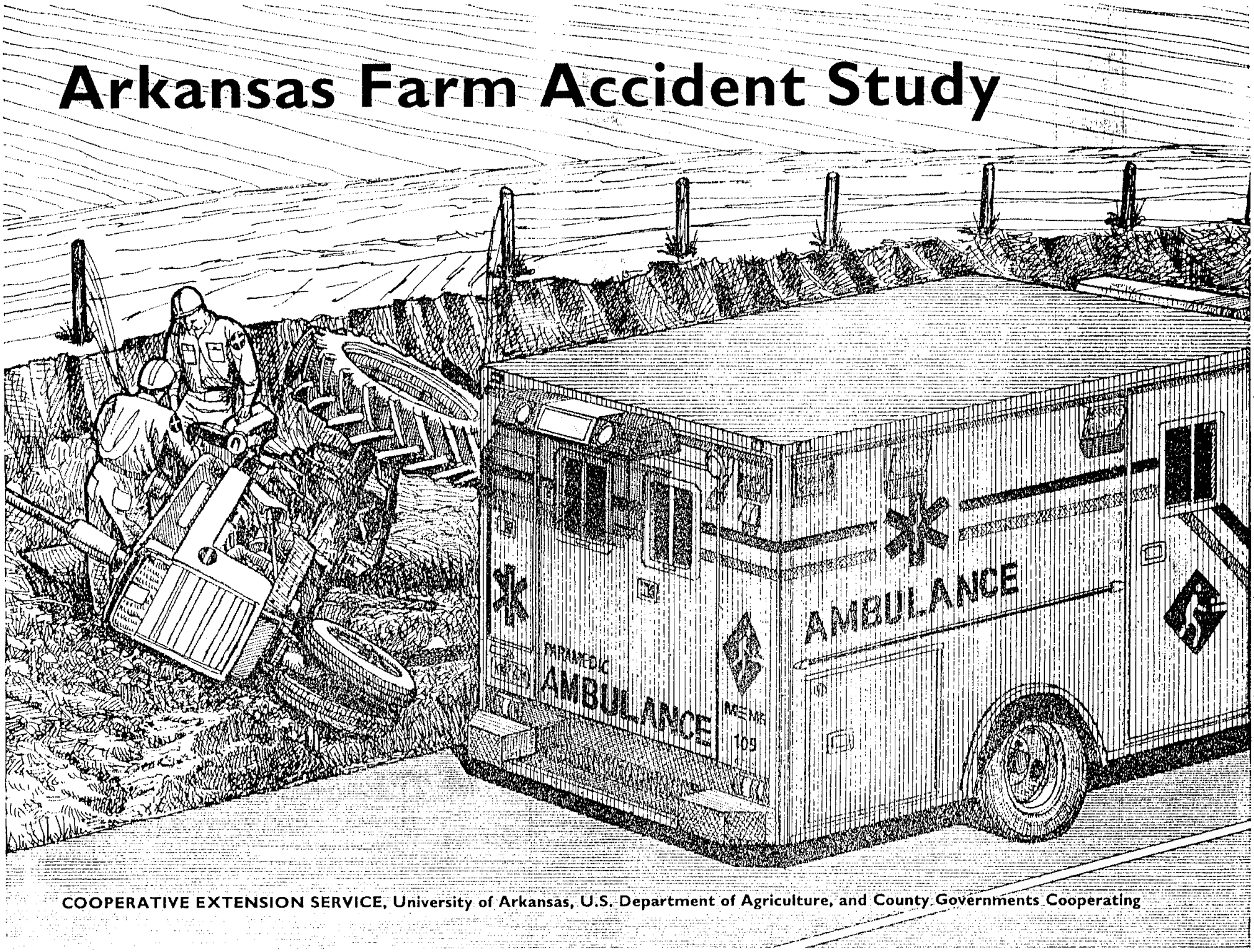
Arkansas Farm Accident Study



COOPERATIVE EXTENSION SERVICE, University of Arkansas, U.S. Department of Agriculture, and County Governments Cooperating

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Special thanks to the many volunteers from Extension Homemaker Clubs, 4-H Clubs, Women Involved in Farm Economics (WIFE), Farm Bureau, and other farm organizations who personally contacted farm families to complete questionnaires.

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Arkansas Farm Accident Study

by BRINGLE JENNINGS, Extension Safety Specialist

Purpose of Study

Accidents are a serious problem for those who live and work on Arkansas farms. A better understanding of the circumstances surrounding the accidents is important in addressing the problem. The study:

1. identifies the most common types of farm accidents occurring to farm families and employees;

2. specifically identifies high risk farm-related activities, age groups, kinds of injuries, and severity of accidents; and

3. provides a basis for developing and implementing safety educational programs to reduce the hazards and risks confronting farm families and employees.

Information in this report can be used as a basis for discussion, demonstrations, displays, talks, news releases, radio programs, and television shows. This information should make farm families more aware of the farm accident situation and of unsafe conditions existing around the farm.

Each family should inspect the farm and home for accident hazards and remove or minimize those found. The safety of a family depends on its alertness to hazards and safety practices adopted.

Procedures

This study was completed through joint efforts of the University of Arkansas Cooperative Extension Service and the National Safety Council.

A random sample of farms in 20 of 75 Arkansas counties was involved in the study. The sample represented all types of agriculture in the state. Extension Homemaker Clubs, 4-H Clubs, Women Involved in Farm Economics (WIFE), Farm Bureau, and other farm organization groups provided the volunteer interviewers. The volunteers were trained and sample farm families were interviewed every four months to get a cumulative record of accidents. The study began on January 1, 1985, and ended on December 31, 1985.

A total of 738 farms were included in the study. Data collected from those farms were sent to county Extension offices. The information was then forwarded to the state Cooperative Extension office for analysis. The National Safety Council also received results of the study.

Definition of Terms

Three definitions you should be familiar with when reviewing this report are:

Accident — an unintentional injury

A. to any person

   1. living on a farm, regardless of where the injury occurred (home, yard, highway, etc.),
   2. visiting a farm, or
   3. working on a farm when the injury occurs there and which

B. requires professional medical care or loss of one-half day or more from usual activities (work or play).

Professional Medical Care — Contact with a physician by phone or in person is considered professional medical care. The service

may be given by the physician, a nurse, or by another person acting under the physician's direction or supervision. This includes a member of the family if he or she was following the physician's directions.

Severity of Injury — A fatal injury is one resulting in a death during the survey period; a permanent injury includes any loss of full use of part of the body such as amputation; a severe injury includes a broken leg, cut ligament, sprained back; a slight injury includes minor cuts, sprains, and burns.

Accidental Injury Rates

Some 218 injuries were reported that occurred on 738 farms surveyed. The results show that one injury was reported for every 3.4 farms in the survey; or stated another way, there were 29.5 injuries per 100 farms. When projected, these rates show that there were approximately 15,000 injuries to Arkansas farm residents in 1985.

The following tables and charts give more specific information on the "what," "when," "where," and "how" the injuries occurred.

Size of Farms in Study

All sizes of farms were represented in the sample. The small farms under 100 acres accounted for 22.2 percent of the sample with 36.3 percent being larger than 500 acres. The remaining 41.5 percent were farms between 100 and 500 acres. See Table 1 for breakdown.

Table 1. Size of Farms in Study

Acreage	Number of Farms	Percentage of Total
1-49	90	12.2
50-99	74	10.0
100-199	121	16.4
200-499	185	25.1
500-999	126	17.1
1000+	142	19.2
Total Farms	738	100.0

Accidents by Size of Farm

All farm sizes seem to have their share of hazards with the largest farms, in general, reporting a slightly higher percentage of accidents. The smallest farms reported a slightly lower percentage of accidents. Table 2 indicates, however, that safety should be a priority on all farms regardless of size.

Table 2. Accidents by Size of Farm

Size of Farm	Number of Accidents	Percentage of Sample	Percentage of Accidents
1-49	18	12.2	8.3
50-99	24	10.0	11.0
100-199	34	16.4	15.6
200-499	60	25.1	27.5
500-999	31	17.1	14.2
1000+	51	19.2	23.4
Total	218	100.0	100.0

Accidents by Type of Farm

The study shows that all types of farms are susceptible to accidents. Poultry and dairy farms reported a slightly higher percentage of accidents than other farms. For example, poultry farms made up only 10.6 percent of the total sample but accounted for 15.1 percent of total accidents. Dairy farms made up 7.3 percent of the sample but had 13.8 percent of the accidents. Table 3 compares the percentage of different types of farms in the study to the percentage of accidents occurring on the various type farms. This table indicates that all types of farm enterprises should be actively engaged in ongoing safety programs.

Table 3. Accidents by Type of Farm

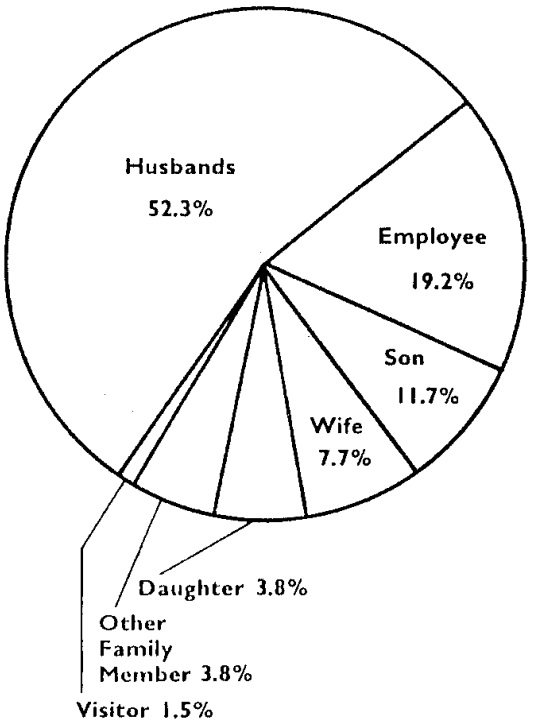
Type of Farm	Number of Accidents	Percentage of Sample	Percentage of Accidents
Beef	54	33.2	24.8
Rice	35	14.6	16.1
Poultry	33	10.6	15.1
Dairy	30	7.3	13.8
Soybeans	24	13.0	11.0
Cotton	17	6.5	7.8
Other	25	14.8	11.4
Total	218	100.0	100.0

Who Was Hurt?

The study shows that the husband was injured in more than 50 percent of the accidents, with the employee a distant second, followed by sons and wives. When the five groups — husband, wife, son, daughter, and other family members — are combined (a family farm), this group accounted for 79.1 percent of the injuries. Employees comprise 19.2 percent of those remaining injuries. The major burden of farm-related accidents in Arkansas is shouldered by the farm family. Figure 1 gives more details.

The 25 to 64 age group suffered a majority of the accidents, which was expected, because this is the age group that does most of the farm work. It indicates, however, that safety is not just for kids. The entire family and all employees should be concerned about safety. See Table 4 on page 6 for breakdown by ages.

Figure 1. Who Was Hurt?



A large majority of accident victims were male, which was also expected, because of the larger number of males doing farm work. See Figure 2.

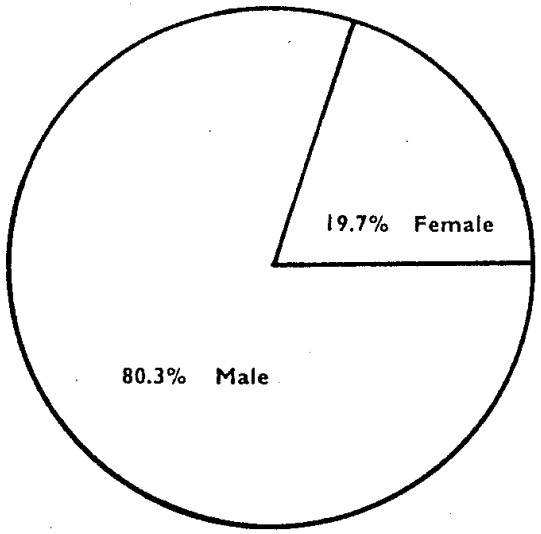


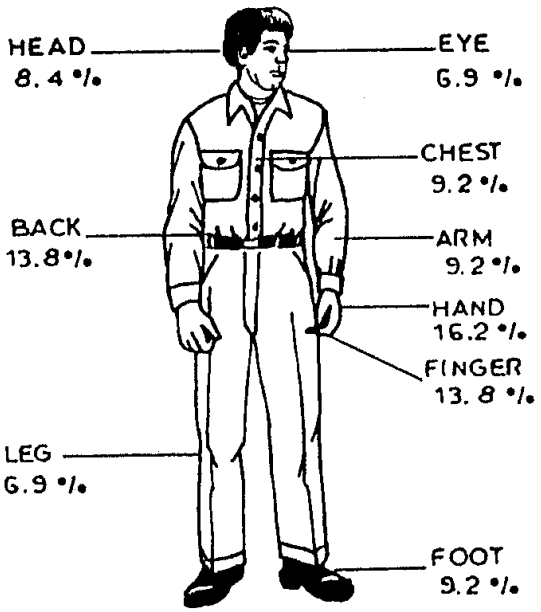
Figure 2. Sex of Victims

Table 4. Age of Accident Victim

Age	Number of Accidents	Percentage
1-4	4	1.8
5-14	30	13.8
15-24	36	16.5
25-44	87	39.9
45-64	52	23.9
65+	9	4.1

Parts of Body Injured

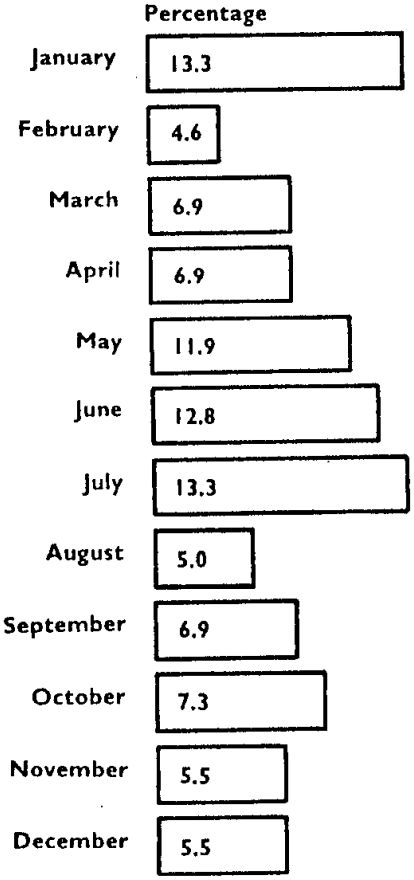
Figure 3 shows the parts of the body reported as receiving the majority of injuries. Many of the injuries could have been prevented if proper protective clothing and equipment had been worn. Most all of the eye injuries which were caused by dust, chemicals, metal chips, and other flying particles could have been prevented by wearing safety glasses or goggles. The foot injuries could have been prevented by wearing shoes with safety toes. Gloves could have protected the hand and fingers in many instances. Many of the back injuries were caused by improper lifting techniques.



Months Accidents Occurred

Figure 4 indicates the months that the injuries occurred. Accidents occurred during every month of the year with January and July being the high months and February and August the low months.

Figure 4. Months that Accidents Occurred



Activity of Victims

The injuries were divided by work and nonwork. A large percentage of the accidents (69.3 percent) occurred while working on the farm as indicated in Figure 5. This shows a real need for occupational safety programs for the farm family and employees.

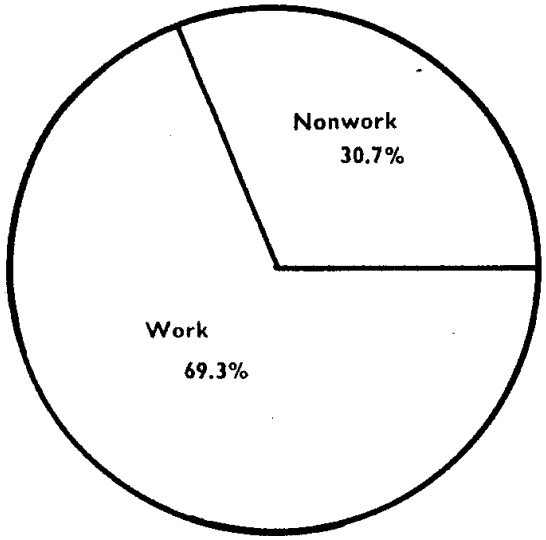


Figure 5. Activity of Victim.

Nonwork accidents contributed to a significant number of serious accidents (30.7 percent) involving automobiles, all-terrain vehicles (ATVs), bicycles, and other sports or recreational equipment. This study, along with other reports, indicates a real need for educational programs on three- and four-wheel ATVs.

Types of Work-Related Injuries

A majority of work-related injuries involved cuts, sprains, bruises, and fractures. The injuries occurred most often when the worker was repairing or servicing machinery, handling livestock, operating tractors, or doing routine chores.

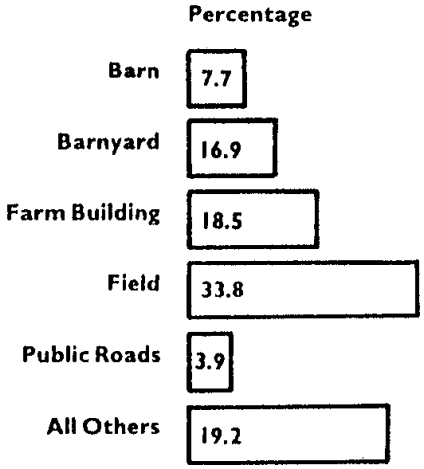
Table 5. Types of Work-Related Injuries Occurring

Type of Injury	Number of Accidents	Percentage
Cut	32	24.6
Sprain	26	20.0
Bruise	23	17.7
Fracture	15	11.5
Eye Injury	9	6.9
Puncture	6	4.6
Crushed	5	3.8
Amputation	2	1.5
Burns	2	1.5
Other	10	7.9

Where Work Accidents Occurred

A majority of the accidents occurred in the fields and in the farmstead buildings. Other locations include public places, ponds, and other locations off the farm.

Figure 6. Where Work Accidents Occurred



How the Work Injury Happened

Most of the injuries occurred when the victims were caught in, between, under, or struck by objects. Falls also contributed to a significant number of injuries. Other victims were injured by inhaling gas, exposure to toxic substances, overexertion, and contact with fire and electrical current.

Table 6. How Work Injuries Occurred

	Percentage
Caught in, between, or under objects	21.5
Struck by or against object	20.0
Struck by flying, falling or moving object	16.2
Falls	14.7
Contact with sharp object	8.5
All others	19.1

What Was Involved in the Accident?

Farm machinery and tractors were involved in more than one-third (37.7 percent) of all work-related accidents. Animals accounted for 22 percent of the accidents.

A majority of the farm tractors involved in accidents (56.6 percent) were over 6 years old with 36 percent being over 10 years old.

Harvesting equipment accounted for the highest number of accidents with farm machinery. Making repairs or adjustments without stopping the engine was a cause of many machinery accidents.

The most common animal-related injuries involved cows, calves, and bulls. Most of the injuries occurred in chutes and pens while castrating or administering medication. The worker was usually kicked or caught between the animal and solid objects.

Table 7. What Was Involved in the Accident?

Agency of Accident	Number of Accidents	Percentage of Accidents
Tractors and farm machinery	49	37.7
Animals	29	22.3
Hand tools	9	6.9
Trucks	8	6.2
Other vehicles	8	6.2
Power tools	6	4.6
Chemicals	4	3.1
All others	17	13.1

The study indicates that priority should be given to accident prevention programs relating to farm machinery, tractors, and animals. Hand tools, power tools, trucks, and other vehicles were also involved in a significant number of accidents.

Nonwork Injuries

A high percentage of nonwork injuries involved cuts, sprains, and fractures as indicated in Table 8. The home was the location of the most nonwork injuries followed by public buildings and facilities (schools, parks, lakes, etc.), highways, and the home yard. Motor vehicles, motorcycles, bicycles, all-terrain vehicles, and sports or recreation equipment were the things associated with many of the accidents.

Table 8. Nonwork Injuries

Type of Injury	Number of Injuries	Percentage
Cut	26	29.5
Sprain	21	23.9
Fracture	20	22.7
Bruise	11	12.5
Burn	4	4.5
Other	6	6.8

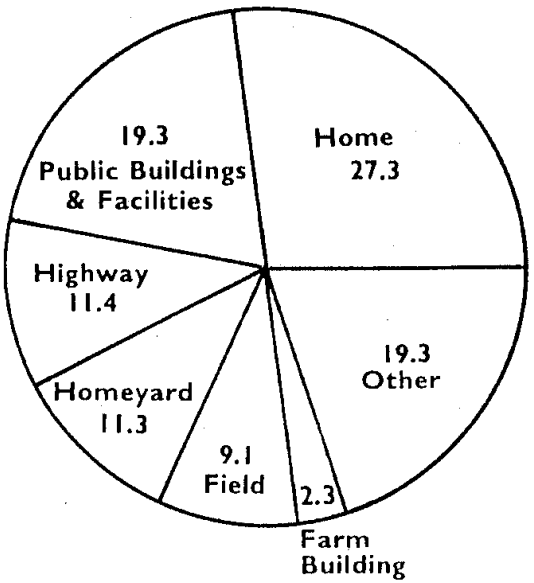


Figure 7. Location of Nonwork Accidents

Severity of Accidents

A permanent injury includes any loss of full use of part of the body such as amputation; a severe injury includes a broken leg, cut ligament, sprained back; a slight injury includes minor cuts, sprains, and burns.

More than 60 percent of the injuries reported were considered to be severe. Two injuries (amputations) were severe enough to cause permanent impairment. Injuries considered to be slight accounted for 39 percent of the total. Although there were approximately 35 farm fatalities in the state during the time of this study, no fatalities occurred on the sample farms.

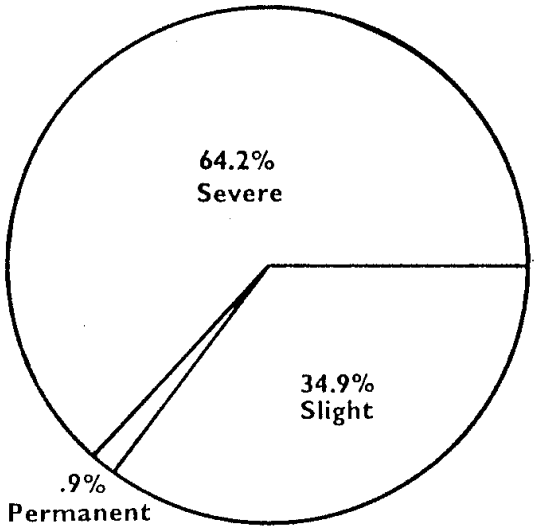


Figure 8. Severity of Accidents

Summary

- Two hundred eighteen (218) injuries were reported on 738 farms.
- One accident was reported for every 3.4 farms, or there were 29.5 accidents per 100 farms in the study.
- Injuries to all Arkansas farm residents would project to almost 15,000 during the survey period.
- A majority (64.2 percent) of all injuries reported were considered severe, 34.9 percent were classified as slight, and .9 percent permanent.
- Almost 70 percent of all injuries reported were from work-related accidents with 30 percent being nonwork injuries.
- Farm families were involved in 79.1 percent of all accidents, employees in 19.2 percent, and visitors in 1.5 percent.
- Males suffered 80 percent of the total injuries reported.

— A majority of the victims (63.8 percent) were between the ages of 25 and 64. The 15-24 age group accounted for 16.9 percent of the injuries.

— Tractors and farm machinery were involved in 37.7 percent of all reported accidents.

— Livestock treatment or handling was the cause of another 22.3 percent of the injuries reported.

— The accidents reported occurred on all types and sizes of farms.

Conclusions

This study, along with newspaper clippings and other reports, concludes that the accident rate in Arkansas agriculture is extremely high. There is a real need for all organizations and groups associated with agriculture to increase their safety educational efforts. Farm family members and employees should be aware of the hazards associated with farming, kinds of accidents, and what can be done to prevent many of these accidents.

Increased emphasis should be placed on tractor, farm machinery, and animal safety because of the high number of accidents in those areas.

Educational efforts should be strengthened to increase the awareness of tractor and machinery operators of the hazards associated with power take-off components and the importance of shields because of the many accidents involving the PTO.

Continued emphasis should be placed on the use of personal protective equipment for the eyes, feet, hands, ears, and respiratory system to reduce the number and severity of injuries.

Tractor and machinery operators should constantly be encouraged to ban extra riders on farm equipment since extra riders lead to several fatalities each year. Many times these are children.

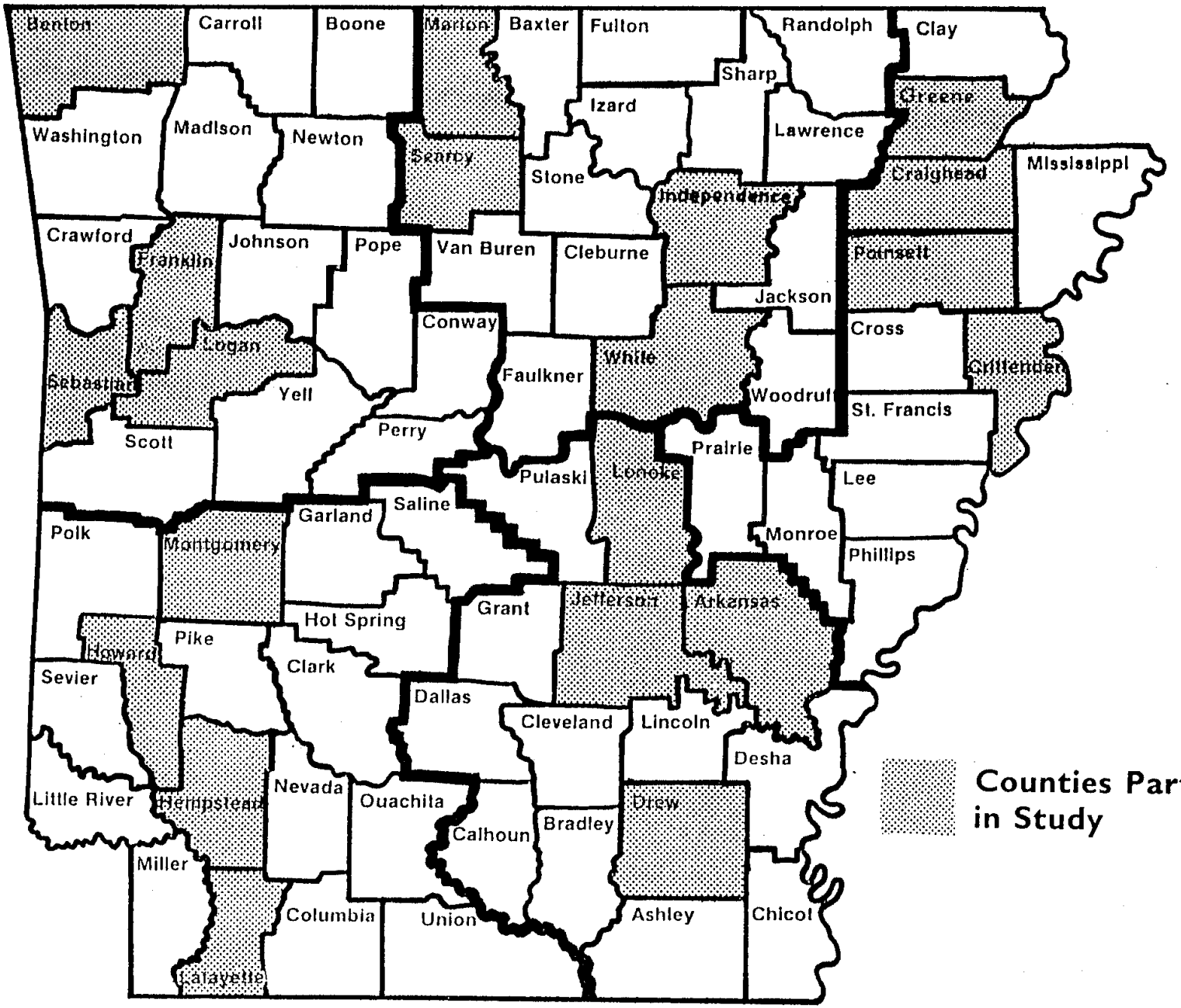
Increased efforts should be made to reach the 24-64 age group with more safety educational programs. This group is involved in a large percentage of farm accidents, but they are the most difficult group to reach with safety programs.

Efforts should be continued to encourage and support 4-H, home economics, farm organizations, and vocational agricultural safety programs. These groups reach a large percentage of the farm population.

The nonwork accidents reported show a real need for more safety educational programs in the areas of home, highway, bicycle, and all-terrain vehicles (ATVs). Three- and four-wheel ATVs are rapidly becoming one of the major safety problems.

Fire prevention educational programs should continue to be emphasized, especially during the fall and winter months when most home fires occur. This study did not cover home fires, but other reports indicate this to be a real problem.

Efforts should be strengthened to increase and upgrade the first aid and cardiopulmonary resusitation (CPR) skills of farm families and rural nonfarm residents.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Logan
White
Crittenden
Sebastian
Yell
Faulkner
Woodruff
St. Francis
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Montgomery
Phillips
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Jefferson
Arkansas
Hot Spring
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Dallas
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Desha
Little River
Hempstead
Nevada
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Calhoun
Bradley
Drew
Miller
Columbia
Union
Ashley
Chicot
Lafayette
Counties Participating in Study

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