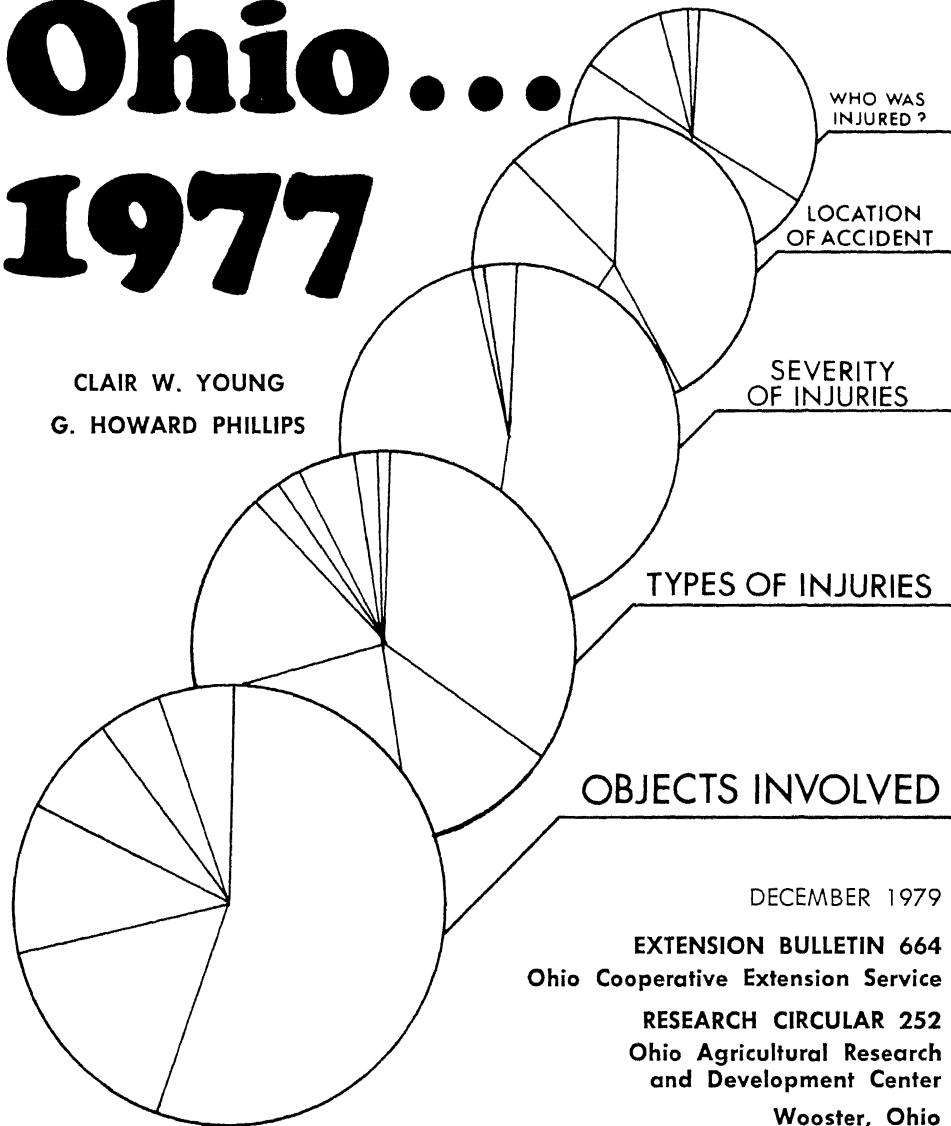


Accidents in Rural Ohio... 1977

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Extension Bulletin 572 — Research Bulletin 1069 describes the 1972 accidents to farm and nonfarm people, Extension Bulletin 500—Research Bulletin 1016 describes the 1967 study, Extension Bulletin 439 describes the 1962 study, and Extension Bulletin 385 describes the 1957 study. Special credit is given to: Bond L. Bible, R. H. Baker, Albert R. Pugh, and W. E. Stuckey for co-authoring the previous publications on rural accidents in Ohio.

All publications of the Ohio Agricultural Research and Development Center and Ohio Cooperative Extension Service are available to all on a nondiscriminatory basis without regard to race, color, national origin, sex or religious affiliation.

Accidents in Rural Ohio—1977

CLAIR W. YOUNG and G. HOWARD PHILLIPS¹

In Ohio in 1977:

- Cuts, sprains, fractures, and bruises accounted for 83 % of the injuries in all respondent categories.
- Slips and falls accounted for more than 30 % of the accidents occurring to all respondents in the study.
- The greatest percentage of accidents listed for any single activity in which respondents were engaged at the time of accidents was for recreation and leisure time activities.
- The greatest percentage of accidents in all respondent categories occurred away from the residence.
- Male members of households experienced the greatest number of accidents, with husbands accounting for 30 % or more of all accidents and sons accounting for 26 % or more of all accidents in all respondent categories.
- Fewer accidents were recorded for the age extremes of less than 5 and more than 65 in all respondent categories.
- The greatest number of accidents involving any single object in all respondent categories occurred with motorized vehicles.
- Grain farming ranked the highest in percentage of accidents when compared to all other farm enterprise groups.
- 25 % or more of all accidents in all respondent categories were perceived to have been due to carelessness.
- With the exceptions of eye and foot protection, farmers are not using personal protective equipment in great numbers.
- 95 % of all respondents indicated a knowledge of smoke detectors, but only 14 % actually installed smoke detectors.

INTRODUCTION

This is the fifth in a continuing series of studies on the number and nature of accidents to rural people in Ohio. Studies have been conducted every 5 years, beginning in 1957. Rural nonfarm families living outside incorporated areas were added to the study in 1967 and the farm occupational category was divided into full-time and part-time farmers in 1977.

Accidents continue to take lives, injure people, and destroy property in Ohio regardless of occupation, age, or place of residence of victims. The need for accident prevention and safety programs is urgent. It is important to determine the vital statistics of who is hurt, when and how the accident occurred, and the circumstances surrounding the accident.

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From a study of these data, those individuals and groups involved in accident prevention and safety activities can establish proper priorities and devise methods to reduce the obvious losses due to accidents.

Purpose

The purpose of this study was to measure the incidence of accidents to Ohio rural people during 1977 and to describe the situation in which these accidents occurred. The ultimate value of the study lies in the development and dissemination of accident prevention and safety programs and materials related to specific causes and victims. The results of the present study, and other accident and fatality studies conducted in past years in Ohio, will provide: 1) up-to-date information for use by



FIG. 1.—Geographic distribution of sample counties in Ohio study involving accidents to farm, part-time farm, and rural nonfarm families living outside incorporated areas, 1977.

individuals and organizations planning farm and home safety programs, 2) information for engineers to use in design and manufacture of farm and home machinery and equipment, 3) additional facts for classroom use in both universities and high schools, and 4) facts to assist legislators when considering safety legislation.

Being aware of accident statistics is not enough. Accident prevention and safety program success depend on the willingness of people to identify hazards and develop countermeasure programs. The value of this publication is twofold: 1) safety educators and program planners can proceed from a valid and sound statistical base, and 2) rural Ohio families can be made aware of causes and contributing factors related to farm and home accidents.

All involved in farm and home safety problems, educators and family members alike, must develop a united front to stem the increasing tide of accidents to Ohio residents.

PROCEDURES

A stratified random sample of 10 of Ohio's 88 counties was selected. One county was randomly chosen from each of the 10 Cooperative Extension Service areas representing various topographic and climatic conditions and types of farming. The counties selected and the boundaries of the 10 Extension areas used in the study are shown in Figure 1.

Random cluster samples of 10 or fewer farm, part-time farm, and rural nonfarm families living outside incorporated places were assigned each interviewer in each of the 10 counties. Volunteer interviewers were trained and the sample families were interviewed every 3 months during 1977 to secure a cumulative record of accidents. Four contacts were made during the year to assure that all accidents were reported.

Interviewers participated in a 3-hour county interviewer training meeting where each was assigned the families he or she would contact during the year. The initial interviews of selected families for the basic data and first-quarter accident reports were made the first 2 weeks of April 1977.

During 1977, 6,842 farm, part-time farm, and rural nonfarm people living outside incorporated areas were included in the study. Data in Table 1 compare the sample population with the 1970 rural population by age categories. Differences were not significant.

Definition of Terms

The terms used throughout this report are comparable to the National Safety Council's Farm Accident Surveys. Definitions of farm, part-time farm, and rural nonfarm residents are the same as those used in the 1969 Census of Agriculture.

TABLE 1.—Comparison of 1,909 Rural Families in the Sample with the 1970 Census of Rural Population in Ohio by Sex and Age.

	Census		Ohio Sample		Difference in Percent
	Number	Percent	Number	Percent	
Male					
Less than 5	117,049	4	250	4	*
5-14	308,511	12	802	12	*
15-24	206,445	8	667	10	2
25-44	311,587	12	889	13	1
45-64	261,935	10	692	10	*
65 and Over	107,954	4	266	4	*
Female					
Less than 5	111,552	4	209	3	1
5-14	290,224	11	641	9	2
15-24	211,791	8	606	9	1
25-44	320,703	12	913	13	1
45-64	258,971	10	667	10	*
65 and Over	122,410	5	240	3	2
Total	2,629,132	100	6,842	100	

*Number less than 1%

- *Farm Family*—A family living on a place operated as a unit of 10 or more acres from which annual sales of agricultural products total \$50 or more (places of less than 10 acres operated as a unit are counted if the sale of agricultural products is \$250 or more).
- *Part-time Farm Family*—A part-time farm family meeting the above noted farm family requirements plus working 100 or more days at off-farm employment.
- *Rural Nonfarm Family*—A family living outside an incorporated area, which includes all the remaining rural population.
- *Accident*—An injury requiring professional medical care (doctor, hospital, nurse, x-ray, etc.) or one resulting in the loss of one-half day or more of time from normal activities, regardless of where the injury occurred.
- *Reportable Accident*—An accident resulting in an injury to a family member, regardless of where the injury occurred, or to hired help doing farm work, or to any person visiting the residence.
- *Severity of Injury*—A fatal injury is one resulting in a death during the survey period. A permanent injury indicates the loss of hand, finger, eye, use of a limb, etc. A severe injury includes a broken leg, cut ligament, sprained back, etc. A slight injury includes minor cuts, sprains, burns, etc.

RESULTS

Types of Injuries

Cuts, fractures, sprains, and bruises accounted for the majority of injuries listed in Table 2. These four combined types of injuries accounted for 83% or more of all injuries listed in the study in all three residential categories and for 97% of the injuries in the part-time farm category. The highest incidence of any one type of injury for a single residential category was recorded for cuts, with 44% in the part-time farm column. Why the part-time farm resident sustains a disproportionate percent of cuts, sprains, fractures, and bruises is not apparent from these data.

TABLE 2.—Types of Injuries Occurring to Ohio Farm, Part-time Farm, and Rural Nonfarm People Living Outside Incorporated Areas, 1977.

Type of Injury	Residential Categories		
	Farm Percent	Part-time Farm Percent	Rural Nonfarm Percent
Cut	26	44	34
Fracture	23	28	23
Sprain	16	6	17
Bruise	18	19	13
Eye Injury	3	*	6
Infection	2	3	*
Burn	8	*	6
Bite	2	*	3
Poison	2	*	1
Miscellaneous	*	*	1
Total	100	100	100

*Too few incidents to compute a percentage

TABLE 3.—Severity of Injuries to Ohio Farm, Part-time Farm, and Rural Nonfarm People Living Outside Incorporated Areas, 1977.

Severity of Injury	Residential Categories		
	Farm Percent	Part-time Farm Percent	Rural Nonfarm Percent
Slight	52	41	63
Severe	47	52	35
Permanent	1	*	*
Fatal	*	7	2
Total	100	100	100

*Too few incidents to compute a percentage.

Severity of Injuries

The greatest percentage of accidents in two of the three residential categories was reported in the "slight" classification. Within the three residential categories, part-time farmers showed the lowest percentage of injuries in the "slight" classification and the highest percentage in the "severe" classification (Table 3).

When comparing similar findings from other recent state accident studies in the United States, a great variation in severity of farm accidents was noted, with most other states reporting a greater percentage of accidents in the "severe" classification than Ohio. This can be attributed in part to differences in accident severity classifications used in the various state studies. Data from the 1972 Ohio accident study show only a very slight difference in severity of accidents as recorded and classified in 1972 and 1977.²

Where Accidents Occurred

An analysis of all accidents by locations in all three residential categories shows that approximately 90% of all accidents to rural nonfarm residents occurred either away from the residence or at the home or doorway location (Table 4). This may be due to the fact that rural nonfarm residents spend less time in barnyard and field than the two farm groups included in the study.

The residential categories of farm and part-time farm indicate a somewhat even distribution in all locations listed, with the greatest percentage of accidents for either of these residential categories occurring away from the residence. The high percentage of accidents to rural nonfarm people in locations away from the residence (54%) can perhaps be attributed to the fact that work related or occupational accidents

²Pugh, Albert R., W. E. Stuckey, and G. Howard Phillips. Jan. 1974. Accidents to Farm and Rural Nonfarm People in Ohio—1972. Ohio Agri. Res. and Dev. Center, Wooster, Res. Bull. 1069; Ohio Coop. Ext. Serv., Bull. 577.

TABLE 4.—Location of Accidents to Ohio Farm, Part-time Farm, and Rural Nonfarm People Living Outside Incorporated Areas, 1977.

Location of Accident	Residential Categories		
	Farm Percent	Part-time Farm Percent	Rural Nonfarm Percent
Away from Residence	35	36	54
Building or Barnyard	32	21	5
Home or Dooryard	20	24	35
Field or Lane	13	19	6
Total	100	100	100

would be listed in this location in most instances. One could also assume that accidents in locations away from the residence would include leisure time and recreational accidents. This will be further borne out in a discussion of data included later in the text which shows a high incidence of recreation and leisure time accidents in all three residential categories (see Table 7).

How Accidents Occurred

An analysis of how accidents occurred in Table 5 shows that a combination of slips and falls from the same level or from a different level accounted for more than 30% of the accidents in all three residential categories (Table 5). These findings closely parallel findings from recent accident studies in Pennsylvania³ and Maryland⁴ and the findings in a 1977 Ohio farm fatality study which show 23% of all Ohio farm fatalities are attributed to falls.⁵

The second highest combination of accident factors included "struck against" and "struck by." These types of accidents accounted for 25%,

³Murphy, Dennis. June 1977. A Survey of Farm Accidents and Illnesses in Pennsylvania—1976. Pennsylvania State Univ., Coop. Ext. Serv., Ext. Studies 70 Bull.

⁴Stewart, Larry E. 1977. Accidents on Maryland Farms—1974. Univ. of Maryland, Coop. Ext. Serv., Bull. 255.

⁵Pugh, Albert R. and Clair W. Young. Sept. 1977. Ohio Farm Fatalities. The Ohio State Univ., Ohio Coop. Ext. Serv., Bull. 625.

TABLE 5.—How Accidents Occurred to Ohio Farm, Part-time Farm, and Rural Nonfarm People Living Outside Incorporated Areas, 1977.

How Accidents Occurred	Residential Categories		
	Farm Percent	Part-time Farm Percent	Rural Nonfarm Percent
Slip	13	18	13
Fall, Same Level	10	2	15
Fall, Different Level	10	11	8
Struck by Object	16	18	21
Struck Against	10	7	10
Caught in, Under, or Between	15	13	6
Collision	8	13	8
Lifting	4	7	5
Burn	3	*	5
Firearms	*	2	*
Inhaling	1	*	1
Ingested	2	*	*
Other	8	9	8
Total	100	100	100

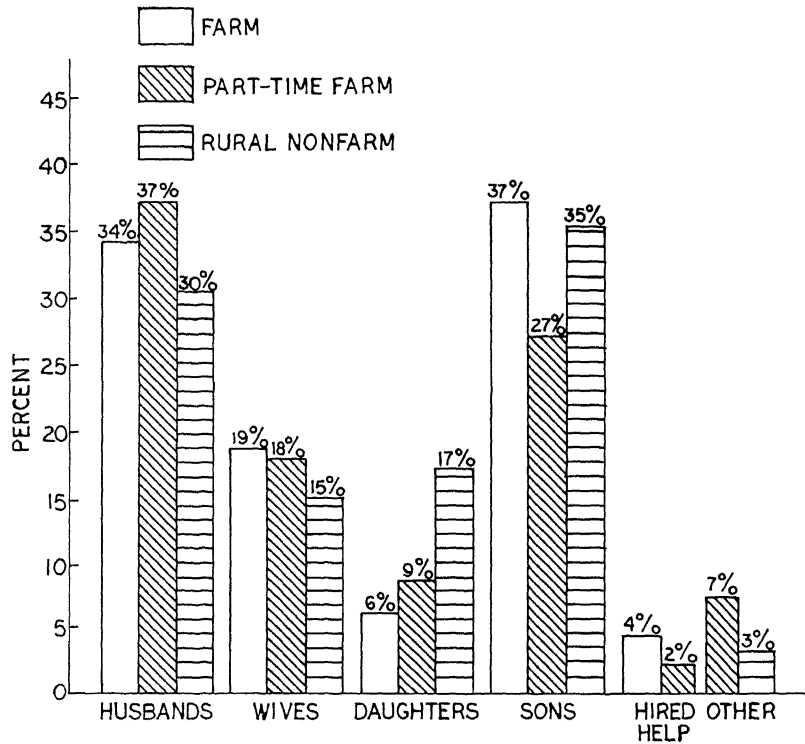
*Too few incidents to compute a percentage.

25%, and 31% respectively of all farm, part-time farm, and rural non-farm accidents. These findings also are consistent with two other state accident studies already cited (Pennsylvania and Maryland).

The third highest classification frequency in Table 5 was "caught in, under, or between" with 15% and 13% respectively for farm and part-time farmer categories. In this same classification, a noticeable difference between residential categories was found in that only 6% of rural nonfarm people suffered accidents.

Victims of Accidents

Male members of households are involved in accidents to a greater degree than female members. Figure 2 shows husbands and sons were involved in a higher percent of accidents in all three residential cate-



*Each residential category represents 100 percent.

FIG. 2.—Percent of Ohio farm, part-time farm, and rural nonfarm family members, hired help, and other persons living outside of incorporated areas who had accidents, 1977.

gories. Sons of part-time farmers (Figure 2) had approximately 10% fewer accidents than sons of farm residents and 8% less than sons of rural nonfarm residents. On the other hand, part-time farm husbands, in contrast to their sons, had a higher percentage of accidents than their farm and rural nonfarm counterparts.

In general, daughters in all three residential categories experienced fewer accidents than wives. This makes young females the least likely of all family categories to have an accident.

Hired help for full-time farm and part-time farm employers had far fewer accidents when compared to other members of the household in these residential categories. Data from the 1972 Ohio accident study indicated that 2% of all accidents involved hired help of full-time farmers.⁶ The 1977 data shown in Figure 2 for hired help (4%) represent an increase occurring in the past 5 years in Ohio. Due to the smallness of the numbers involved, this may be due to chance alone.

Data from several other recent state and national accident studies were compared to the Ohio accident data shown in Figure 2. As might be expected, types of farming enterprises and related agricultural equipment involved show similar or comparable accident statistics. This is borne out by an Iowa study⁷ and the Pennsylvania study⁸ already mentioned. These two studies indicate similar percentages for husbands, sons, wives, and daughters of farm households when compared to Ohio. Both of these states (Iowa and Pennsylvania) also compared favorably to Ohio when percentages of employee accidents were analyzed.

Studies conducted in Arizona,⁹ Montana,¹⁰ and California¹¹ all recorded much higher farm employee accidents, with California indicating 72%, Arizona 47%, and Montana 24%. Accidents to husbands and sons in these three state studies exceeded accidents to wives and to daughters in similar proportions when compared to Ohio. The percentage of all family members (husbands, sons, wives, daughters) in the three western states, when compared to Eastern U. S. (commercial vs. family farm), apparently suggests less family member involvement in farm work and greater employee numbers. This increased number of

⁶Pugh, Albert R., W. E. Stuckey, and G. Howard Phillips. *Loc. Cit.*

⁷Bubola, Thomas A., William J. Kennedy, and Dale O. Hull. Feb. 1977. Iowa Agricultural Accident and Illness Study—1975. Iowa State Univ., Coop. Ext. Serv., Bull. PM-723.

⁸Murphy, Dennis. *Loc. Cit.*

⁹Lloyd, Mark. 1976. Arizona Farm and Ranch Accident Survey. Univ. of Arizona, Coop. Ext. Serv.

¹⁰Montana Farm Safety Survey—1976. Univ. of Montana, Coop. Ext. Serv.

¹¹Brazelton, Robert W., Dean Fisher, and Gerald Knutson. May 1976. A Farm Accident Study in California. Univ. of California, Div. of Agri. Sci., Coop. Ext. Serv., Spec. Pub. 3066.

employees is reflected in greater job hazard exposure and hence greater numbers of accidents.

Figures released in 1979 by the National Safety Council include farm accident data from 18 different states.¹² In this national profile, based on farm work injury rates reported, family members of all ages and sex accounted for 19% of all farm accidents as compared to 16% for hired help. Ohio's farm employee accident rate is indeed low when compared to other selected western states of the 18-state national average.

Accidents to different age groupings, compared to residential categories, in Figure 3 indicate rural nonfarm accident percentages exceed the other two categories in the age groupings of 5-14 and 25-44. In reviewing all age groupings, fewer accidents were recorded for the two age extremes of under 5 and over 65 in all residential categories in the Ohio study. Although the data from this study show the low incidence

¹²Standardized 18-State Farm and Ranch Accident Survey Report—1978. National Safety Council.

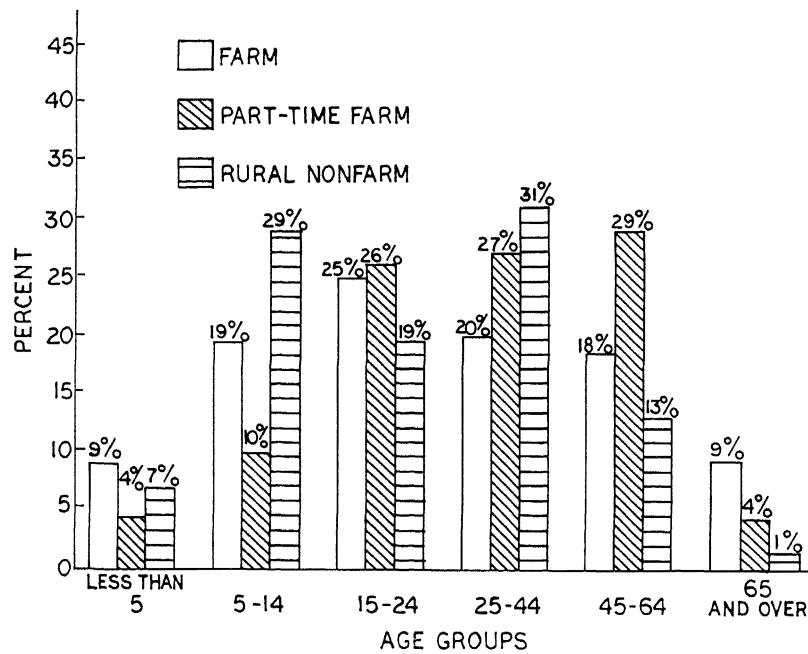


FIG. 3.—Percent of Ohio farm, part-time farm, and rural nonfarm people living outside incorporated areas having accidents by age groups, 1977.

of accidents to the elderly (65 and over), this was not found to be true for farm tractor fatalities in a 1978 Ohio farm tractor fatality study.¹³ The tractor fatality data show that the elderly victims of tractor accidents resulting in fatalities suffered excessive and disproportionate losses when compared to other age groupings in the study.

A comparison of the 1972 Ohio accident study age groupings to present study age groupings in farm and rural nonfarm categories shows the same approximate percentage of accidents for all ages.¹⁴

These same age groupings, with 1977 Ohio statistics, were compared to recent studies in five other states (Maryland, Montana, Delaware, Iowa, and Pennsylvania). The data from these states show nearly the same accident percentages in all age groupings compared. It is noteworthy that Ohio farm residents ranked first among these states in the under 5, 5-14, and 65 and over age groupings.

In a similar age group comparison of the 1977 Ohio accident data to the National Safety Council 18-state study, Ohio also exceeded national averages in age groupings 5 and under, 5-14, 15-24, and 65 and over.¹⁵ Ohio showed lower percentages only in age groups 25-44 and 45-64.

Although Ohio is first ranked in most age group comparisons when compared to either data from the five individual state studies or to the combined data in the 18-state study, the percentage point differences are not great in any single age group comparison.

Accident Sources

The combined classification of general objects listed in Table 6 accounted for the greatest percentage of accidents in all three residential categories. Considering an individual as an object, the person himself or another person was involved in accidents in greater frequency than any other object listed in the study in all three residential categories. The one single inanimate object most involved in accidents in all three categories was stairs and steps.

Motorized vehicles, when combined as a group of like items, accounted for a greater percentage of accidents to all respondents when compared to similar combinations of like items. Cars and trucks accounted for the most accidents within this object grouping. Previously cited farm accident surveys in other states and data compiled by the National Safety Council all indicate similar findings for farm and part-time farm residents.

¹³Young, Clair W. Jan. 1979. Reducing Tractor Fatalities—Two Decades of Progress. The Ohio State Univ., Ohio Coop. Ext. Serv., Bull. 640.

¹⁴Pugh, Albert R., W. E. Stuckey, and G. Howard Phillips. Loc. Cit.

¹⁵Standardized 18-State Farm and Ranch Accident Survey Report—1978. Loc. Cit.

TABLE 6.—Objects Involved in Accidents to Ohio Farm, Part-time Farm, and Rural Nonfarm People Living Outside of Incorporated Areas, 1977.

Objects	Residential Categories		
	Farm Percent	Part-time Farm Percent	Rural Nonfarm Percent
General Objects			
Person Himself	3	12	9
Stairs, Steps	7	10	4
Another Person	10	1	9
Industrial Equipment	2	5	6
Tree	6	3	1
Lumber	3	5	2
Bicycle	2	2	2
Ladder	2	4	1
Ice	1	1	4
Nail	3	1	1
Glass	*	3	2
Gates, Fences	*	3	*
Pitchfork	1	*	1
Sidewalk	*	*	1
Other	7	8	15
Total	47	61	58
Motorized Vehicles			
Auto	7	10	10
Truck	4	5	3
Motorcycle	2	2	2
Snowmobile	*	*	1
Other	1	*	1
Total	14	18	17
Farm Machinery			
Tractor	3	1	2
Grain Combine	3	1	*
Corn Picker-Sheller	1	*	*
Corn Picker	1	*	*
Wagon	1	*	*
Mower, Crusher	1	1	*
Elevator, Auger	2	*	1
Other	9	3	2
Total	21	6	5
Animals			
Cow	9	1	*
Horse	1	1	2
Dog	1	1	2
Other	*	*	3
Total	11	3	7

TABLE 6 (Continued).—Objects Involved in Accidents to Ohio Farm, Part-time Farm, and Rural Nonfarm People Living Outside of Incorporated Areas, 1977.

Objects	Residential Categories		
	Farm Percent	Part-time Farm Percent	Rural Nonfarm Percent
Hand Tools			
Knife	1	*	2
Shovel	1	*	*
Saw	*	*	1
Other	4	3	2
Total	6	3	5
Power Tools (Hand)			
Saw	1	9	2
Drill	*	*	1
Lawnmower	*	*	2
Other	*	*	3
Total	1	9	8
Grand Total	100	100	100

*Too few incidents to compute a percentage.

The combined categories of farm machinery show a higher percentage of accidents for farm residents than for part-time or rural nonfarm residents. No one piece of farm equipment stands out as being associated with accidents more so than another, although tractors and grain combines were listed at a slightly greater frequency by accident victims.

Animals continue to be a factor in farm and part-time farm accidents, with cows being listed in greatest frequency for farm and part-time farm residents. Horses and dogs were listed as accident contributors in all three residential categories. In comparing the 1972 and 1977 object groupings of animals in the two accident studies, accidents involving horses have remained about the same while accidents involving cows increased from 3% in 1972 to 10% in 1977.¹⁶

Power hand tools continue to be involved in accidents to residents in all three categories. However, the power saw is shown to be the most involved piece of hand power equipment, with 9% of accidents occurring to part-time farmers attributed to this object.

Activity of Victim at Time of Accident

Table 7 indicates the activities in which victims were engaged at the time of the accidents. The greatest single activity related to acci-

¹⁶Pugh, Albert R., W. E. Stuckey, and G. Howard Phillips. Loc Cit.

TABLE 7.—Activity at Time of Accident of Ohio Farm, Part-time Farm, and Rural Nonfarm People Living Outside Incorporated Areas, 1977.

	Residential Categories		
	Farm Percent	Part-time Farm Percent	Rural Nonfarm Percent
Farm Activities			
Routine Chores	24	17	2
Machinery Maintenance and Repair	12	6	*
Building Maintenance and Repair	7	6	1
Field Work	9	3	1
Treating Livestock	*	2	*
Other	2	*	2
Nonfarm Activities			
Recreation and Leisure	27	35	41
On the Job (other than farm)	*	10	16
Yardwork	6	4	9
Housework	4	8	7
House Maintenance and Repair	2	3	5
Other	7	6	16
Total	100	100	100

*Too few incidents to compute a percentage.

dents for all residential categories was that of recreation and leisure time, with 41% indicated. Taken collectively, such items as routine chores, machinery and building repair and maintenance, field work, and treating livestock all can be categorized as “on the job” activities related to farm operations whether they be part-time or full-time. With this combination of factors shown in Table 7, farm and part-time farm residents experience far more job-related accidents than rural nonfarm residents. One can only speculate that progress made in industrial safety programs, whether they be mandatory or voluntary, may be indicating a better occupational safety record for those rural residents working at off-farm jobs. This is further evident in the relatively low (10%) “on the job” incidence of accidents listed for part-time farm residents in nonfarm activities.

Time of Accidents

The study recorded information on the time of day that accidents occurred only in terms of a.m. or p.m., with no attempt to pinpoint exact hours (Table 8). In all three residential categories, the majority of all accidents occurred in the p.m. time classification.

Some differences were noted between residential categories when comparing a.m. and p.m. accident percentages. Part-time farmers had

TABLE 8.—Time of Day Accidents Occurred to Ohio Farm, Part-time Farm, and Rural Nonfarm People Living Outside Incorporated Areas, 1977.

Time of Day	Residential Categories		
	Farm Percent	Part-time Farm Percent	Rural Nonfarm Percent
a.m.	28	39	26
p.m.	72	61	74
Total	100	100	100

slightly higher percentages for a.m. accidents and lower percentages for p.m. accidents when compared to farm and rural nonfarm categories. Accident data from 10 or more similar state studies conducted in the past 4 years in the U. S. all indicate comparable findings, with higher accident numbers occurring in the p.m. classification.

Study data also included the month that accidents occurred. Although some variations were noted between the three residential categories, the greater numbers of accidents were recorded for the period of May through September, with the month of June the highest in the 12-month period.

Days Lost Due to Accidents

Days lost, either at home or in hospital, were recorded for all three residential categories as shown in Table 9. Part-time farm accidents accounted for the largest number of days lost either at home and/or in hospital, with a total of 22.1 days per accident indicated. This high "days lost" per accident compares favorably to the high severity of accidents already indicated for this residential category as previously discussed in Table 3. It is logical to expect that the more severe the accident, the greater possibility of spending more time at home or in the hospital.

Both the Pennsylvania and Delaware studies included "days lost per farm accident" and "days in hospital." Delaware exceeded both

TABLE 9.—Days Lost per Accident to Ohio Farm, Part-time Farm, and Rural Nonfarm People Living Outside Incorporated Areas, 1977.

	Residential Categories		
	Farm Days Lost	Part-time Farm Days Lost	Rural Nonfarm Days Lost
At Home	6.5	16.2	9.0
In Hospital	1.1	5.9	2.9

Ohio and Pennsylvania with an average of 18 days lost at home per farm accident and 4.4 days in hospital.¹⁷ Pennsylvania data for farm accidents show 10 days lost per accident with 2 days in hospital.¹⁸ The Ohio data for farm accidents relating to days lost or in hospital is considerably less, with an average of 6.5 days at home and 1.1 days in hospital.

Circumstances Contributing to Accidents

In order to identify contributing factors related to accidents, several circumstantial situations were presented for respondent reaction. In all three residential categories, more than one-fourth of all accidents were perceived to have been due to carelessness. Victim in a hurry was the second most often reason given, with percentages ranging from 13% for rural nonfarm to 16% for part-time farm residents (Table 10).

Safety educators have often ventured the opinion that lack of job instruction and fatigue are significant factors in accidents. This was not the case in this study, at least as perceived by the respondents, since these two sets of circumstances both showed extremely low percentages in Table 10.

¹⁷Jester, Ronald C. 1978. Delaware Farm Accident Study—1977. Univ. of Delaware, Coop. Ext. Serv.

¹⁸Murphy, Dennis. Loc. Cit.

TABLE 10.—Contributing Circumstances of Accidents Occurring to Ohio Farm, Part-time Farm, and Rural Nonfarm People Living Outside Incorporated Areas, 1977.

Contributing Circumstances	Residential Categories		
	Farm Percent	Part-time Farm Percent	Rural Nonfarm Percent
Victim was careless	30	26	30
Victim was in a hurry	13	16	13
Equipment being repaired	4	2	2
Mechanical failure of equipment	3	2	1
Victim distracted	3	5	3
Victim not properly instructed on job	1	5	3
Victim was tired	1	2	1
Victim not physically able to do job	*	2	2
Victim worried, preoccupied	1	5	1
Other circumstances	26	14	23
No contributing circumstances noted	18	21	21
Total	100	100	100

*Too few incidents to compute a percentage.

Differences in Types of Farming Enterprises

Types of farming enterprises were recorded for all respondents who were involved in either full-time or part-time farming. These classifications were determined by the respondents, basically depending on their perception of the type of farming enterprise in which they spent their major time and resources.

Data in Table 11 indicate that grain farming represents the greatest risk when comparing the percentage of accidents in all enterprises listed. This is followed by dairy, general, and beef farming respectively. These four enterprises accounted for the majority of accidents among the eight specific enterprises indicated. These data were compared to the National Safety Council 18-State Farm Accident Survey which indicated a ranking of beef, dairy, and grain enterprises in order of accident frequency.¹⁰ A comparison of selected other states with similar farm operations to Ohio did not show any pattern or trend emerging. Some states listed livestock enterprises as being first ranked, while others listed general farming or grain farming first.

Accident Prevention Practices

In recent years, individuals and organizations interested in farm safety have been actively engaged in promoting the use of personal protective equipment for hazardous jobs. This study recorded the use of selected personal protective equipment by farmers and part-time farmers. The spectrum of equipment included job protection for head, ears, eyes, and feet. With few exceptions, Table 12 shows that Ohio farm people, either full or part-time, are not using personal protective equip-

¹⁰Standardized 18-State Farm and Ranch Accident Survey Report—1978. Loc. Cit.

TABLE 11.—Accidents by Types of Farming Enterprises for Ohio Farm and Part-time Farm People, 1977.

Farm Enterprises	Percent of Accidents
Grain Farming	37
Dairy Farming	23
General Livestock	14
Beef Farming	12
Hog Farming	5
Poultry Farming	1
Sheep Farming	1
Truck Farming	1
Other	6
Total	100

TABLE 12.—Personal Protective and Related Safety Equipment Used by Ohio Farm and Part-time Farm People, 1977.

Type of Equipment	Percent Using Equipment	
	Farm	Part-time Farm
Safety Glasses	60	44
Foot Protection	21	35
Anhydrous Ammonia Equipment		
Goggles and Gloves	28	13
Pocket Squeeze Bottle-Water	9	2
Two-Way Radio (CB)	16	9
Hearing Protection (muffs, plugs)	16	8
Head Protection (hard/bump hat)	8	6
Other Equipment	7	5

ment in large numbers. The outstanding exceptions are eye protection and foot protection.

The use of foot protection is indicated by 21% of full-time farmers and 35% of part-time farmers. This high foot protection usage may be partially explained by the ease in which one can purchase steel toed boots in most footwear stores today.

An even higher percent of usage of eye protection was indicated. Safety glasses were worn by 60% of full-time farmers and 44% of part-time farmers. Apparently the risk of losing one's eyesight was too great to ignore the benefits or value of eye protection.

Safety equipment use specifically related to anhydrous ammonia (goggles and gloves) was much higher for full-time farmers than for part-time farmers, with 28% indicated for those working full-time and 13% for part-time farmers. This difference may be explained in part by two factors: 1) full-time farmers may be exposed to anhydrous ammonia to a higher degree than part-time farmers, and 2) the Ohio Co-operative Extension Service and agri-business groups have been conducting anhydrous ammonia safety programs with full-time farmers in Ohio for several years.

It may also be noted that a long time recommended practice of carrying a small pocket squeeze bottle of water for ammonia accidents had not yet been adopted in great numbers by either of the two groups indicated.

One additional finding of interest deals with the use of two-way (CB) radio equipment for safety purposes in farm operations. Evidently both full-time and part-time farmers have been caught up in this national trend, with 15% of the full-time farmers and 13% of the part-time farmers reporting the use of this equipment.

In spite of the amount of publicity encouraging the use of hearing protection while operating agricultural equipment with high noise levels, only 11% of full-time and 2% of part-time farmers reported using this safeguard.

Roll over protective structures (ROPS) for farm tractors have been readily available for about 10 years and are considered by many farmers to be standard equipment when ordering a new tractor. Farm tractor manufacturers indicate that the majority of new tractors now ordered and/or sold through their agencies are equipped with ROPS. Recent safety standards promulgated by the Occupational Safety and Health Act (OSHA) also include ROPS as a requirement for many tractors when employees are using the equipment. From these above noted facts, it would be expected that Ohio farmers would have a large percentage of their tractors equipped with ROPS at the time of the study. This was not the case, however. Farmers in the study indicated a total of 2,423 tractors, with only 303 equipped with ROPS representing only 12.5%. Data in Table 1 would indicate that this figure of 12.5% is representative of all farmers in Ohio. This relatively low showing of ROPS on farm tractors in Ohio could be attributed to the fact that farm tractors have a long life and a greater percent of ROPS will not be noted until older tractors being used now are traded or retired and new ROPS equipped tractors are purchased.

Fire Safety Equipment and Practices

Ohio Cooperative Extension Service has been conducting special statewide education and demonstrational programs on fire early warning systems (smoke detectors) and home evacuation plans for 3 years. These programs include a slide set and leaflets on smoke detectors, home escape drills, and a series of demonstrations on smoke detectors. In addition, other Ohio organizations and agencies were provided with the same program inputs for use with their clientele. Group sales of smoke detectors were also sponsored by several organizations.

In an attempt to measure the present situation in regard to the use of smoke detectors and home evacuation drills, the study included questions designed to measure knowledge relative to smoke detectors and home evacuation drills and also identified the actual adoption of these practices among the respondents. A partial indication of the adoption of smoke detectors can be realized in the study since this equipment came on the consumer market in large numbers and at reasonable prices only in the past 3 years.

Table 13 shows 95% of all respondents in the study indicated a knowledge of smoke detectors. Of those admitting knowledge of this fire safety equipment, only 14% indicated the actual adoption of the

TABLE 13.—Knowledge and Use of Smoke Detectors and Home Evacuation Plans by Ohio Farm, Part-time Farm, and Rural Nonfarm People Living Outside Incorporated Areas, 1977.

	Percent Responding	
	Yes	No
Smoke Detectors		
Knowledge of smoke detectors	95	5
Detectors installed in home	14	86
Home Evacuation Plan		
Have developed a plan	53	47
Actually practice plan	19	81

practice by installing detectors in their homes. Table 13 also shows that 53% of all respondents had developed an escape or home evacuation plan in the event of a fire but only 19% of those responding had practiced this plan. The higher adoption of the home evacuation or escape plan when compared to smoke detectors (19% vs. 14%) can be partially explained by the fact that home evacuation planning in the event of a fire has been a recommended fire safety practice for many years, not only by the Extension Service but by fire departments and others interested in fire safety.

The present situation relative to possession and location of fire extinguishers was identified in the study as a means of establishing a source of baseline data for Ohio rural residents. An intensive educational and demonstrational program on home and farm portable fire extinguishers was introduced by the Cooperative Extension Service in 1979. Subsequent studies of this nature will include the same categories as a means of measuring the success of these educational programs.

The study data show that 6% of farm residents have one or more fire extinguishers, 19% of part-time farmers have one or more extin-

TABLE 14.—Location of Fire Extinguishers for Ohio Farm, Part-time Farm and Rural Nonfarm People Living Outside Incorporated Areas, 1977.

Possible Locations	Percent Responding	
	Yes	No
Home	43	57
Outbuilding	23	77
Truck	14	86
Tractor	13	87
Other location	5	95

guishers, and 5% of rural nonfarm residents have one or more. Table 14 identifies the location of the fire extinguishers reported and the percentage of respondents with extinguishers at the suggested locations. Some 43% of those in the study reported having extinguishers in homes, 23% reported extinguishers in outbuildings, 14% on trucks, and 13% on tractors. Although there is no specific data available to measure whether the percent of respondents with extinguishers at different locations is high, low, or average, the number of extinguishers located on farm tractors (13%) can be perceived as low when one considers the high cost of this piece of farm equipment on today's market.

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The State Is the Campus for Agricultural Research and Development



Ohio's major soil types and climatic conditions are represented at the Research Center's 12 locations.

Research is conducted by 15 departments on more than 7,000 acres at Center headquarters in Wooster, eight branches, Pomerene Forest Laboratory, North Appalachian Experimental Watershed, and The Ohio State University.

Center Headquarters, Wooster, Wayne County: 1953 acres

Eastern Ohio Resource Development Center, Caldwell, Noble County: 2053 acres

Jackson Branch, Jackson, Jackson County: 502 acres

Mahoning County Farm, Canfield: 275 acres

Muck Crops Branch, Willard, Huron County: 15 acres

North Appalachian Experimental Watershed, Coshocton, Coshocton County: 1047 acres (Cooperative with the Science and Education Administration/Agricultural Research, U. S. Dept. of Agriculture)

Northwestern Branch, Hoytville, Wood County: 247 acres

Pomerene Forest Laboratory, Coshocton County: 227 acres

Southern Branch, Ripley, Brown County: 275 acres

Vegetable Crops Branch, Fremont, Sandusky County: 105 acres

Western Branch, South Charleston, Clark County: 428 acres