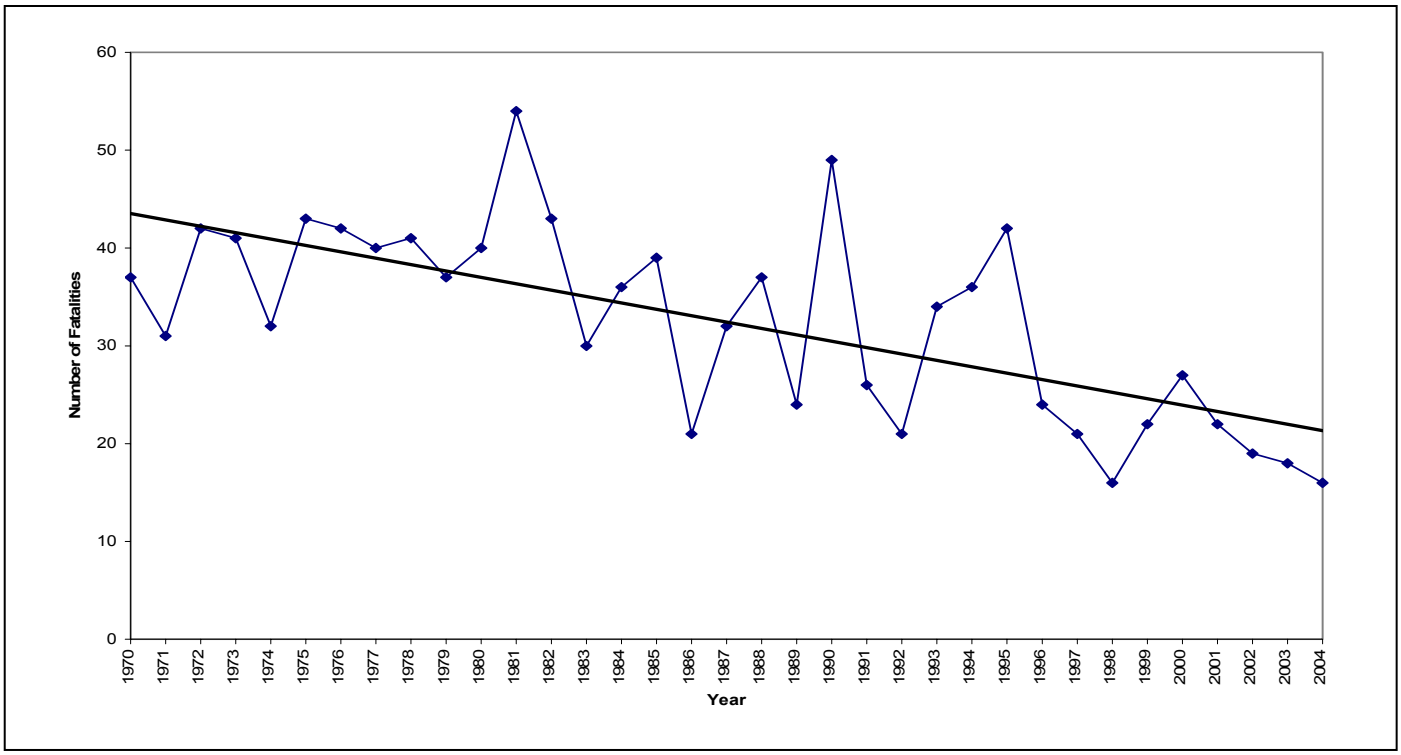

Figure 4. Annual summary of farm work-related fatalities.

Using the number of 60,296 productive farms in Indiana with a sales of over $1,000, it was estimated for 2004 that 1 out of every 3,769 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 11 per 100,000 farm workers.[5] 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.[6] It is believed, however, that the Indiana rate 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.

[4] The **estimated number of farms** comes from the final report of the 2002 US Census of Agriculture.
[5] The **estimated farm population** of operators and hired workers on farms comes from the final report of the 2002 US Census of Agriculture.
[6] The **estimated death rates** come from the National Safety Council Injury Facts, 2002 ed.

Summary of Reported Fatalities Not Included in Table 3

Twelve of the fatalities that were reported by the clipping services or other sources in 2004 were not included in the previous tables because they were determined to be not farm work-related. Six of those fatalities occurred on roadways: (1) a 60 year-old woman died in a collision between her automobile and a county highway department tractor in Cass County; (2) a 68 year-old man died in a tractor overturn while removing storm debris from a roadway; (3) while driving a motorcycle, a 29 year-old man died in a collision whith a grain truck in Montgomery County; (4) a grain truck collided with a minivan where the the 61 year-old driver of the minivan died in Whitley County; and (5) a collision between a car and a pickup truck pulling a horse trailer killed a 17 year-old girl, and a 15 year-old boy in Marion County. Other non-farm work-related fatalities involved: (1) a 73 year-old man mowing his small acreage when his tractor overturned onto him in Sullivan County; (2) an 80 year-old silo repairman who fell from a catwalk in Marion County; and (3) a 52 year-old man who was killed when a train struck his pick-up truck at a rural crossing in White County.

The deaths of 3 other farmers were reported that were not farm-work related: (1) a farm tractor ran over an 82 year-old farmer while he was trimming trees alone in the front yard of his house; (2) a 58 year-old farmer was kicked in the chest by a horse while hooking up a buggy in LaGrange County; and (3) a 79 year-old farmer (with a sideline business of cleaning out grain storage facilities with a vacuum) was buried in grain and suffocated while working by himself in Wabash County. 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 occurring during farm work. However, many of Indiana's non-fatal farm-related injuries that were identified through clipping services in 2004 were severe. The incidents reported included tractor and wagon run-overs, hay elevator entanglement, train collision, fires, ATV collision, grain entrapments, anhydrous ammonia release, and several roadway collisions. Commonly, the victims had to be airlifted to hospitals. These incidents resulted in the following severe injuries: skull and other bone fractures, severe internal injuries including lung damage, spinal cord injuries, amputations, and severe burns. Four of the victims were females, and known ages of recorded victims ranged from 12 to 79.

One of the most dramatic incidents in 2004 occurred when thieves attempting to steal anhydrous ammonia at a fertilizer supplier in Jennings County caused a cloud of ammonia to drift over a highway. The cloud reduced visability to zero at 12:45 a.m., and a four vehicle crash ensued that involved 2 semi-trucks. Five people who were injured in the crash were trapped in their vehicles for three hours before the ammonia cloud lifted and rescue personnel could enter the scene. Three hundred residents in the area were evacuated.

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 2004 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 2004.

To gain a perspective of the potential economic impact of farm injuries to the state, a conservative estimated medical treatment cost of $1,000 per injury would result in an economic loss of $6.7 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.

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 2004/2005 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 735 Indiana farm families that experienced the loss of a family member over the past 25 years, and the 16 in 2004, 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.