Farm Accidents in North Dakota

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From 1946 to 1980, farming was rated as the third most hazardous occupation in the U.S. behind mining and construction. These figures are arrived at by the National Safety Council, which tabulates deaths per 100,000 workers in each occupation. Agriculture's accident record has not gotten worse, but the accident records of mining and construction have improved. Statistics for 1980 indicate that agriculture is now the most hazardous of all occupations.

To organize and carry out effective safety programs, it is essential to know more about accidents. This includes an understanding of the accident picture statewide and nationwide. Facts such as accidents by age group, family member, major activity on the farm, part of the body injured, time of day, and what caused the accidents are important. These facts help to identify typical accident-prone situations and what to do to avoid them. These facts also aid in safer machine and building designs. Similar to soil testing or livestock performance testing, the identification of related facts helps to gain control of the outcome.

About six sources of varied, limited accident and fatality information are available. (1) The Vital Statistics Division of the State Health Department records coded and confidential information from death certificates. Selected information about the farm-related deaths is forwarded to the Extension Safety Specialist at NDSU. (2) A statewide newspaper clipping service is maintained to compile information on accidents (mostly fatalities) that get reported in any North Dakota newspapers. (3) The State Fire Marshall's Office and several fire departments are randomly contacted in regard to fires that occur in agricultural settings. (4) The four Poison Control Centers in North Dakota can be contacted regarding chemical incidents such as agricultural pesticides, anhydrous ammonia, silo gas, manure gas and carbon monoxide. Other sources include (5) individual reports from Extension workers and the public and (6) reports from the National Safety Council. These sources of information are used to give direction to safety programs, indicate what areas to concentrate on and to accumulate statistics.

A void in the information remains, however. The only reliable statistics available include either accidents severe enough to be reported in the newspaper or deaths. This information competes with other events of the day, available space and editor interest. A standardized Farm Accident Survey was organized nationally by the National Safety Council and the United States Department of Agriculture in 1968 to collect information about accidents (not just fatalities) on a more generalized basis. A survey is conducted in each state with the data then sent to the National Safety Council for a national report. Within about five years, a follow-up survey is needed to determine changes in the farm accident situation. Many states have conducted one survey and several have now conducted a second survey five years later. The North Dakota Cooperative Extension Service is cooperating in this national effort.

For the North Dakota Farm Accident Survey, 14 counties were randomly selected in 1979 to represent a cross-section of the farming activity of the entire state (Fig. 1). The counties included are: Grand Forks, Steele, Ramsey, Bottineau, Renville, McHenry, Mountrail, McKenzie, Hettinger, Adams, Kidder, Emmons, Logan and Barnes. In each of these 14 counties, volunteer interviewers contacted randomly selected farms and gathered information related to accidents on these farms during one year. All accidents, ranging from those that caused personal injury requiring medical attention and/or ½ day or more lost from work or usual activity to those that were serious or fatal, were included. Accidents labeled as serious included broken bones, a cut requiring treatment or a strained back. Standard forms were provided for the interviewers to report the accidents. The interviewers reported who the accident happened to, how old they were, what caused the accident, what month the accident happened and other questions about the accident.

![Fig. 1. 14 N.D. counties were selected to participate in the Farm Accident Survey.](image)

In the 12-month period October 1, 1979, to September 30, 1980, volunteer interviewers kept records on 443 farms. Briefly from that information, it was found that:

- One out of every 7.5 farms had an accident requiring medical attention or causing the loss of ½ day or more from work or usual activity.
- 71.1 percent of the accidents involved the husband of the farm family and 96.6 percent of the accidents involved a family member.
- The age group 25-44 suffered the most accidents at 40.7 percent of the total.
- March, April, July and October were the most common months for accidents with 33 of the 59 accidents.
56 percent of the accidents were classified as serious, which includes a broken bone, a cut requiring treatment or a strained back.

The leg, foot, ankle, finger and back were the most common parts of the body injured.

34 percent of the accidents occurred in the barnyard or farmyard.

49 percent of the accidents occurred during machinery maintenance or routine chores.

The average accident cost $486.88 in hospital and doctor bills and cost 8.8 days lost from usual activity.

Two fatalities were reported.

Results:

The North Dakota farm accident survey conducted during October, 1979, to September, 1980, showed 59 accidents occurring on 443 farms or one accident for every 7.5 farms. If these figures were projected over North Dakota's 39,000 farms, the survey would indicate a potential for approximately 5,200 accidents occurring per year that require medical attention and/or cause the loss of ½ day or more from work or usual activity.

This information is helpful to identify specific information about accidents on farms. Extension education activities are now being prepared to zero in on how to reduce these kinds of accidents. For example, a plan has been distributed for making a portable grain auger dolly. (Fig. 3)

Over half of the accidents occurred on farms of over 1,000 acres. This is to be expected with the large farms found in North Dakota.

![Bar chart showing accidents by size of farm](image)

<table>
<thead>
<tr>
<th>Size of Farm</th>
<th>Number of Accidents/Yr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-199 acres</td>
<td>2</td>
</tr>
<tr>
<td>200-499 acres</td>
<td>3</td>
</tr>
<tr>
<td>500-999 acres</td>
<td>15</td>
</tr>
<tr>
<td>1000 acres</td>
<td>36</td>
</tr>
<tr>
<td>Unknown</td>
<td>3</td>
</tr>
</tbody>
</table>

![Bar chart showing accidents by type of farm](image)

<table>
<thead>
<tr>
<th>Major Source of Income</th>
<th>No. of Accidents</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown</td>
<td>3</td>
<td>5.1</td>
</tr>
<tr>
<td>Wheat</td>
<td>20</td>
<td>33.9</td>
</tr>
<tr>
<td>Other Grain Crop</td>
<td>14</td>
<td>23.7</td>
</tr>
<tr>
<td>Other Field Crop</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Beef Cattle</td>
<td>11</td>
<td>18.6</td>
</tr>
<tr>
<td>Sheep and Goats</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>General Livestock</td>
<td>5</td>
<td>8.5</td>
</tr>
<tr>
<td>Dairy Farms</td>
<td>4</td>
<td>6.8</td>
</tr>
<tr>
<td>Total</td>
<td>59</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Accidents by type of farm is difficult to determine because many farms produce several crops plus livestock. The majority of accidents were found in grain...
and beef cattle operations, many of which produce both commodities.

The distribution of accident victims by sex is 88% male and 12% female.

The peak months for accident occurrence seem to be March, April, July and October. The increased activity during these months would indicate that the busy season definitely contributes to accident potential.

The type of injury with farm accidents varies greatly.

Farm accidents are quite often severe and result in considerable cost and personal injury.
Nearly every part of the body has the potential to be injured in a farm accident.

A large percentage of the accidents also occurred while the farm worker is doing a task which many farm workers are familiar with (Fig. 5).

The bodily motion of the worker may make him/her more or less susceptible to an accident.
The various ways in which the injuries occurred are explained here.

CAUSES OF THE ACCIDENT
(North Dakota 1979-1980)

<table>
<thead>
<tr>
<th>Cause</th>
<th>No. of Accidents</th>
<th>Percent of Total</th>
<th>27 State Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improper Use of Equipment</td>
<td>1</td>
<td>9.1</td>
<td>9.1</td>
</tr>
<tr>
<td>Inattentive</td>
<td>1</td>
<td>9.1</td>
<td>9.1</td>
</tr>
<tr>
<td>Lost Balance</td>
<td>1</td>
<td>9.1</td>
<td>9.1</td>
</tr>
<tr>
<td>Unsafe Position Posture</td>
<td>2</td>
<td>18.2</td>
<td>18.1</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>9.1</td>
<td>9.1</td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Many of the accidents with farm machinery occurred when an unsafe act is performed.
PART OF MACHINE CAUSING INJURY  
(N.D. Farm Accident Survey 1979-1980)

<table>
<thead>
<tr>
<th>Part</th>
<th>No. of Accidents</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auger</td>
<td>2</td>
<td>18.2</td>
</tr>
<tr>
<td>Control Devices</td>
<td>1</td>
<td>9.1</td>
</tr>
<tr>
<td>Hitch or Drawbar</td>
<td>1</td>
<td>9.1</td>
</tr>
<tr>
<td>V-Belt &amp; Pulley</td>
<td>2</td>
<td>18.2</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>45.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>11</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

When farm machinery is involved in an accident, this chart shows the machine parts which caused the injuries.

Conclusions

North Dakota is one of the most agricultural states in the country. In 1978 and 1979, the Greater North Dakota Association reported that agriculture produced approximately $\frac{2}{3}$ of the state's income. Information from the Department of Vital Statistics, North Dakota State Department of Health, indicates that of 650 work related fatalities from 1960-1978, 354 of them were categorized under agriculture. Some of these fatalities may have not occurred on the farm, but are related to agriculture.

Activities like the farm accident survey are needed to identify accident problem areas, direct safety programs, and help reduce accidents. In turn this will reduce hardship, suffering, pain and costs to everyone. Farm accident surveys are intended to be repeated at five-year intervals. These future surveys will help measure changes in accident trends and identify areas to concentrate efforts in safety programs. This survey has shown that accidents are costly and has identified areas that people who are concerned with farm safety need to concentrate on. These are:

- To upgrade and strengthen the Tractor Certification Program (Fig. 6). This will get safety information to 14-15 year olds which will stay with the participants as they grow older and start their own farming operations.
- To reach the age group 25-64 with safety information.
- To put out more safety information in the critical accident months — March, April, July and October.
- To stress the use of personal protective equipment.
- To reduce the odds of accidents during machinery maintenance and routine chores.
- To put more emphasis on proper lifting techniques.
- To educate family members, particularly the husband of the farm family in accident prevention.

Fig. 6. The tractor certification program for 14 and 15 year olds is one of the successful methods of educating farm workers.

Thanks to the County Agents, Home Economists, Associate County Agents and Assistant County Agents of the participating counties for their help in organizing this survey, recruiting volunteer interviewers and holding training meetings for the volunteers.

A special thanks to Mrs. Karen Herman, State Safety Chairman of the North Dakota Extension Homemakers (June, 1978 to June, 1981) and the Homemakers County Safety Chairman and volunteer interviewers in each of the 14 participating counties.

- Grand Forks — Morris Davidson, County Agent  
  Dale Edwards,  
  Associate County Agent  
  Helen Dahl, Home Economist  
  Mrs. Darel Fossum,  
  Homemakers County Safety Chairman

- Steele — Gerald LeClerc, County Agent  
  Mrs. Edith Lundstrom,  
  Homemakers County Safety Chairman

- Ramsey — Tom Olson, County Agent  
  Dave Ramsey,  
  Associate County Agent  
  Maxine Frank, Home Economist  
  Mrs. Virginia Olson,  
  Homemakers County Safety Chairman

- Bottineau — Banks Sieber, County Agent  
  Bradley Cogdill,  
  Assistant County Agent  
  Kathleen Burgum, Home Economist  
  Mrs. Allen Wettlaufer,  
  Homemakers County Safety Chairman
Renville — Ken Erras, County Agent
Mrs. Vallie Jensen,
Homemakers County Safety Chairman

Emmons — Lynette Nieuwsma, County Agent
Mrs. Harry Reamans,
Homemakers County Safety Chairman

Mountrail — John Peterson, County Agent
Janet Sabol, Home Economist
Mrs. Arthur Weigel,
Homemakers County Safety Chairman

McKenzie — Dale Patten, County Agent
Mrs. Betty Lou Johnson,
Homemakers County Safety Chairman

McHenry — Tom Miller, County Agent
Julie Albrecht, Home Economist
Mrs. Vera Fairbrother,
Homemakers County Safety Chairman

Hettinger — Terrance Lykken, County Agent
Linda Narum, Home Economist
Mrs. Leslie Boe,
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Barnes — Les DeKrey, County Agent
Tim Haak, Assistant County Agent
Gail Gunderson, Home Economist
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Mrs. Grace Hagel,
Homemakers County Safety Chairman