# Summary of Indiana's Farm Work-Related Fatalities for 1980–1989 with Comparisons to 1970–1979 [1]

Terry L. Wilkinson [2] and William E. Field [3]

Purdue University has been collecting Indiana farm fatality and injury data for over 30 years with the use of death certificates and newspaper clippings. During the past 20 years, over 830 reports of fatalities within the state were identified as possibly being farm-related. These fatalities were classified as farm work-related, recreational, home-related, other, and unknown. A summary is presented of 303 farm work-related fatalities that were reported between 1980 and 1989, and a comparison with 384 farm work-related fatalities that were reported between 1970 and 1979.

## Introduction

Long term surveillance of injuries and fatalities provides data that can be used to identify populations at risk of injury, agents involved with the injury, and trends of injuries and fatalities. Such data can also be used to evaluate the efficacy of intervention and prevention strategies. For over 30 years, the Indiana State Board of Health and Purdue University have had a working relationship to collect and analyze farm-related fatality data with the use of death certificates. In addition, a clipping service has been utilized to identify farm-related fatalities reported in the press. During the period 1970 through 1989, over 830 reports of fatalities within the state were identified using the death certificate and clipping data as being possibly farm-related. This report provides an overview of how these data were gathered and analyzed, and a summary of the fatalities that could be classified as farm work-related.

## Methodology

County coroners are required by law to record information regarding each fatality that occurs in their county on a standardized certificate and send it to the State Board of Health for certification, compilation, and record maintenance. As the cases are certified, copies of death certificates (Appendix A) that indicated that the fatality might have been farm-related are sorted out and sent to Purdue for further analysis. During the time period from 1970 to 1979, over 500 farm-related death certificates were received, with another 330 farm-related death certificates received between 1980 and 1989. In addition, from 1970 to 1988, a clipping service was utilized to obtain information on farm-related injuries and fatalities. Beginning with the summer of 1988 to present, a volunteer clipping project has been operating between Indiana Farm Bureau's Education and Women's Department and Purdue University. Over 140 women members of Farm Bureau from around the state have been maintaining surveillance of local news reports of farm injuries and fatalities occurring in their area. Clippings are sent to Purdue monthly from this group (Appendix B).

Death certificates and newspaper clippings that were collected from 1980 to 1989 were examined to determine if the fatality was actually farm work-related. These fatalities were classified as farm work-related, recreational, home-related, other , and unknown by using the *Decision Process for Accident Work Classification* developed by Purschwitz (Purschitz and Field, 1989). After using this classification process, it was determined that 303 of the reported farm-related deaths that occurred between 1980 and 1989 could be clearly classified as farm work-related. These farm work-related fatalities were then recorded onto coding sheets that were designed by Purschwitz (Appendix C), and entered into a personal computer-based *Farm Accident Data System* that was developed by Purschwitz (Purschwitz, 1989).

In 1980, a report was developed at Purdue that summarized Indiana's farm-related fatalities that occurred between 1970 and 1979. It was reported in this document that there were 428 fatalities out of the more that 500 death certificates received that could be could be classified as farm-related (Field, Durkes, and Tormoehlen, 1980). In order to gain a consistent comparison of the farm work-related fatality situation in Indiana in the decade of the 70's with that of the 80's, the farm-related death certificates that were collected for the time period between 1970 and 1979 were re-examined using Purschwitz's classification tool. A tally sheet was developed that contained the categories identical to those used by the coding sheet. After using this process, it was determined that 384 of the more than 500 death certificates that were received could be classified as farm work-related fatalities.

Using the data stored in the *Farm Accident Data System* for 303 farm work-related fatalities that occurred between 1980 and 1989, and the data collected for 384 farm work-related fatalities that occurred between 1970 and 1979, an analysis of farm work-related fatalities in Indiana was completed. It should not be concluded, however, that the 687 fatalities represented all farm work-related deaths that occurred over the twenty-year period. Additional farm work-related fatalities may have occurred but were incorrectly reported or lacked adequate information to correctly classify. In addition, the data do not include motor vehicle-related fatalities that may have been associated with farm work. The cases examined provided the best possible scenario of Indiana farm mortality data.

## Distribution of Farm Work-Related Farm Fatalities

**Annual Distribution of Farm Fatalities** — The distribution of farm work-related fatalities that occurred in Indiana for the time period between 1970 and 1989 is shown in Figure 1. The graph displays the average of 34.3 fatalities per year over the twenty-year period. For the period between 1970 and 1982, the number of fatalities that occurred each year were above the average except for 1971 and 1974 when 33 and 32 fatalities occurred, respectively. For the time period between 1983 and 1989, the number of fatalities that occurred each year were below the average except for 1988, when 35 fatalities occurred. The highest number of fatalities during the twenty-year period occurred during 1981, while the lowest number of fatalities occurred in 1986.

Figure 2 displays the farm work-related fatalities by year for the 1970's and the average of the ten-year period of 38.4 fatalities per year. Figure 3 displays the farm work-related fatalities by year for the 1980's and the average of the ten-year period of 30.3 fatalities per year. These graphs show that during the 1980's there has been a substantial downward trend in the number of these fatalities that have occurred in Indiana. Several factors could be responsible for this change which include any of the following: a decrease in the number of people living on or working on farms (during the twenty-year period, the number of farms in the state declined from 107,000 in 1970 to 71,000 in 1989 [4]) [Agricultural Statistics, 1990]; increased awareness of farm hazards and safety prevention

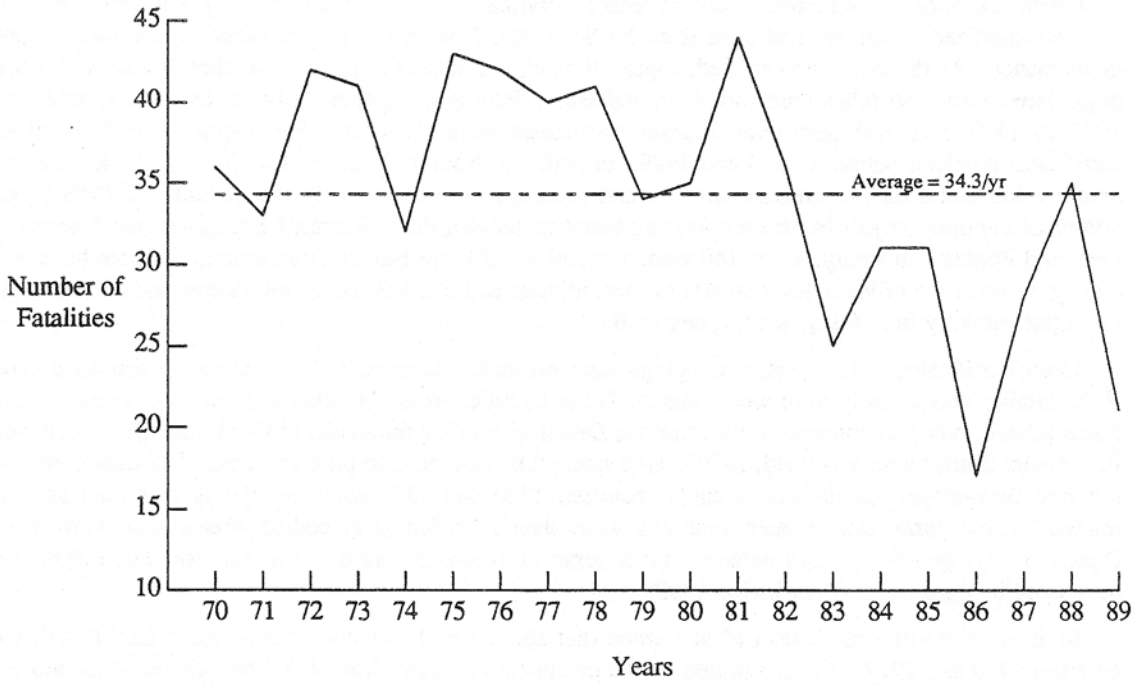



Figure 1. Distribution of Farm Work-Related Fatalities by Year.

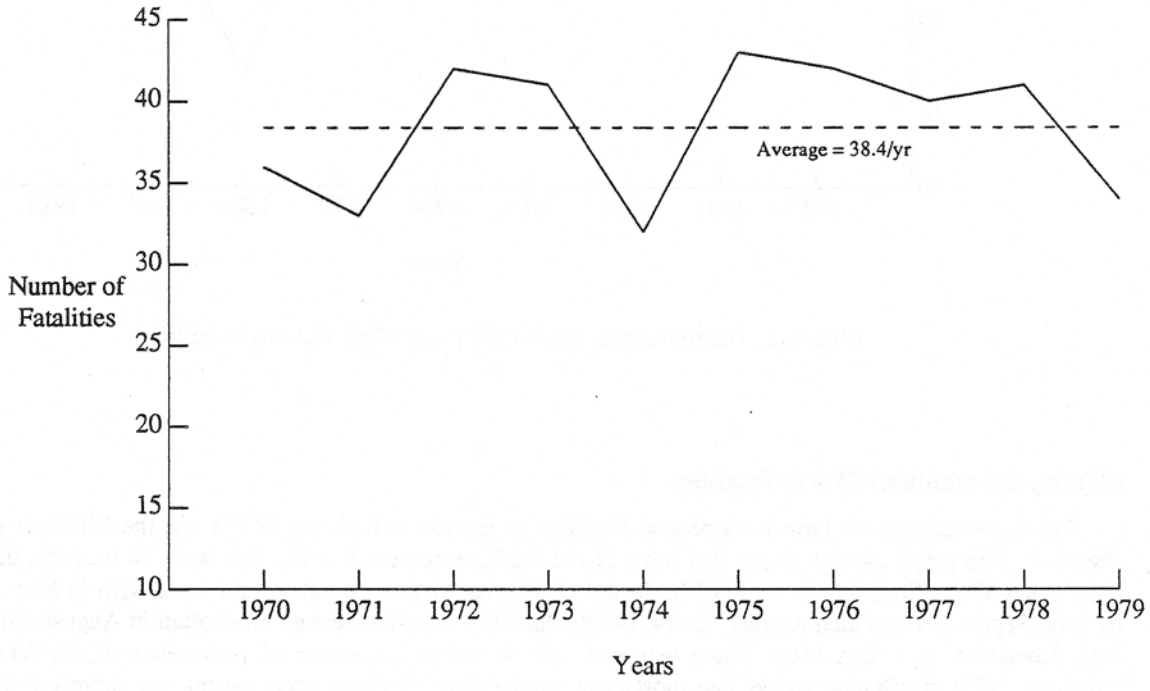



Figure 2. Distribution of 1970-1979 Farm Work-Related Fatalities.

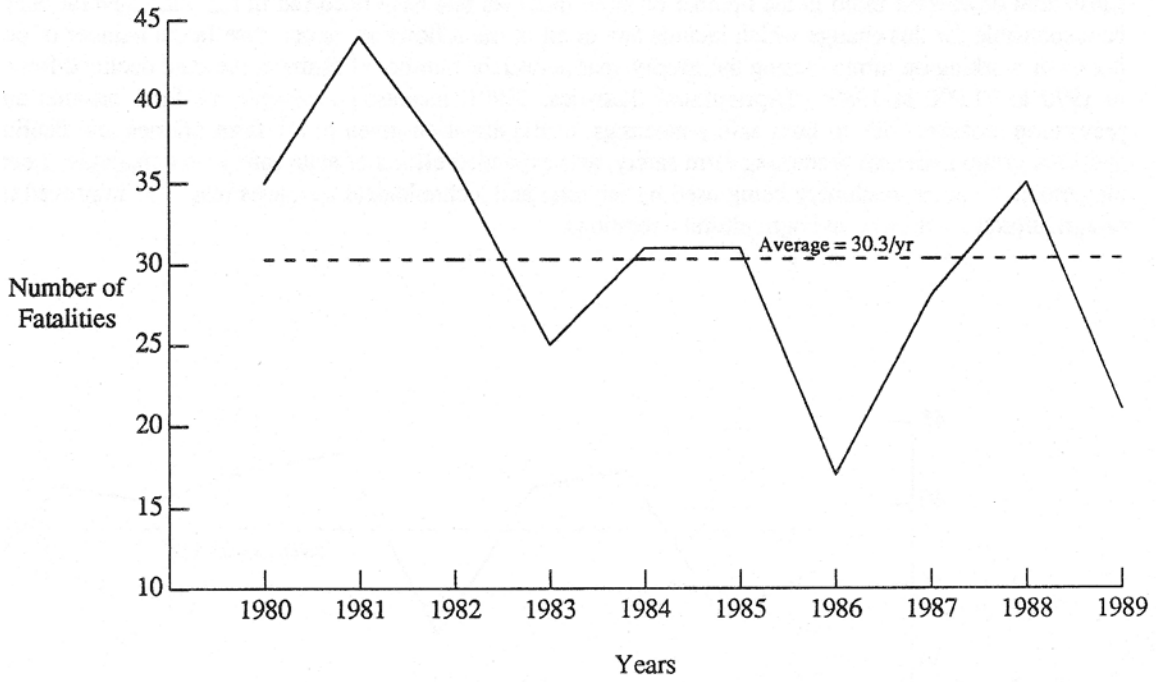



Figure 3. Distribution of 1980–1989 Farm Work-Related Fatalities.

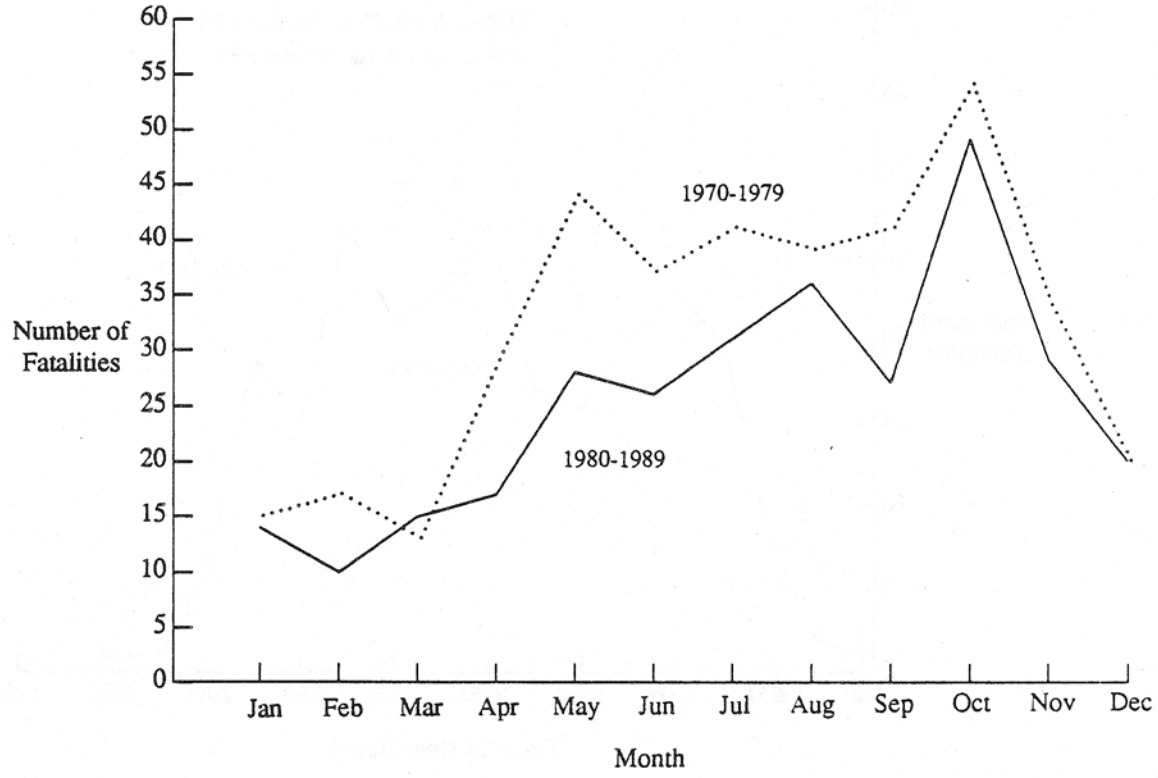



Figure 4. Distribution of Farm Work-Related Fatalities by Month.

measures due to farm safety meetings, media attention given to the farm injuries and fatalities, 4-H and FFA group activities promoting farm safety, and expanded efforts of state safety organizations; a decrease in the amount of older machinery being used by farmers; and technological advances that have improved the safety of agricultural machinery and agricultural operations.

**Monthly Distribution of Farm Fatalities** — The distribution of farm work-related fatalities by month for both the 1970's and 1980's is shown in Figure 4. The graph clearly shows that most of the fatalities occurred in October with 54 fatalities during the 1970's and 49 fatalities during the 1980's. In the 1970's, fatalities occurred second most often in May followed by July, September, and then August. In the 1980's, fatalities occurred second most often in August followed by July, November, and then May. There was one case in which the month of occurrence of the fatality was unknown. This distribution shows that most farm work-related fatalities occur during the harvest and planting seasons as is generally known.

**Distribution of Farm Fatalities by Time of Incident** — Figure 5 displays the distribution of farm work-related fatalities by the time the incident occurred. The graph shows that during the 1970's and the 1980's, most farm fatalities occurred between 9:00 a.m. and 11:00 a.m., and between 1:00 p.m. and 6:00 p.m. There were no fatalities reported between 1:00 a.m. and 5:00 a.m. The graph also shows that there has been a shift from the morning being the most common time for a farm fatality to occur in the 1970's to the afternoon in the 1980's. An explanation for the shift has not been identified.

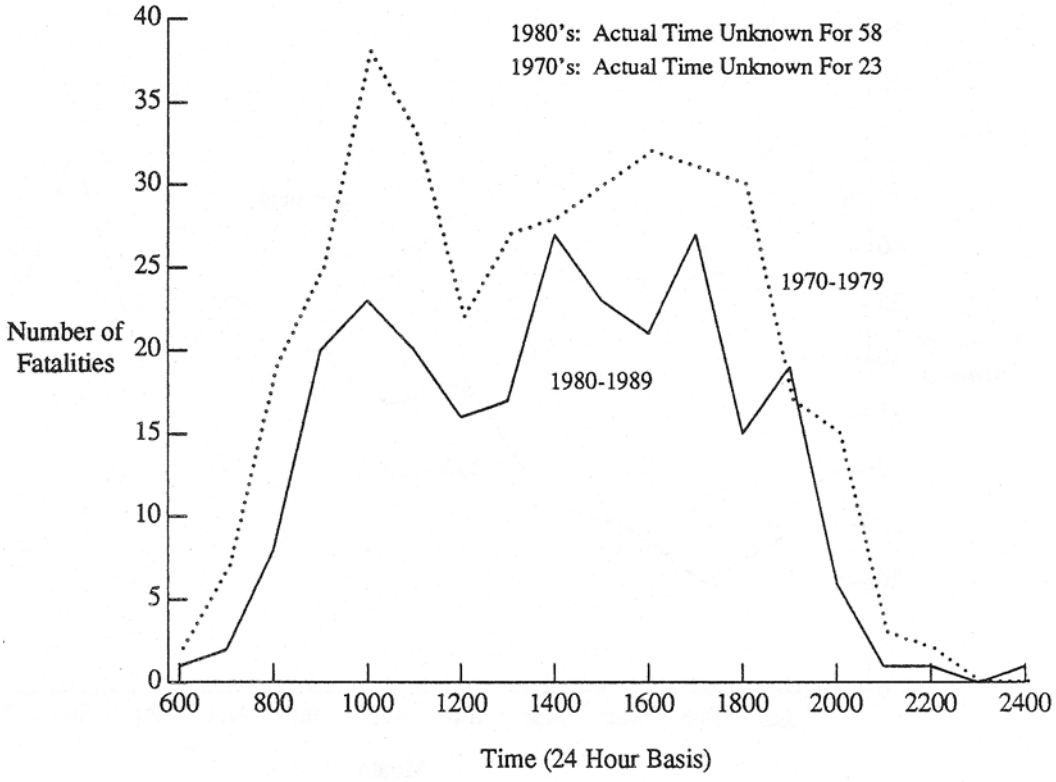



Figure 5. Distribution of Farm Work-Related Fatalities by Time of Incident.

In the 1970's, the actual time was unknown for 23 fatality cases, but five of these cases occurred during the morning, three in the afternoon, one fatality occurred in the evening, and the remaining 14 cases lacked information as to when the fatality occurred. Unexpectedly, considering the increased surveillance efforts, the actual time of the incident was unknown for 54 of the fatalities that occurred in the 1980's. Ten of these cases occurred during the morning, 17 in the afternoon, five in the evening, and the remaining 22 cases lacked information on the time that the incident occurred. The cases where the actual time of the incident was unknown were most common for victims that died several days after the injuries occurred and the death certificate provided only information on the hour of death. Improved emergency medical services in rural areas may be contributing to this increased delay between the time of injury and time of death. For epidemiological reasons, future efforts may be needed to encourage local coroners to provide both the time of the injury and the time of death.

## Human Element of the Farm Work-Related Fatalities

**Victim's Age and Sex** — Table 1 contains the age distribution of the farm work-related fatality victims for both the 1980's and the 1970's. Victims ranging between 45-64 years of age were the most common for both the 1980's and the 1970's with 34.0 percent and 32.6 percent of the fatalities, respectively. This age group makes up the largest share of the farm working population. Farmers 65 and over were the second most common age group for farm fatalities for both ten-year periods. Victims ranging between 25-44 were the third most common age group for both time periods.

Table 1 also shows that the group experiencing the highest increase in the number of fatalities based on the percentage of total incidents for the time periods was for those 65 and over, where a 4.7 percent increase occurred between the 1970's and the 1980's. The group experiencing the largest decrease during this time period was for those between 12-18 years of age, where a 5.6 percent decrease occurred between the 1970's and 1980's. In the 1970's, 21 percent of the victims in Indiana were under the age of 18, while in the 1980's, 13.5 percent of the victims were under the age of 18.

**Table 1. Age Distribution of Victims**

| Age | 1980–1989 | | 1970–1979 | | Percent Change |
|---|---|---|---|---|---|
| | Number of Fatalities | Percent of Fatalities | Number of Fatalities | Percent of Fatalities | |
| Infant – 5 years old | 14 | 4.6 | 20 | 5.2 | –0.6 |
| 6 – 11 years old | 11 | 3.6 | 19 | 4.9 | –1.3 |
| 12 – 18 years old | 16 | 5.3 | 42 | 10.9 | –5.6 |
| 19 – 24 years old | 16 | 5.3 | 14 | 3.6 | +1.7 |
| 25 – 44 years old | 57 | 18.8 | 69 | 18.0 | +0.8 |
| 45 – 64 years old | 103 | 34.0 | 125 | 32.6 | +1.4 |
| 65 and over | 86 | 28.4 | 91 | 23.7 | +4.7 |
| Unknown | — | — | 4 | 1.0 | –1.0 |
| Total | 303 | 100.0 | 384 | 100.0 | |

**Table 2. Victim's Relationship to the Farm**

| Relationship | 1980–1989 | | 1970–1979 | | Percent Change |
|---|---|---|---|---|---|
| | Number of Fatalities | Percent of Fatalities | Number of Fatalities | Percent of Fatalities | |
| Farm operator | 192 | 63.4 | 169 | 44.0 | +19.4 |
| Family member | 51 | 16.8 | 89 | 23.2 | –6.4 |
| Visitor | 11 | 3.6 | 2 | 0.5 | +3.1 |
| Hired farm worker | 7 | 2.3 | 25 | 6.5 | –4.2 |
| Outside contractor | 3 | 1.0 | — | — | +1.0 |
| Other | 10 | 3.3 | — | — | +3.3 |
| Unknown | 29 | 9.6 | 99 | 25.8 | –16.2 |
| Total | 303 | 100.0 | 384 | 100.0 | |

During the 1970's, it was found that 360 or 93.8 percent of the victims were makes. In comparison, during the 1980's, it was found that 281 or 92.7 percent of the victims were males. There has been little change in the sex of the fatality victims over the last 20 years.

**Victim's Relationship to the Farm and Working Status of the Victim** — Table 2 contains the relationship to the farm where the fatal injuries occurred. This information was determined from the death certificates based on the occupation of the victim, the location of the residence, and the location of the incident. For both the 1970's and the 1980's, the farm operator was the most likely person to be involved in a farm work-related fatality. There was, however, a 19.4 percent increase in the proportion of all fatalities that involved the operator in the 1980's and a decline in the number of fatalities involving hired labor. Family members were the second most likely victims; however, a 6.4 percent decrease in the proportion of all fatalities that involved farm family members occurred in the 1980's.

In the 1970's 266, or 69.3 percent, of the victims were working at the time the fatal injuries were suffered; 71, or 18.5 percent, were not working but rather observing or within the farm work area; and the working status of the victim was unknown in 47, or 12.2 percent, of the cases. In the 1980's, 237, or 78.2 percent, of the victims were working when the fatal injuries were suffered; 35, or 11.6 percent, were not working; and the working status of the victim was unknown in 31, or 10.2 percent, of the incidents. This clearly shows that in most of the fatalities that were classified as farm work-related, the victim was actually performing some type of farm work activity and that this percentage is increasing. An example of a farm work-related fatality where the victim was not working would be an individual who was riding on a tractor while the operator was mowing a field when the tractor hit a bump, and the extra rider fell off the tractor and was run over. The victim was not working but was involved with actual farm work activities.

**Full/Part-Time Status of Victim and Farm Type Where Incident Occurred** — As noted on the coding sheet shown in Appendix C, data were recorded as to the amount of time devoted to farming if the victim was a farm operator or a farm worker (i.e., full-time, part-time, or unknown). Unfortunately, most of the farm operator and farm worker fatality cases did not provide enough information to classify them; therefore, this information could not be reliably reported.

**Table 3. Location of Residence of Victim**

| Residence | 1980–1989 | | 1970–1979 | | Percent Change |
|---|---|---|---|---|---|
| | Number of Fatalities | Percent of Fatalities | Number of Fatalities | Percent of Fatalities | |
| On-farm | 242 | 79.9 | 323 | 84.1 | –4.2 |
| Not on the farm | 47 | 15.5 | 50 | 13.0 | +2.5 |
| Unknown | 14 | 4.6 | 11 | 2.9 | +1.7 |
| Total | 303 | 100.0 | 384 | 100.0 | |

**Table 4. Site Where Fatal Farm Work-Related Injuries Were Suffered**

| Site | 1980–1989 | | 1970–1979 | |
|---|---|---|---|---|
| | Number of Fatalities | Percent of Fatalities | Number of Fatalities | Percent of Fatalities |
| Farm, unspecified | 193 | 63.7 | 215 | 56.0 |
| Inside a farm building | 23 | 7.6 | 38 | 9.9 |
| Farmyard | 22 | 7.3 | 65 | 16.9 |
| Field | 20 | 6.6 | 33 | 8.6 |
| Public road or ditch | 15 | 4.9 | 19 | 4.9 |
| Woods | 15 | 4.9 | 3 | 0.8 |
| Irrigation or drainage ditch | 5 | 1.7 | 6 | 1.6 |
| Farm driveway, lane or ditch | 4 | 1.3 | — | — |
| House yard | 1 | 0.3 | 1 | 0.3 |
| Other | 5 | 1.7 | — | — |
| Unknown | — | — | 4 | 1.0 |
| Total | 303 | 100.0 | 384 | 100.0 |

The type of farm (i.e., grain, beef, ranch, etc.) where the fatality occurred was also coded on the coding sheet, but since most reports do not include ample information to determine the type of farm, it was not summarized. If additional resources become available to conduct on-site or telephone follow-ups of farm fatality incidents with relatives of the victim, this information could prove useful.

**Victim's Location of Residence** — The residence of the victim is provided in Table 3. In 84.1 percent of the farm work-related fatalities that occurred in the 1970's and 79.9 percent of the fatalities that occurred in the 1980's, the victim was a resident of a farm. There has been an increase of 2.5 percent of the proportion of all fatalities that involve a victim who was not a resident of a farm.

## Factors Associated with the Farm-Work Related Fatalities

**Site Where Fatal Injures Were Suffered** — The site where the victim suffered the fatal injuries can be found in Table 4. As noted in the table, it was difficult to determine the site where the fatal injuries were suffered in many

of the cases due to inadequate reporting on death certificates. In the 1970's, 56 percent of the fatalities were indicated to be on a farm, but reports were not specific as to where on the farm the incident occurred. In the 1980's, 63.7 percent of the fatality reports were not specific as to the location on the farm where the incident occurred. Notable areas reported as the site where the victim suffered the fatal injuries included: inside a farm building, in a farm yard, in a field, on a public road and/or ditch, and in a woods.

**Type of Farm Fatality Accident** — The type of accident that resulted in farm work-related fatalities can be found in Table 5. The table shows that for both the 1970's and the 1980's, the farm tractor claimed the greatest percentage of lives in Indiana with 51.3 percent and 37.4 percent, respectively. The most common of these were tractor rollovers, followed by tractor runovers, and then, power take-off entanglements. Equipment-related farm work fatalities were the second highest group with 24.7 percent of the fatalities in the 1970's and 25.1 percent of the fatalities in the 1980's. The most common of these were accidents where the operator was pinned by the equipment, equipment entanglements, and equipment runovers.

The far right column of Table 5 includes information on the percent change of the accident type from the 1970's to the 1980's. The largest percentage increase in the accident types was observed with the victims being struck by a tree or a limb with an increase of 6.6 percent, or almost three times the number of fatality victims from this type of accident that occurred during the 1970's. The second highest increase in fatalities occurred where the victim was pinned by an object or equipment, with an increase of 4.6 percent. Other notable increases were fatalities where the victim was struck by a flying, falling, or rotating object, with an increase of 2.5 percent; roadway collisions with machinery increased 1.8 percent; and fatalities involving farm trucks increased 1.5 percent in proportion to all fatalities.

The largest percentage decrease between the 1970's and the 1980's was observed with all tractor-related fatalities, which decreased 13.9 percent. Fatality accident types which showed notable decreases included tractor runovers, which decreased 4.7 percent; tractor rollovers decreased 4.6 percent; unspecified tractor-related accidents decreased 3.2 percent; equipment entanglements decreased 2.4 percent; power take-off entanglements decreased 1.4 percent; and equipment runovers decreased 1.2 percent in proportion to all fatalities.

**Primary Machine or Structure Involved in Farm Fatalities** — The machines or structures that were involved in farm work-related fatalities in the 1970's and the 1980's are listed in Table 6. The farm tractor was the primary agent that led to the worker's death in 55.2 percent of the fatalities in the 1970's and 41.3 percent of the fatalities in the 1980's, which is a 13.9 percent decrease. An example of how a tractor could be the primary machine involved and not be classified as a tractor-related fatality accident is as follows: one case involved a man who was driving a tractor along a fence row when a tree limb fell and struck him on the head and killed him. This incident would be categorized as struck by a flying or falling object, not a tractor accident, although the man was driving a tractor at the time of the incident. This is the reason for the differences noticed in the numbers associated with the type of accident in Table 5 and the primary machine or structure involved in Table 6.

There has been a nine-fold increase in the number of skid-steer loader deaths in the past 10 years. Increases in fatalities can be found with self-propelled combines, grain wagons, and manure spreaders. Decreases in farm work-related fatalities have occurred with pull-type corn pickers, tillage implements, portable elevators, and grain bins.

**Table 5. Type of Farm Work-Related Fatality Accident**

| Accident Type | 1980–1989 | | 1970–1979 | | Percent Change |
|---|---|---|---|---|---|
| | Number of Fatalities | Percent of Fatalities | Number of Fatalities | Percent of Fatalities | |
| Tractor rollover | 76 | 25.1 | 114 | 29.7 | –4.6 |
| Tractor runover | 22 | 7.3 | 46 | 12.0 | –4.7 |
| Power take-off entanglement | 6 | 2.0 | 13 | 3.4 | –1.4 |
| Tractor, unspecified | 9 | 3.0 | 24 | 6.2 | –3.2 |
| **All tractor accidents** | 113 | 37.4 | 197 | 51.3 | –13.9 |
| Pinned by object or equipment | 36 | 11.9 | 28 | 7.3 | +4.6 |
| Equipment entanglement | 17 | 5.6 | 32 | 8.3 | –2.7 |
| Equipment runover | 20 | 6.6 | 30 | 7.8 | –1.2 |
| Equipment rollover | 2 | 0.7 | 4 | 1.0 | –0.3 |
| Equipment, unspecified | 1 | 0.3 | 1 | 0.3 | +0.0 |
| **All equipment accidents** | 76 | 25.1 | 95 | 24.7 | +0.4 |
| Struck by a tree or limb | 28 | 9.2 | 10 | 2.6 | +6.6 |
| Falls | 18 | 5.9 | 24 | 6.2 | –0.3 |
| Struck by flying, falling, or rotating object | 13 | 4.3 | 7 | 1.8 | +2.5 |
| Grain or feed entrapment | 11 | 3.6 | 17 | 4.4 | –0.8 |
| Electrocution | 10 | 3.3 | 11 | 2.9 | +0.4 |
| Animal inflicted injuries | 7 | 2.3 | 5 | 1.3 | +1.0 |
| Roadway collision with machinery | 7 | 2.3 | 2 | 0.5 | +1.8 |
| Farm truck accident | 6 | 2.0 | 2 | 0.5 | +1.5 |
| Fire or burns | 4 | 1.3 | 6 | 1.6 | –0.3 |
| Silo gas | 3 | 1.0 | 2 | 0.5 | +0.5 |
| Drowning | 2 | 0.7 | 1 | 0.3 | +0.4 |
| Manure pit accident | 1 | 0.3 | — | — | +0.3 |
| Chemical poisoning | — | — | 1 | 0.3 | –0.3 |
| Hand/power tool accident | 1 | 0.3 | — | — | +0.3 |
| ATV overturn | 1 | 0.3 | — | — | +0.3 |
| Firearms | — | — | 1 | 0.3 | –0.3 |
| Other | 1 | 0.3 | — | — | +0.3 |
| Unknown | 1 | 0.3 | 3 | 0.8 | –0.5 |
| Total | 303 | 100.0 | 384 | 100.0 | |

**Table 6. Primary Machine/Structure Involved in Farm Work-Related Fatalities**

| Category | Machine/Structure | 1980–1989 | | 1970–1979 | |
|---|---|---|---|---|---|
| | | Number of Fatalities | Percent of Fatalities | Number of Fatalities | Percent of Fatalities |
| Tractor or Loader | Tractor, Farm, or Unspecified | 125 | 41.3 | 212 | 55.2 |
| | Farm Tractor with Loader | 9 | 3.0 | 8 | 2.1 |
| | Skid-Steer Loader | 10 | 3.3 | 1 | 0.3 |
| Harvesting Machines | Self-Propelled Combine | 8 | 2.6 | 5 | 1.3 |
| | Pull-Type Corn Picker | 5 | 1.7 | 12 | 3.1 |
| | Round Hay Baler | 1 | 0.3 | — | — |
| | Hay Baler, Unspecified | — | — | 1 | 0.3 |
| Mowing Machines | Farm Rotary Mower | 9 | 3.0 | 15 | 3.9 |
| | Mower, Unspecified | 4 | 1.3 | — | — |
| | Flail or Shredder | — | — | 3 | 0.8 |
| Tillage Implements | Plow, Drag, and a Disc | 3 | 1.0 | 6 | 1.6 |
| Wagons | Miscellaneous Wagons | 5 | 1.7 | 3 | 0.8 |
| | Self-unloading Forage Wagon | 3 | 1.0 | 4 | 1.0 |
| | Grain Wagon | 2 | 0.7 | — | — |
| | Flat Bed Wagon | 1 | 0.3 | 2 | 0.5 |
| | Auger Wagon | — | — | 1 | 0.3 |
| Manure Handling Equipment | Manure Spreader, Unspecified | 3 | 1.0 | — | — |
| | Solid Manure Spreader | 1 | 0.3 | 1 | 0.3 |
| Feed and Grain Handling Equipment | Auger, Unspecified | 8 | 2.6 | 8 | 2.1 |
| | Portable Auger | 4 | 1.3 | 5 | 1.3 |
| | Portable Feed Grinder/Mixer | 2 | 0.7 | — | — |
| | Portable Elevator/Conveyor | 2 | 0.7 | — | — |
| | Livestock Feeder | 1 | 0.3 | 5 | 1.3 |
| | Non-Portable Elevator | 1 | 0.3 | — | — |
| | Silo Unloader, Top | — | — | 1 | 0.3 |
| | Silo Blower | — | — | 1 | 0.3 |
| Miscellaneous Equipment | Post Hole Auger | 2 | 0.7 | — | — |
| | Irrigation Equipment | 1 | 0.3 | — | — |
| | ATV | 1 | 0.3 | — | — |
| Farm Structures | Barn or Livestock Housing | 8 | 2.6 | 10 | 2.6 |
| | Grain Bin | 7 | 2.3 | 19 | 5.0 |
| | Silo, Unspecified | 7 | 2.3 | 5 | 1.3 |
| | Corn Crib | — | — | 3 | 0.8 |
| | Oxygen-Limiting Silo | — | — | 1 | 0.3 |
| Trucks | Truck, Unspecified | 6 | 2.0 | 2 | 0.5 |
| | Straight Truck | 4 | 1.3 | 4 | 1.0 |
| | Pickup | 1 | 0.3 | 2 | 0.5 |
| | Semi | — | — | 1 | 0.3 |
| Other | | 10 | 3.3 | 6 | 1.6 |
| Unknown | | 10 | 3.3 | 16 | 4.2 |
| Not Applicable | | 39 | 12.9 | 21 | 5.5 |
| Total | | 303 | 100.0 | 384 | 100.0 |

**County Distribution of Farm Work-Related Fatalities in Indiana** — The distribution of the farm work-related fatalities in Indiana for the 1970's and the 1980's is shown by county in Figure 6. During the 1970's, Greene County had the most fatalities with 15; Allen County and Elkhart County had the second highest total of farm fatalities with 11; and Dekalb County and Harrison County had nine fatalities during this time period. During the 1980's, Dubois County had the most fatalities with ten; St. Joseph County had the second highest number with nine; and Elkhart County, Greene County, and Washington County each had eight fatalities during thus time period.

The largest decrease in fatalities between the 1980's and the 1970's was observed in Dekalb County with a decrease of eight, from a high of nine between 1970 and 1979 to one reported fatality between 1980 and 1989. The second largest decrease in fatalities was observed in Greene County, with a decrease of seven fatalities; and Allen County, Decatur County, and Whitley County had a decrease of six fatalities.

The largest increase in fatalities between the 1970's and the 1980's was observed in Washington County with an increase of six fatalities, from a low of two between 1970 and 1979 to eight fatalities between 1980 and 1989. The second largest increase in fatalities was observed in Adams County, with an increase of five fatalities; and Boone County, Huntington County, Jasper County, Marion County, and Scott County had an increase of four fatalities in each county.

## Summary

In the state of Indiana, there has been a noticeable decrease in the number of farm work-related fatalities. The average number of farm work-related fatalities for the 1970's was 38.4 per year, and the average number of farm work-related fatalities for the 1980's was 30.3 per year. The average dropped by 8.1 fatalities per year between the two decades.

The occurrence of farm work-related fatalities became prominent in the month of May and gradually increased throughout the summer until a peak occurred in the month of October. After the month of October, there was a sharp decrease in the number of farm work-related fatalities, which can be attributed to the decrease in farm activity during the winter months in Indiana.

During the 1970's, most farm work-related fatalities occurred in the morning between 10:00 and 11:00 a.m. During the 1980's, most farm work fatalities occurred between 2:00 and 3:00 p.m., which pointed to a change from the 1970's. The reason for this change could not be identified. There were no reported fatalities that occurred from 1:00 a.m. to 5:00 a.m. during the 1970's or 1980's.

Farmers in the age group between 45 and 64 years of age were most likely to be involved in a farm work-related fatality; the age group 65 and over was the second most common; and farmers ranging in age from 25-44 years of age were the third most common. However, per hour of exposure, the groups at highest risk are those under 18 and those over 65 years of age.

The farm operator was the most likely person to be involved in a farm work-related fatality, with family members being the second most common individuals involved. In addition, the person involved was most likely to have a residence on the farm.

Farm tractors caused the fatal injuries suffered by the victim in 51.3 percent of the fatalities in the 1970's. The involvement of the farm tractor in causing farm fatalities decreased 13.9 percent in proportion to all fatalities to 37.4 percent in the 1980's. Equipment-related fatalities claimed the life of Indiana farmers in 24.7 percent of the reported incidents in the 1970's and 25.1 percent of the reported incidents in the 1980's.

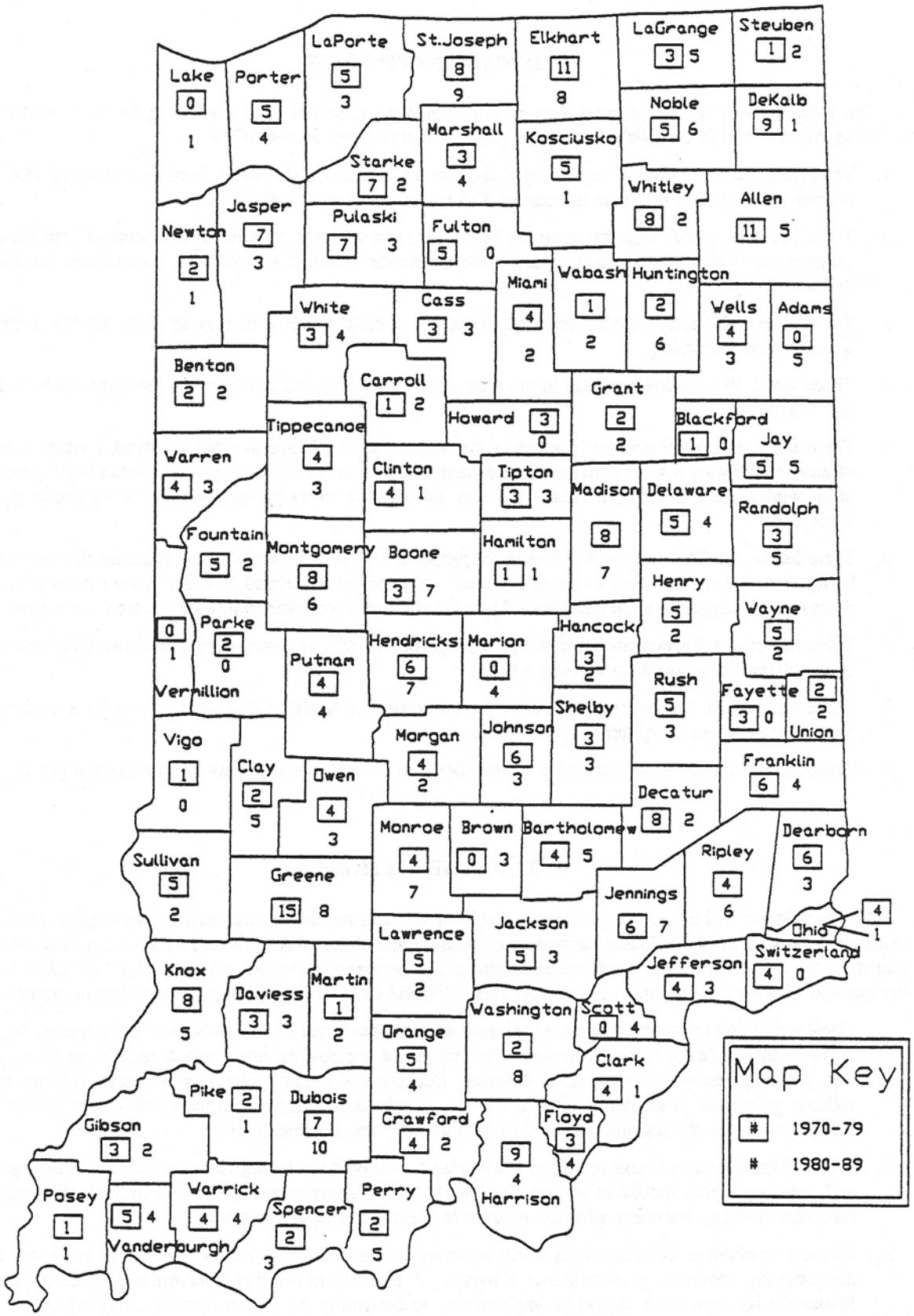



Figure 6. County Distribution of Farm Work-Related Fatalities.

## Significant Findings

The following is a list of the significant findings that were observed in the farm work-related fatalities that occurred in the 1980's with those fatalities that occurred in the 1970's.

1. The average number of farm work-related fatalities in Indiana has decreased from an average of 38.4 fatalities per year in the 1970's to an average of 30.3 fatalities per year in the 1980's.

2. There has been a shift from the morning being the most common time for a farm work-related fatality to occur in the 1970's to the afternoon as the most common time in the 1980's. An explanation for this shift has not been identified.

3. The risk level for those working on farms at the age of 65 and over is increasing while the risk to children appears to be decreasing.

4. There was a 19.4 percent increase in the proportion of all fatalities that involved the farm operator during the 1980's.

5. There has been an 8.9 percent increase in the proportion of all fatalities that involved a victim who was actually performing a work activity. Consequently, there has been a 6.9 percent decrease in the proportion of all fatalities that involved a victim who was not working but rather observing or being within the farm work area.

6. There has been a 13.9 percent decrease in the proportion of all farm work-related fatalities that were caused by injuries suffered in a tractor-related accident. Of these tractor-related fatalities, tractor runover fatalities decreased in proportion to all fatalities 4.7 percent and tractor rollover fatalities decreased 4.6 percent.

7. There has been a 6.6 percent increase in the proportion of all farm work-related fatalities that were caused by the victim being struck by a tree or limb.

8. There has been a 4.6 percent increase in the proportion of fatalities that were caused by a victim being pinned by an object or equipment on the farm.

9. There has been a nine-fold increase in the number of skid-steer loader fatalities in the past ten years.

## Recommendations

The farm injury and fatality surveillance activities in Indiana should be continued, and an emphasis should be made on improving the surveillance methods to eliminate some of the missing factors surrounding these incidents. Based on the analysis of farm work-related fatalities that occurred in Indiana between 1980 and 1989 and the comparison with the fatalities that occurred between 1970 and 1979, the following recommendations are made:

1. Considering that tractor rollovers are the cause of over one-fourth of Indiana's farm work-related fatalities, research should be conducted on studying feasible and acceptable methods, such as retrofitting of older tractors, to reduce tractor rollover-related fatalities. Education of farmers who own or operate tractors without rollover protective structures (ROPS) of the risks involved with tractor rollovers and how to prevent them from occurring is of equal importance until a solution to this problem is found.

2. With the finding that the risk of a farm work-related fatality is increasing for those farmers at the age of 65 and over, a program should be implemented to study the factors surrounding these individuals working on farm operations to determine what can be done to reduce the risk to this group.

3. Farmers involved in truck accidents while performing a task related to the farm operation is an area that is not presently addressed in surveillance activities. A program to conduct a surveillance of truck accidents involved with farm work should be implemented to determine the risk of farmers being injured of killed while using a truck to assist with a farm task.

4. A surveillance study of skid-steer loader accidents should be implemented, and an investigation of these accidents should be conducted to determine the circumstances involved with these fatalities.

5. A study should be conducted on incidents involving farmers and rural residents being killed while cutting wood or timber to determine how these incidents can be prevented in the future.

## References

Agricultural Statistics. 1990. Personal consultation with Agricultural Statistics Department. Purdue University, West Lafayette, Indiana.

Field, W. E., and Bailey, R. W. 1976. **A Summary of the 1976 Indiana Farm Accident Survey with a Brief Analysis of Fatalities on Indiana Farms, 1973–1976.** West Lafayette, Ind.: Purdue University, Cooperative Extension Service, 1976.

Field, W. E., Durkes, J. F., and Tormoehlen, R. L. 1980. Summarization of Indiana's Farm-Related Fatalities, 1970–1979. In: **Engineering a Safer Food Machine**, ASAE Special Publication 9-80. St. Joseph, Michigan: American Society of Agricultural Engineers.

Purschwitz, M. A. 1989. Development of a Data Collection System for Farm-Related Accidents Resulting in Injury. West Lafayette, IN: Department of Agricultural Engineering, Purdue University.

Purschwitz, M. A., and Field, W. E. 1989. Consistent Classification of Farm Accidents as Farm Work-Related, Recreational, Home-Related, or Other. ASAE Paper No. 89-5534. St. Joseph, Michigan: American Society of Agricultural Engineers.

## End Notes

[1] This paper originally presented at the National Institute for Farm Safety Summer Meeting in Waterloo, Ontario, June 17–21, 1990. NIFS Paper Number 90-4.

[2] Terry L. Wilkinson, Graduate Assistant in Research, Agricultural Engineering Department, Purdue University, West Lafayette, Indiana 47907

[3] William E. Field, Professor and Extension Safety Specialist, Agricultural Engineering Department, Purdue University, West Lafayette, Indiana 47907

[4] To suggest that the decline in death rate is primarily attributed to a reduction in farm numbers or population does not take into account that yields and total production of most major agricultural crops have continued to climb. In other words, the number of people involved may be declining but the exposure level for those remaining to selected hazardous tasks may be increasing.

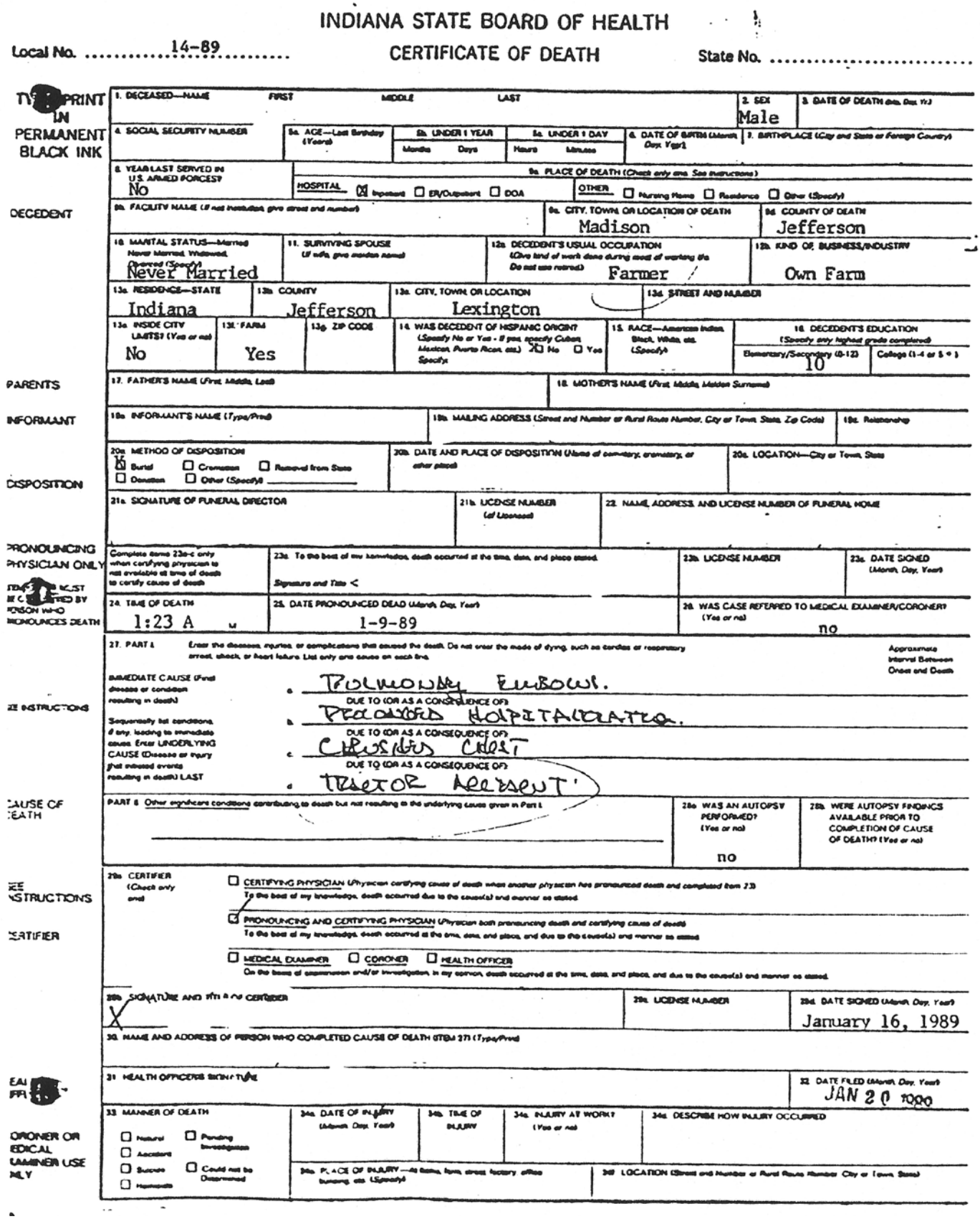
## Appendices

Appendix A. Indiana State Board of Health Certificate of Death (2 examples)

Appendix B. Press Clippings of Farm Work-Related Fatalities

Appendix C. Farm Accident Data Coding Sheet

## Appendix A. Indiana State Board of Health Certificate of Death (2 examples)



INDIANA STATE BOARD OF HEALTH

CERTIFICATE OF DEATH

Local No. 14-89 State No.

TYPE OR PRINT IN PERMANENT BLACK INK

DECEDENT

1. DECEASED—NAME (First, Middle, Last)
2. SEX: Male
3. DATE OF DEATH (Month, Day, Year)
4. SOCIAL SECURITY NUMBER
5a. AGE—Last Birthday (Years)
5b. UNDER 1 YEAR (Months, Days)
5c. UNDER 1 DAY (Hours, Minutes)
6. DATE OF BIRTH (Month, Day, Year)
7. BIRTHPLACE (City and State or Foreign Country)
8. YEAR LAST SERVED IN U.S. ARMED FORCES? No
9a. PLACE OF DEATH (Check only one. See instructions.) HOSPITAL ☒ Inpatient ☐ ER/Outpatient ☐ DOA OTHER ☐ Nursing Home ☐ Residence ☐ Other (Specify)
9b. FACILITY NAME (If not institution, give street and number)
9c. CITY, TOWN, OR LOCATION OF DEATH: Madison
9d. COUNTY OF DEATH: Jefferson
10. MARITAL STATUS—Married, Never Married, Widowed, Divorced (Specify): Never Married
11. SURVIVING SPOUSE (If wife, give maiden name)
12a. DECEDENT'S USUAL OCCUPATION (Give kind of work done during most of working life. Do not use retired): Farmer
12b. KIND OF BUSINESS/INDUSTRY: Own Farm
13a. RESIDENCE—STATE: Indiana
13b. COUNTY: Jefferson
13c. CITY, TOWN, OR LOCATION: Lexington
13d. STREET AND NUMBER
13e. INSIDE CITY LIMITS? (Yes or no): No
13f. FARM: Yes
13g. ZIP CODE
14. WAS DECEDENT OF HISPANIC ORIGIN? (Specify No or Yes - If yes, specify Cuban, Mexican, Puerto Rican, etc.) ☒ No ☐ Yes Specify
15. RACE—American Indian, Black, White, etc. (Specify)
16. DECEDENT'S EDUCATION (Specify only highest grade completed) Elementary/Secondary (0-12): 10 College (1-4 or 5+)

PARENTS

17. FATHER'S NAME (First, Middle, Last)
18. MOTHER'S NAME (First, Middle, Maiden Surname)

INFORMANT

19a. INFORMANT'S NAME (Type/Print)
19b. MAILING ADDRESS (Street and Number or Rural Route Number, City or Town, State, Zip Code)
19c. Relationship

DISPOSITION

20a. METHOD OF DISPOSITION: ☒ Burial ☐ Cremation ☐ Removal from State ☐ Donation ☐ Other (Specify)
20b. DATE AND PLACE OF DISPOSITION (Name of cemetery, crematory, or other place)
20c. LOCATION—City or Town, State

21a. SIGNATURE OF FUNERAL DIRECTOR
21b. LICENSE NUMBER (of Licensee)
22. NAME, ADDRESS, AND LICENSE NUMBER OF FUNERAL HOME

PRONOUNCING PHYSICIAN ONLY

Complete items 23a-c only when certifying physician is not available at time of death to certify cause of death

23a. To the best of my knowledge, death occurred at the time, date, and place stated. Signature and Title <
23b. LICENSE NUMBER
23c. DATE SIGNED (Month, Day, Year)

ITEMS 24 AND 25 MUST BE COMPLETED BY PERSON WHO PRONOUNCES DEATH

24. TIME OF DEATH: 1:23 A M
25. DATE PRONOUNCED DEAD (Month, Day, Year): 1-9-89
26. WAS CASE REFERRED TO MEDICAL EXAMINER/CORONER? (Yes or no): no

SEE INSTRUCTIONS

27. PART I. Enter the diseases, injuries, or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock, or heart failure. List only one cause on each line. Approximate Interval Between Onset and Death

IMMEDIATE CAUSE (Final disease or condition resulting in death)
a. PULMONARY EMBOLI.
DUE TO (OR AS A CONSEQUENCE OF)
b. PROLONGED HOSPITALIZATION.
Sequentially list conditions, if any, leading to immediate cause. Enter UNDERLYING CAUSE (Disease or injury that initiated events resulting in death) LAST
DUE TO (OR AS A CONSEQUENCE OF)
c. CHRONIC CHEST
DUE TO (OR AS A CONSEQUENCE OF)
d. TRACTOR ACCIDENT

CAUSE OF DEATH

PART II. Other significant conditions contributing to death but not resulting in the underlying cause given in Part I.

28a. WAS AN AUTOPSY PERFORMED? (Yes or no): no
28b. WERE AUTOPSY FINDINGS AVAILABLE PRIOR TO COMPLETION OF CAUSE OF DEATH? (Yes or no)

SEE INSTRUCTIONS

CERTIFIER

29a. CERTIFIER (Check only one)
☐ CERTIFYING PHYSICIAN (Physician certifying cause of death when another physician has pronounced death and completed item 23) To the best of my knowledge, death occurred due to the cause(s) and manner as stated.
☒ PRONOUNCING AND CERTIFYING PHYSICIAN (Physician both pronouncing death and certifying cause of death) To the best of my knowledge, death occurred at the time, date, and place, and due to the cause(s) and manner as stated.
☐ MEDICAL EXAMINER ☐ CORONER ☐ HEALTH OFFICER On the basis of examination and/or investigation, in my opinion, death occurred at the time, date, and place, and due to the cause(s) and manner as stated.

29b. SIGNATURE AND TITLE OF CERTIFIER: X
29c. LICENSE NUMBER
29d. DATE SIGNED (Month, Day, Year): January 16, 1989

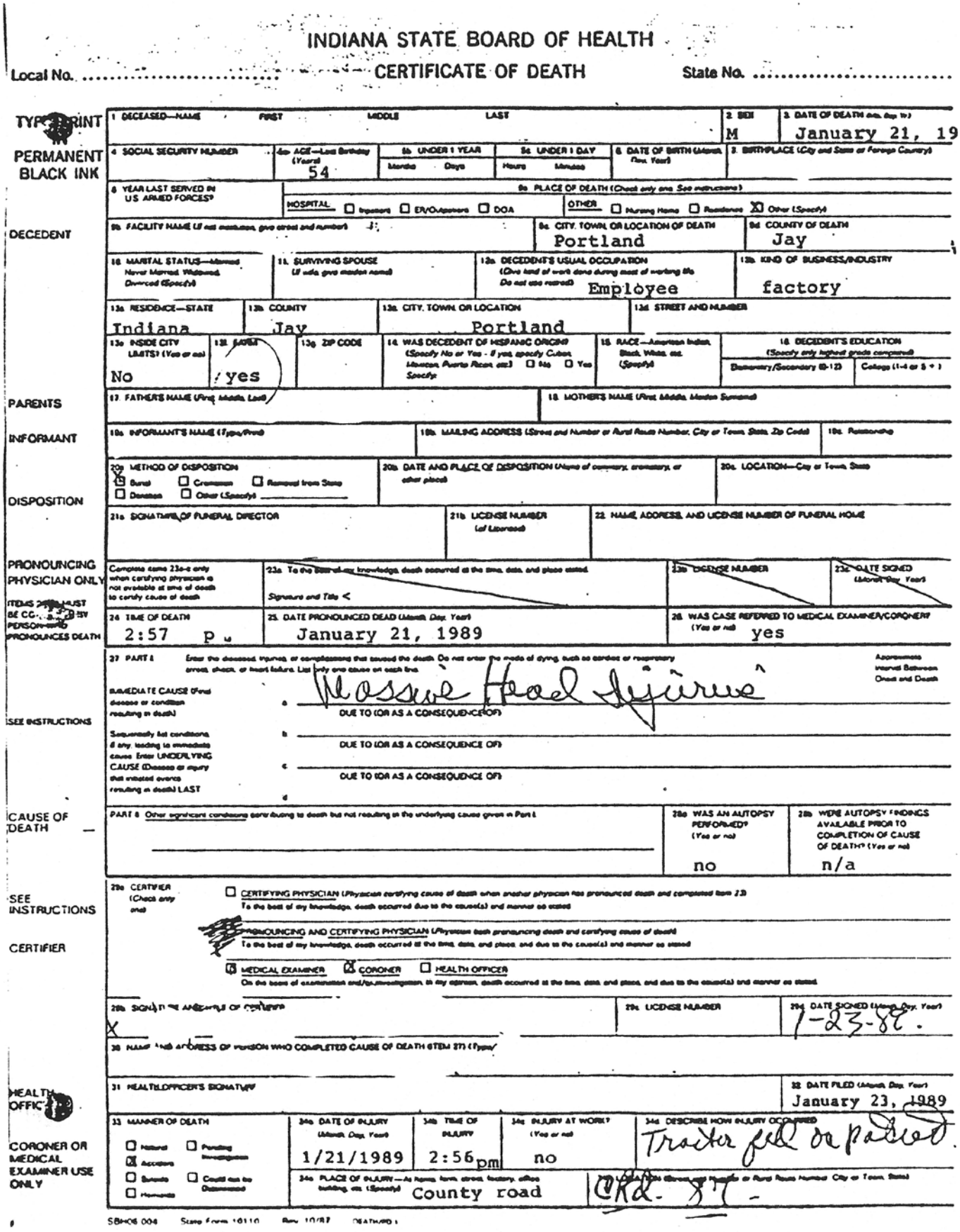
30. NAME AND ADDRESS OF PERSON WHO COMPLETED CAUSE OF DEATH (Item 27) (Type/Print)

FAX

31. HEALTH OFFICER'S SIGNATURE
32. DATE FILED (Month, Day, Year): JAN 20 1989

CORONER OR MEDICAL EXAMINER USE ONLY

33. MANNER OF DEATH: ☐ Natural ☐ Accident ☐ Suicide ☐ Homicide ☐ Pending Investigation ☐ Could not be Determined
34a. DATE OF INJURY (Month, Day, Year)
34b. TIME OF INJURY
34c. INJURY AT WORK? (Yes or no)
34d. DESCRIBE HOW INJURY OCCURRED
34e. PLACE OF INJURY—At home, farm, street, factory, office building, etc. (Specify)
34f. LOCATION (Street and Number or Rural Route Number, City or Town, State)



INDIANA STATE BOARD OF HEALTH

Local No. ..... CERTIFICATE OF DEATH State No. .....

TYPE OR PRINT
PERMANENT BLACK INK

DECEDENT

1 DECEASED—NAME (First, Middle, Last)

2 SEX: M

3 DATE OF DEATH (Mo., Day, Yr.): January 21, 19

4 SOCIAL SECURITY NUMBER

4a AGE—Last Birthday (Years): 54

4b UNDER 1 YEAR (Months, Days)

4c UNDER 1 DAY (Hours, Minutes)

5 DATE OF BIRTH (Month, Day, Year)

6 BIRTHPLACE (City and State or Foreign Country)

7 YEAR LAST SERVED IN U.S. ARMED FORCES?

8a PLACE OF DEATH (Check only one. See instructions.)
HOSPITAL ☐ Inpatient ☐ ER/Outpatient ☐ DOA
OTHER ☐ Nursing Home ☐ Residence ☒ Other (Specify)

8b FACILITY NAME (If not institution, give street and number)

8c CITY, TOWN, OR LOCATION OF DEATH: Portland

8d COUNTY OF DEATH: Jay

10 MARITAL STATUS—Married, Never Married, Widowed, Divorced (Specify)

11 SURVIVING SPOUSE (If wife, give maiden name)

12a DECEDENT'S USUAL OCCUPATION (Give kind of work done during most of working life. Do not use retired): Employee

12b KIND OF BUSINESS/INDUSTRY: factory

13a RESIDENCE—STATE: Indiana

13b COUNTY: Jay

13c CITY, TOWN, OR LOCATION: Portland

13d STREET AND NUMBER

13e INSIDE CITY LIMITS? (Yes or no): No

13f [illegible]: yes

13g ZIP CODE

14 WAS DECEDENT OF HISPANIC ORIGIN? (Specify No or Yes - If yes, specify Cuban, Mexican, Puerto Rican, etc.) ☐ No ☐ Yes Specify:

15 RACE—American Indian, Black, White, etc. (Specify)

16 DECEDENT'S EDUCATION (Specify only highest grade completed)
Elementary/Secondary (0-12) College (1-4 or 5+)

PARENTS

17 FATHER'S NAME (First, Middle, Last)

18 MOTHER'S NAME (First, Middle, Maiden Surname)

INFORMANT

19a INFORMANT'S NAME (Type/Print)

19b MAILING ADDRESS (Street and Number or Rural Route Number, City or Town, State, Zip Code)

19c Relationship

DISPOSITION

20a METHOD OF DISPOSITION: ☒ Burial ☐ Cremation ☐ Removal from State ☐ Donation ☐ Other (Specify) _____

20b DATE AND PLACE OF DISPOSITION (Name of cemetery, crematory, or other place)

20c LOCATION—City or Town, State

21a SIGNATURE OF FUNERAL DIRECTOR

21b LICENSE NUMBER (of Licensee)

22 NAME, ADDRESS, AND LICENSE NUMBER OF FUNERAL HOME

PRONOUNCING PHYSICIAN ONLY

Complete items 23a-c only when certifying physician is not available at time of death to certify cause of death

23a To the best of my knowledge, death occurred at the time, date, and place stated.
Signature and Title <

23b LICENSE NUMBER

23c DATE SIGNED (Month, Day, Year)

ITEMS 24-26 MUST BE COMPLETED BY PERSON WHO PRONOUNCES DEATH

24 TIME OF DEATH: 2:57 p.m.

25 DATE PRONOUNCED DEAD (Month, Day, Year): January 21, 1989

26 WAS CASE REFERRED TO MEDICAL EXAMINER/CORONER? (Yes or no): yes

SEE INSTRUCTIONS

27 PART I. Enter the diseases, injuries, or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock, or heart failure. List only one cause on each line.

IMMEDIATE CAUSE (Final disease or condition resulting in death)
a. Massive Head Injuries
DUE TO (OR AS A CONSEQUENCE OF)

Sequentially list conditions, if any, leading to immediate cause. Enter UNDERLYING CAUSE (Disease or injury that initiated events resulting in death) LAST
b.
DUE TO (OR AS A CONSEQUENCE OF)
c.
DUE TO (OR AS A CONSEQUENCE OF)
d.

Approximate Interval Between Onset and Death

CAUSE OF DEATH

PART II. Other significant conditions contributing to death but not resulting in the underlying cause given in Part I

28a WAS AN AUTOPSY PERFORMED? (Yes or no): no

28b WERE AUTOPSY FINDINGS AVAILABLE PRIOR TO COMPLETION OF CAUSE OF DEATH? (Yes or no): n/a

SEE INSTRUCTIONS

CERTIFIER

29a CERTIFIER (Check only one)

☐ CERTIFYING PHYSICIAN (Physician certifying cause of death when another physician has pronounced death and completed Item 23)
To the best of my knowledge, death occurred due to the cause(s) and manner as stated

☐ PRONOUNCING AND CERTIFYING PHYSICIAN (Physician both pronouncing death and certifying cause of death)
To the best of my knowledge, death occurred at the time, date, and place, and due to the cause(s) and manner as stated

☒ MEDICAL EXAMINER ☒ CORONER ☐ HEALTH OFFICER
On the basis of examination and/or investigation, in my opinion, death occurred at the time, date, and place, and due to the cause(s) and manner as stated

29b SIGNATURE AND [illegible] OF CERTIFIER
X

29c LICENSE NUMBER

29d DATE SIGNED (Month, Day, Year): 7-23-88.

30 NAME AND ADDRESS OF PERSON WHO COMPLETED CAUSE OF DEATH (ITEM 27) (Type/Print)

HEALTH OFFICER

31 HEALTH OFFICER'S SIGNATURE

32 DATE FILED (Month, Day, Year): January 23, 1989

CORONER OR MEDICAL EXAMINER USE ONLY

33 MANNER OF DEATH
☐ Natural ☐ Pending Investigation
☒ Accident
☐ Suicide ☐ Could not be Determined
☐ Homicide

34a DATE OF INJURY (Month, Day, Year): 1/21/1989

34b TIME OF INJURY: 2:56 pm

34c INJURY AT WORK? (Yes or no): no

34d DESCRIBE HOW INJURY OCCURRED: Tractor fell on patient.

34e PLACE OF INJURY—At home, farm, street, factory, office building, etc. (Specify): County road

[illegible] (Street and Number or Rural Route Number, City or Town, State): @Rd. 37 -

SBH06 004 State Form 10110 Rev. 10/87 DEATHWRD

**Appendix B. Press Clippings of Farm Work-Related Fatalities**

# Farmer suffocated by picker

Oct 10, 1989

TIPTON, Ind. — A 49-year-old rural Kempton man died Monday morning of asphyxiation because of a farm-related accident, according to Tipton County Coronor Robert Nichols.

James Gabriel, Kempton R.R. 1, died when his clothes got caught in a corn picker he was oiling and greasing at the time. Nichols said the clothes Gabriel was wearing were pulled into the machine, strangling him.

Gabriel's body was found around 11 a.m. by a Pioneer Hi-Bred International Inc. employee. Nichols placed the time of death around 9:30 a.m.

The coroner said this was the first farm-related fatality in Tipton County this year.

## Tipton County Farmer Dies in Machine Accident

TIPTON, Ind. — A 49-year-old rural Kempton man died of asphyxiation in a farm accident, authorities said.

James Gabriel was killed Monday when his clothes got caught in a corn picker that he was oiling and greasing, said Tipton County Coronor Robert Nichols.

He said Gabriel stangled after being pulled into the machine.

Nichols said it was the first farm-related fatality in Tipton County this year.

## Farm accident kills man strangled in corn picker

TIPTON, Ind. — A 49-year-old rural Kempton man died of asphyxiation in a farm accident, authorities said.

James Gabriel was killed Monday when his clothes got caught in a corn picker that he was oiling and greasing, said Tipton County Coronor Robert Nichols. He said Gabriel strangled after being pulled into the machine.

# Corn picker kills farmer

TIPTON, Ind. (AP) — A 49-year-old rural Kempton man died of asphyxiation in a farm accident, authorities said.

James Gabriel was killed Monday when his clothes got caught in a corn picker that he was oiling and greasing, said Tipton County Coronor Robert Nichols.

He said Gabriel stangled after being pulled into the machine.

Nichols said it was the first farm-related fatality in Tipton County this year.

ANDERSON HERALD/BULLETIN
Wednesday, October 11, 1989

## Appendix C. Farm Accident Data Coding Sheet

(4/17/89)

### Farm Accident Data Coding Sheet

Case Number _____

A. Accident date (mo/dy/yr): _____ Accident time (military): _____
(morning = 2500)
(afternoon = 2600)
(evening = 2700)
(unknown = 2800)

Age: _____ (unknown = 99) Sex: ☐ 1. male ☐ 2. female

Relationship:
☐ 1. farm operator (includes retired)
☐ 2. family member
☐ 3. hired farm worker
☐ 4. outside contractor (providing service)
☐ 5. visitor
☐ 6. other (specify in narrative)
☐ 7. unknown

If farm operator/worker: ☐ 1. full-time ☐ 2. part-time ☐ 3. unknown ☐ 4. NA

Is residence on a farm? ☐ 1. yes ☐ 2. no ☐ 3. unknown

Farm type, primary, where accident occurred:
☐ 1. cash grain
☐ 2. livestock
☐ 3. dairy
☐ 4. poultry
☐ 5. fruits or vegetables
☐ 6. diversified
☐ 7. other (specify in narrative)
☐ 8. unknown

B. Type of accident (check one)

☐ 1. Farm truck accident (any location)
☐ 2. Roadway collision involving farm tractor or equipment
☐ 3. Tractor rollover (tractor tipped over)
☐ 4. Tractor runover (tractor ran over the victim)
☐ 5. Tractor accident, unspecified
☐ 6. Equipment (non-tractor) rollover (the equipment tipped over)
☐ 7. Equipment (non-tractor) runover (the equipment ran over the victim)
☐ 8. Entanglement in equipment
☐ 9. Miscellaneous pinch, cut, mash tractor/equipment injury
☐ 10. Equipment accident, unspecified
☐ 11. Pinned against, between, or underneath an object or equipment (does not include rollovers or runovers)
☐ 12. Struck by flying, falling, rotating object
☐ 13. Entrapped and covered by grain, feed, or other loose material
☐ 14. Asphyxiation, poisoning, or drowning inside a manure storage pit or tank
☐ 15. Asphyxiation or poisoning inside a silo
☐ 16. Drowning in pond, lagoon, or water tank
☐ 17. Chemical poisoning or burn
☐ 18. Fall (except when run over by tractor or equipment)
☐ 19. Struck by a tree or tree limb
☐ 20. Chain saw injury
☐ 21. Electrocution
☐ 22. Fire
☐ 23. Animal-related injury (specify in narrative)
☐ 24. Lawn or garden equipment accident
☐ 25. ATV accident
☐ 26. Hand tool or power tool injury
☐ 27. Hunting or firearm accident
☐ 28. Other (specify in narrative)
☐ 29. Unknown

C. Site of accident (check one):

- ☐ 1. Field or commercial orchard
- ☐ 2. Farm yard (area around farm buildings and structures)
- ☐ 3. House yard (area around house; family garden or family orchard)
- ☐ 4. Woods
- ☐ 5. Irrigation or drainage ditch
- ☐ 6. Farm driveway, lane, or ditch alongside
- ☐ 7. Public road, right-of-way, or ditch alongside
- ☐ 8. Inside farm building or storage structure (except house)
- ☐ 9. Farm, unspecified
- ☐ 10. Other (specify in narrative)
- ☐ 11. Unknown

D. Description of what victim was doing and how the accident occurred (narrative):

_____

_____

_____

_____

_____

_____

_____

E. Possible contributing factors or unusual circumstances, if any--(such as: environmental conditions, equipment failure, physiologic conditions, etc.)

_____

_____

F. Accident was: ☐ 1. farm work-related ☐ 4. other
☐ 2. recreational ☐ 5. unknown
☐ 3. home-related

If farm work-related, was victim working? ☐ 1. yes ☐ 2. no ☐ 3. unknown ☐ 4. NA

G. If the accident involved any farm-related trucks, tractors, equipment, or structures, please check below the single main item involved. ***Select only one*** (others go in narrative):

**Farm Truck**

☐ 1. pickup
☐ 2. straight, grain, flatbed
☐ 3. semi
☐ 4. type unspecified

**Tractor or loader**

☐ 5. tractor, farm or unspecified
☐ 6. farm tractor with loader
☐ 7. garden tractor
☐ 8. skid-steer loader

**Harvesting Machines**

☐ 9. self-propelled combine/picker or combine, unsp.
☐ 10. pull-type combine
☐ 11. corn picker, pull-type or unspecified
☐ 12. self-propelled forage harvester
☐ 13. forage harvester, pull-type or unspecified
☐ 14. hay baler (round bales)
☐ 15. hay baler (rectangular bales)
☐ 16. hay baler, unspecified

**Mowing Machines**

☐ 17. rotary mower (farm type)
☐ 18. flail mower/shredder
☐ 19. sicklebar or disc mower
☐ 20. mower, unspecified
☐ 21. pull-type mower conditioner
☐ 22. self-propelled windrower

**Implements for Tillage/Planting/Fertilizing/Spraying**

☐ 23. planter or grain drill
☐ 24. tillage tool (plow, disc harrow, etc.)
☐ 25. cultivator or rotary hoe
☐ 26. anhydrous ammonia tank/applicator
☐ 27. fertilizer spreader
☐ 28. sprayer, spray pump, or spray tank

**Wagons**

☐ 29. gravity-flow grain wagon
☐ 30. auger grain wagon
☐ 31. grain wagon, unspecified
☐ 32. self-unloading forage wagon
☐ 33. feed wagon
☐ 34. flatbed wagon (may have hay rack)
☐ 35. miscellaneous wagon/cart

**Manure Handling Equipment**

☐ 36. liquid manure spreader/tanker
☐ 37. manure spreader for solids
☐ 38. manure spreader, unspecified
☐ 39. manure pump/lagoon pump
☐ 40. barn cleaner

**Feed and Grain Handling Equipment**

☐ 41. feed grinder/mixer, portable or unspecified
☐ 42. stationary feed grinder/mixer
☐ 43. hay grinder (tub grinder)
☐ 44. livestock feeder (auger type, belt type, etc.)
☐ 45. portable (wheeled) auger
☐ 46. non-portable auger or in-bin auger
☐ 47. auger, unspecified
☐ 48. portable (wheeled) elevator/conveyor
☐ 49. non-portable elevator/conveyor
☐ 50. silo unloader, top
☐ 51. silo unloader, bottom
☐ 52. forage blower (silo filler)
☐ 53. grain dryer

**Miscellaneous Equipment**

☐ 54. hay rake
☐ 55. post hole auger/digger
☐ 56. irrigation system or pipe
☐ 57. milking equipment
☐ 58. all-terrain vehicle (ATV)

**Farm Structures**

☐ 59. oxygen-limiting silo (airtight silo)
☐ 60. non-oxygen-limiting silo
☐ 61. bunker/pit silo
☐ 62. silo, unspecified
☐ 63. grain bin
☐ 64. feed bin (ground feed)
☐ 65. corn crib (ear corn)
☐ 66. manure pit (below ground)
☐ 67. manure storage tank (above ground)
☐ 68. machine shed or shop
☐ 69. barn or other livestock building

**Other:**

☐ 70. Other (list type below or in narrative)
☐ 71. Unknown
☐ 72. NA

PTO accident? (entangled in or struck by PTO shaft): ☐ 1. yes ☐ 2. no ☐ 3. unknown ☐ 4. NA

If make, model, or year of equipment known, please specify:

_____

(4/17/89)

H. If tractor or skid-steer loader, did it have ROPS? ☐ 1. yes ☐ 3. unknown ☐ 2. no ☐ 4. NA

If tractor, configuration: ☐ 1. wide front axle ☐ 4. unknown ☐ 2. tricycle ☐ 5. NA ☐ 3. articulated

I. Injuries: _____

_____

Injury severity: ☐ 1. minor ☐ 2. severe ☐ 3. permanent ☐ 4. fatal ☐ 5. unknown