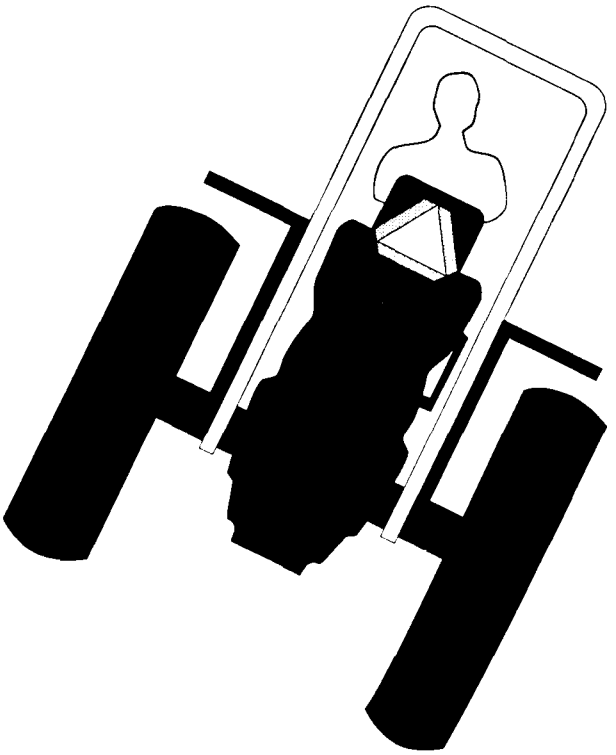
TRAC-SAFE

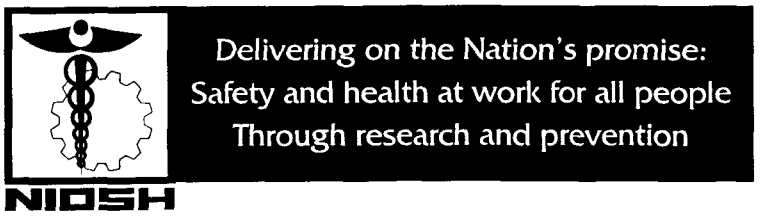


A Community-Based Program for Reducing Injuries and Deaths from Tractor Overturns

FACILITATOR'S MANUAL

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION



DHHS (NIOSH) Publication No. 96-108

TRAC-SAFE

A Community-Based Program for Reducing Injuries and Deaths Due to Tractor Overturns

Facilitator's Manual

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health
Education and Information Division
Cincinnati, Ohio

April 1996

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DHHS (NIOSH) Publication No. 96-108

ABSTRACT

This document contains basic information about tractor overturns and methods for decreasing overturn injuries and fatalities. The guide is designed to provide ideas and organizational assistance to a facilitator or instructor (professional or volunteer) who wishes to develop and implement a community-based educational program for reducing injuries and deaths due to tractor overturns. Preliminary indications are that educational programming and the availability of rollover protective structures (ROPS) are having a positive impact on tractor safety.

CONTENTS

ACKNOWLEDGMENTS

The production of this facilitator's guide was funded by the National Institute for Occupational Safety and Health (NIOSH) through cooperative agreement number U07/CCU706145 with the Great Plains Center for Agricultural Health at the University of Iowa's Institute for Rural and Environmental Health. It was written by Carol Lehtola and Risto Rautiainen with assistance from Gayle Olson, Julie Sessions, and Laura Miller. Greg Kullman was the NIOSH project officer. Jane Weber edited the document and produced the final camera copy.

Some materials in this guide were developed by Iowa State University Extension to promote tractor rollover safety as part of its Safe Farm program. ISU Extension materials are labeled.

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INTRODUCTION

ABOUT THIS PROGRAM

TRAC-SAFE: A Community-based Program for Reducing Injuries and Deaths from Tractor Overturns was developed to be used by community volunteers or professionals for developing and implementing community-based programs to reduce agricultural injuries and fatalities. TRAC-SAFE focuses only on tractor overturns. TRAC is an acronym for Tractor Risk Abatement and Control.

The TRAC-SAFE worksheets were developed for use in a tractor injury prevention program that involved a county in Iowa with a high incidence of tractor-related deaths. Final results of that project will be released in 1996. However, preliminary indications are that the educational programming with emphasis on tractor safety combined with an offering of the rollover protective structure (ROPS) at a cost of $250-$500 from John Deere are having an impact. For example, during the past year, at least 50 ROPS have been installed by one John Deere dealer in that county.

This program can be presented either to a group or single farm. Perhaps the best combination would be to have an initial group presentation, followed by farmers doing their individual assessments, and then returning for a follow-up closing meeting.

If an incentive package sponsored by local businesses (such as coupons, safety items, stickers, etc.) is developed, this can be presented to participating families at the closing meeting.

This guidebook consists of three primary sections and an introduction to planning a community-based program. Section I looks at the problem of the high number of injuries and deaths related to tractor overturns and suggests ways to reduce it. Section II includes necessary items to begin community planning and to empower local leaders to action. The third section of appendices has worksheets and program materials needed to carry out TRAC-SAFE.

ABOUT THIS FACILITATOR'S GUIDE

This guide is designed to provide ideas and organizational assistance to a facilitator or instructor who wishes to develop and implement a community-based educational program focusing on reducing injuries and deaths due to tractor overturns.

This guide contains basic information on tractor overturns and methods for decreasing overturn injuries and fatalities. Additionally, methods for a facilitator to implement such a program in a community are presented.

The guide is divided into sections with each representing a separate phase or task associated with conducting a successful program.

INTRODUCTION TO PROGRAM PLANNING

GETTING STARTED AND PLANNING

As with any type of adult or community education program, it is important to have a planning committee to organize, develop, implement, and evaluate the program. Select people who can be instrumental towards obtaining local ownership and motivation. They also need to be helpful in recruiting participants, using local information or resources, making sure that local needs are met, and identifying ways to help the program have a lasting impact.

Representatives of various groups (e.g., local or state commodity organizations, FFA, agribusiness, extension, et al.) would make a good planning committee. Appoint each member to handle the arrangements of a specific phase so responsibilities are shared and more people are involved in the project.

The planning committee needs to answer the following questions:

WHY does your community want to offer the program?
WHO are the key people who need to be involved?
WHAT is the best format for presenting this program?
WHEN is the best time to offer the program? to hold the meetings?
WHERE should the program be marketed, and where should meetings be held?
HOW do you know if you've made a difference?

Why does your community want to offer the program?

In order to offer a well planned, effective program, you must first identify why your group would want to offer a program targeted towards *tractor overturns*. The answer to this question will become a mission statement or list of goals for your project. It will help clarify the direction and guide the promotion of your project. It will also make it easier for you to evaluate whether you accomplished your goals.

Who should be involved?

It is helpful to define exactly who your target audience is, then identify key people and methods of promoting, delivering, and evaluating the program. Consider all who might be interested in the information: farm owners, hired workers, family members, ag businesses (such as feed or equipment companies), Cooperative Extension, FFA, 4H, media, veterinarians, physicians, and other health care workers. How you market, conduct, and evaluate your program will depend on your target audience. In some

instances, it is easy to mix them. Other times, it is important to market the program to a narrower audience in order to best serve the learners.

What is the best format?

This guide is designed for group sessions and completion of personalized worksheets. However, there are many good reasons to use additional educational methods to reinforce the information.

Kick-off, interim, and follow-up meetings are recommended to allow participants to discuss materials, ask questions, and participate in hands-on problem solving exercises. Possible activities include demonstration of problem solving and reinforcement of the development of a tractor hazard identification and correction plan. Group members can learn from one another and support each other in making changes that will reduce threats to their safety. Suggested outlines for organizing these meetings are included with this facilitator's guide.

Additional formal or informal discussion groups may be implemented as needed to reinforce material. The goal is to make the information contained in the worksheets understandable and as targeted as possible to the needs and desires of your community or organization. If the ideas listed here do not meet your needs, brainstorm to find ways to adapt them.

When is the best time to offer the program?

It is important to know who your audience will be when you discuss this question. A farm audience will prefer different times of the day and have a different busy season than a mixed audience of farmers and agribusiness or health professionals.

Once you have set tentative dates, check for conflicts with other events in your marketing area. Ask representatives of your target audience(s) if the dates and times will work. You may wish to check with the local Chamber of Commerce or Extension Office.

Where should the programs be marketed?

You have already completed the first steps in developing a marketing plan if you have identified your goals and your target audience. You need to define exactly what your geographical area is. Does it include all members of your organization in the county? state? region? All FFA students in your school? region? Are you working with a multi-county extension area? Once you have determined your area, the marketing chairperson can get busy. Sample news releases and letters are included with this guide to make the chairperson's job easier.

Carefully choose locations to hold any meetings. Items to consider include distance, availability, cost, accessibility, and where participants will feel comfortable. Some programs successfully rotate gatherings among several communities or locations.

How do you know if you have made a difference?

It is often easy in our busy lives to move on quickly to the next project when the current one nears the end. The mark of a truly good program, though, is to find out what happened because of it. That means evaluating it. Evaluating each meeting can help plan an even better one next time.

A number of different types of evaluation are built into this program. A plan of action can be used to measure behavior changes. Followup with participants is important to see if prevention plans were developed and enacted. The overall program evaluation can yield helpful ideas for ways to modify this program for future use.

Some of the evaluation data may be useful for local media to report the results of the program and encourage others to install ROPS on their tractors. Media representatives could be invited to the closing meeting to share the evaluation data and experiences of participants.

Some of the evaluation data is purely for your information. Other parts are important for those of us who developed this program so that we can make changes and adaptations to improve and update the tractor overturn guide. Please help us by returning the requested evaluation information (see Appendix D) as soon as your program is completed.

Return evaluation data to:

Coordinator
Great Plains Center for Agricultural Health
The University of Iowa
100 Oakdale Campus #124 AMRF
Iowa City, Iowa 52242-5000

RESOURCES

A number of organizations produce materials that can be used in a farm safety program. However, finding materials that fit your group's needs, budget, and time limitations can be a challenge. Educational materials for this guide came from two main sources: The University of Iowa's Institute for Rural and Environmental Health and Iowa State University Extension.

Materials developed by The University of Iowa were used in a pilot tractor injury prevention project in a two-county area in Iowa. This pilot Tractor Risk Abatement and Control (TRAC) project is supported in part by a grant from the Centers for Disease Control and Prevention (#CCR703640-05) to The University of Iowa Injury Prevention Research Center.

The *Tractor Risk Factor Worksheet* was developed based on an analysis of five years of tractor overturn data in Iowa. Other materials included were also used with the TRAC pilot project. In the TRAC project, the worksheets and commitments to excellence were discussed with farmers on a one-on-one basis by a FFA member who conducted a tractor safety analysis on approximately 50 farms.

At Iowa State University, ISU Extension's Safe Farm program also has developed a number of educational resources for agricultural professionals and farm families. Safe Farm is funded by the Agricultural Health Promotion Systems of the National Institute for Occupational Safety and Health, Project #U05/CCU706051-03.

One Safe Farm project was to review more than 3,000 farm safety fliers and handouts for content, usability, cost, and reading level and to develop teaching guides to help educators prepare programs on eight farm safety topics. The tractor rollover teaching guide from an ISU Extension publication, *Practical Guides for Teaching Farm Safety*, AE-3078, is included in Section I of this guide. A list of materials referenced in the teaching guide is in Appendix E. Copies of most materials referred to in the teaching guide can be found in a three-ring binder, *Tractor Rollovers: Instructional Materials and a Practical Guide for Agricultural Safety and Health*, available on loan from area extension offices (see Appendix E for a list of area extension office locations in Iowa).

You may find other materials from hospitals, farm safety groups, medical clinics, or national organizations helpful as you plan your program.

Additional resources (agencies and individual materials available) are listed in Appendix E.

GETTING GOING

The next page is a worksheet/checklist for your planning committee to use to answer the above questions, assign subcommittees, and move forward with conducting the program. The worksheet is a tool to help your committee, not a rulebook. If there are changes that would improve the program in your area, feel free to make them. Please note any changes on the program evaluation form so that we can consider them when revising the materials.

Happy planning!

Planning Worksheet

Mission Statement or Goals for this project:

Who is our target audience?

What is the best format?

When is the best time to offer this program?

Where is our marketing area?

How do we know if we have made a difference? What followup is planned?

Planning Committee Members

Committee Chair _____ Phone _____
FAX _____

Marketing/Public Relations _____ Phone _____
FAX _____

Other Members _____

_____

Kick-off Meeting _____ Phone _____
FAX _____

Other Members _____

_____

Distribution _____ Phone _____
FAX _____

Other Members _____

_____

Support _____ Phone _____
FAX _____

Other Members _____

_____

Follow-up Meeting _____ Phone _____
FAX _____

Other Members

_____

_____

Evaluation _____ Phone _____
FAX _____

Other Members _____

_____

SECTION I

TRACTOR OVERTURN STATISTICS, CAUSES, AND SOLUTIONS

STATISTICS AND CAUSES

Tractors are indispensable components of the farming operation. They contribute to the farmers' increased productivity and efficiency. Tractors are the most vital, yet deadliest machine on the farm.

Studies repeatedly indicate the tractor is the machine most often involved in farm-related fatalities, with the tractor overturn being the most common and most often fatal cause.

Tractor overturns continually account for 50% to 60% of tractor-related fatalities. This proportion has remained relatively the same over the past 50 years in the United States. An Iowa study over the 5-year period from 1988 to 1992, indicated that 15 overturn fatalities occurred each year and accounted for 56% of all tractor-related fatalities. Typically, side overturns account for 85 of 100 overturns, with 15 of 100 being overturns to the rear. A tractor can be involved in a front overturn, but this situation is rare.

Topography is recognized as a factor in tractor overturns; however, even people farming in flat locations are subject to slope conditions when driving on roads or near ditch banks. Of the 75 overturn fatalities during the 5-year Iowa study, 59% occurred in a field or farmyard, while 37% occurred on a public roadway with no other vehicle involved, and 4% occurred as a result of a collision with a motor vehicle or train. Roadway overturns can occur just as readily in flat portions of the state as in hillier locations. These overturns generally occur when the tractor begins to drive off the road shoulder and the natural human tendency of the operator is to turn the tractor upslope back towards the road. This results in a side overturn. Roadway overturns also occur when ditches are being mowed and one may hit debris, a wash-out, or other obstacle. Road overturns also happen when turning a corner too fast or too short while entering a drive or road.

Field overturns occurred as a result of carrying loads too high with a loader, spraying weeds along fence rows, herding cattle, driving along the edge of a dead-furrow, performing haying operations, or doing maintenance mowing of untilled ground and terraces.

Where tractor age was known, tractors older than 10 years were involved in 63% of the fatal overturns. Tractor age was not known in 33% of the cases. Tractors older than 10

years are less likely to be equipped with a rollover protective structure (ROPS), and thus are more likely to result in a fatality in the event that an overturn does occur.

Narrow front (tricycle) tractors were involved in 43% of the fatal overturns; 20% had wide front axles; 7% were either track tractors or skidloaders; type was not known for 30% of the cases.

A separate analysis of 70 overturns indicated that tractors in the 41-60 horsepower range were involved in 40% of the overturns. These items are shown on graphs in Appendix A.

SOLUTIONS

The effectiveness of the ROPS has been well documented. ROPS protects the operator and also helps prevent the tractor from overturning more than 90°. For tractor overturns involving tractors with a ROPS, less than 1% have resulted in a fatality. It is also important that a seatbelt is used as a part of the ROPS system. The seatbelt is used in order to keep the operator in place within the "zone of protection" provided by the ROPS, thus decreasing the risk of injury. The seatbelt also keeps an operator from being bounced off the seat. However, seatbelts are ***NOT*** to be used in tractors not equipped with a ROPS, since without the seatbelt there is at least a remote chance that the operator can jump or be thrown clear.

Approved ROPS are available for some tractors manufactured from as early as 1960, and for most tractors manufactured since 1969. ROPS were not standard equipment on tractors until 1986; thus, there are still a large number of tractors in use that do not have ROPS. It is estimated that two-thirds of the tractors in use in the United States are ***not*** equipped with ROPS. However, at least two-thirds of farmers surveyed indicated they owned at least ***one*** tractor with a ROPS. Thus, in some instances, changing the tractor's usage patterns can reduce the risk for death due to overturn. Encourage the use of tractors with ROPS for the tasks that are at higher risk to overturns. This includes working on slopes, mowing pastures and roadway ditches, and roadway travel. Specific ROPS-related questions are contained in the program flyer *Frequently Asked Questions: Tractor Overturn Safety*, in Appendix A.

WORKSHEETS

Worksheets prepared for use in the TRAC-SAFE Program are contained in Appendix C. These worksheets include:

> ***My Commitment to Excellence as a TRAC-SAFE Supporter*** – This is the participant sign-up form for local businesses and professionals. Note that this is also used for program evaluation.

Our Commitment to Excellence as a TRAC-SAFE Farm – This is the participant sign-up form for farm families. This is also used for program evaluation.

Tractor Rollovers, How Much Do You Know? – This can be used as a pre and post test or to test participant's knowledge of tractor overturns.

Study Guide Questions for Use with the Video, "Tractor Overturns and Tow Rope Safety" by NDSU — If the video is used, this set of questions can be used to test the viewer's knowledge based on the video presentation. An answer key is also provided. The video is available through North Dakota State University (701-231-7882) at an approximate cost of $10. (Similar videos are available on loan from ISU Area Extension offices.)

Study Questions for Use with the Video, "Consider the Flipside" by CASE Corporation — This set of questions can be used to test the viewer's knowledge based on the video presentation. Correct answers are also provided. The video is available through CASE-IH dealers or, for a complimentary copy, write Bill Thompson, Product Support, CASE Corporation, 7000 Durand Ave, Racine, WI 53406. A brochure accompanying the video is also available.

Tractor Safety Inspection Guideline — One sheet should be used for each tractor on a farm. This sheet includes more items than only overturn protection. Thus it serves as a guide for farmers to consider the safety features needed on their tractors.

Tractors for which ROPS are Available – These three pages summarize the tractor models identified in the 1990 and 1993 ROPS Directories for which ROPS are available. The directories further indicate approximate costs. The prices for ROPS range from $250 to over $1500, depending on the tractor type. Some directory listings have since been made available at more affordable prices. John Deere, Kubota, and CASE-IH have introduced low cost ROPS programs (approximately $250-$500 plus freight and installation), and some other manufacturers will do so in the future. If a ROPS is identified for a specific make and model of tractor, the owner will have to consult with the local dealer for current cost and availability. These pages are to be used in conjunction with the worksheet, *Tractor Risk Identification Factor*.

Tractor Risk Identification Factor (TRIF) – This worksheet was developed for use by farmers to identify their tractors which are more at risk for overturn. This will indicate the need for a ROPS or the need to consider changing the usage of the tractor. Scores were obtained from analyzing data from tractor overturns; however, scores are still on a relative basis and based subjectively on judgment and experience. ***ALL*** tractors are susceptible to overturn; thus, even a low score should not be used as an indicator of no risk. Follow the directions on the scoresheet. Scoresheets should be completed for each tractor ***without*** a ROPS.

Prioritization for ROPS Retrofit – This worksheet is to be used with the above *Factors in Tractor Overturns* to develop a ROPS retrofit priority list for tractors based on the risk, hours of use, and other factors.

Will ROPS Interfere with Tractor Usage? – Many farmers indicate nonuse of ROPS on their tractors because they think it will interfere with the tractor's usage. However, in reality, fewer than 5% ***actually*** remove a ROPS because it interferes. Furthermore, foldable ROPS are now available for many models. This worksheet was prepared for use in instances where a farmer feels a ROPS will interfere.

The purpose of this worksheet is to show, by actual measurements, if the ROPS will interfere. Data on the height of tractors with the ROPS will have to be obtained from local dealers. This sheet is to be used for the "most limiting height" instances where it is anticipated the tractor would be used (for example barn door, orchard).

Farm Safety Community Resources – This can be used by the program leaders to develop a summary of local resources.

Certificate of Completion – To be presented to those who have participated or completed the requirements of their individual commitments to excellence.

TEACHING GUIDES AND OUTLINES FOR PRESENTATIONS

Group presentations are valuable to identify hazards, discuss solutions, address practical issues, and generally motivate farmers to install ROPS on their tractors. A teaching guide with suggestions for presentations varying from 25 minutes to several hours in length is included in this section in order to help you plan your program. The teaching guide lists objectives and how to tailor a program for the needs of various groups, as well as how to review and apply concepts. The teaching guide is designed to be used with a pre- and post-quiz, *Tractor Rollovers, How Much Do You Know?* found in Appendix C of this guide.

Other handouts and overheads that might be helpful in a group presentation are included in Appendix A as follows:

Frequently Asked Questions: Tractor Overturn Safety – This flyer was developed to answer basic questions about tractor overturns and safety measures available. It can be used as a hand-out contained in a program packet.

Fatalities from Tractor-Related Accidents, 1988-1992 – This map shows Iowa tractor-related fatalities by county for 5 years. For statistics in your region, please

contact your local extension office, NIOSH Agricultural Center, OHNAC nurse, FACE-accident investigator, or other health and safety expert.

Safe Farm: Use tractors with ROPS to save lives – This publication is part of a series of more than 24 farm safety fact sheets produced by Iowa State University Extension. You can make your own copies using the master in this guide, or you may want to order copies from any ISU Extension office. Ask for Pm-1265d. Single copies of the publication are free. Multiple copies are free if extension is involved in the program.

Safe Farm: Extra riders mean extra dangers – This publication is part of a series of more than 24 farm safety fact sheets produced by Iowa State University Extension. You can make your own copies using the master in this guide, or you may want to order copies from any ISU Extension office. Ask for Pm-1518b. Single copies of the publication are free. Multiple copies are free if extension is involved in the program.

Newspaper clippings – This overhead master shows examples of the headlines frequently seen in area newspapers. These are not just statistics but are real people. Most farmers know of tractor overturns in their community. These could be discussed in the meetings to personalize the hazard.

Tractor-Related Deaths are Preventable – This overhead can be used to emphasize there is no need for people to be killed in tractor overturns. The use of the ROPS and seatbelt has been 100% effective in preventing deaths due to tractor overturns in Iowa.

Tractor Overturns by Horsepower – Based on analysis of data from tractor overturns in Iowa from 1988-1992 for which information about the tractor was known, the smaller tractors were involved in the greatest number of overturns. These are frequently used for chores and maintenance-type work (such as mowing), which are tasks at greater risk to overturn.

Tractor Overturns by Tractor Age – The Iowa tractor overturn data also indicated that tractors older than 10 years were involved in the highest percentage of fatal tractor overturns. Tractors older than ten years are less likely to be equipped with a ROPS.

Tractor Overturns by Tractor Type – Narrow front tractors were involved in the highest proportion of fatal overturns in the same 5-year Iowa analysis. Older, narrow front tractors are often used for maintenance and chore type operations.

A PRACTICAL TEACHING GUIDE FOR AGRICULTURAL SAFETY AND HEALTH

This teaching guide can be used to prepare a 25- to 50-minute program on a specific topic related to agricultural health and safety. Check the resource list in this section to find information about resources referenced in this guide and how to obtain them. Sample copies of those resources are included in the teaching notebook on this topic, available for check-out at area offices.

Subject: Tractor Rollovers

Goal: To increase awareness of proper operating procedures and possible hazards in tractor operation.

Specific Learning Objectives:

At the end of the program, your audience should be able to:

1. Discuss the extent of the tractor accident problem.
2. Identify and discuss the proper maintenance and pre-operation checks that should be made by the tractor operator.
3. Identify and discuss the human and environmental factors that contribute to tractor accidents.
4. Describe types of accidents common in tractor operation and suggest actions to correct these hazards.
5. Identify and describe the laws and regulations that relate to tractor operation.
6. Identify and discuss the importance of safety equipment.

Program Length:

You can adjust the length of the program to match your audience's needs and interests.

- For a 50-minute program, use the suggested teaching activities in **bold.**
- For a longer program, use suggested teaching activities in *italics.*
- For a 25-minute program, use only the bold-faced teaching techniques 1.1 and 4.2, followed by a brief summary and questions.

IOWA STATE UNIVERSITY
University Extension

Ames, Iowa

This material is reprinted with permission of Iowa State University Extension. These and supplementary materials originally appeared in a three-ring notebook, *Instructional Materials and a Practical Guide,* available for checkout from area ISU Extension offices, and reproduced in *Practical Guides for Teaching Farm Safety,* AE-3078, available for purchase from ISU Extension. These materials were produced under Cooperative Agreement UO5/CCU706051-03 between the National Institute for Occupational Safety and Health and ISU.

Additional Resources that may be needed:

Resource	Source
Transparencies, slides and videotapes	ISU Extension
Overhead or slide projector	check with local school
Television and videotape player	check with local school
Electric drill and cloth	check with local contact
Toy tractors and equipment	check with local collector
"Drive Head Over Wheels" safety display	Area Extension office
Tractor operator manuals	check with local implement dealer
Tractor	check with local implement dealer or farmer

Introduction and arrival:

- Ask group members to describe their personal experiences with a tractor accident; discuss factors which may have contributed to the accident.
- Set up "Head over Wheels" display and operate tractor in display. Ask group members to discuss situations which caused the model to overturn.

CONTENT AREAS
Key Questions and Teaching Techniques

1. **How many tractor rollovers are there in Iowa? In our area?**
   Resources: TR-91-9

   1.1 Discuss the tractor rollover accident rate for Iowa and your area using the overhead and accident data provided. (5 min.)

   1.2 Have participants discuss accidents that have happened in the area. **(10 min.)**

   1.3 Have a victim of a tractor rollover accident discuss his/her accident and its influence on his/her lifestyle. **(15 min.)**

2. **What is the influence pre-operation checks and maintenance procedures have on tractor accidents?**

   A. Pre-operational checks
      1. tires
      2. shields
      3. brakes
      4. steering
      5. operators platform and steps
      6. lighting
      7. seat adjustment lighting
      8. leaks in hydraulics, cooling, and fuel systems
      9. safety equipment

   Resources: TR-91-1, TR-91-7,TR-91-12, and TR-91-14

B. Proper maintenance procedures.
   1. broken and missing parts
   2. fluid levels
   3. control adjustments
   4. lubrication
   5. refueling procedures
   6. clean the tractor

Resources: TR-91-1, TR-91-7, TR-19-12, and TR-91-14

2.1 Lead a discussion of pre-operational checks and maintenance procedures using the packet materials and overheads. Have participants discuss personal examples of the impact of these on safe operation. (10 min.)
Resources: TR-91-1, TR-91-7, TR-19-12, and TR-91-14

2.2 Have participants use the operators manuals to determine proper pre-operational checks and maintenance procedures for the unit relating to the manual. **(15 min.)**

2.3 Have participants perform a pre-operational inspection of a tractor and discuss the deficiencies found. **(15 min.)**

3. What are the human and environmental factors that influence tractor safety?

A. Human factors
   1. illness
   2. handicaps
   3. drugs and alcohol
   4. inattention
   5. inexperience
   6. lack of training
   7. anger and frustration
   8. unwillingness to follow proper procedures
   9. fatigue

Resources: TR-91-1, TR-91-12 and TR-91-14)

B. Environmental factors
   1. poor visibility
   2. extreme temperatures
   3. slippery surfaces
   4. obstacles and slopes
   5. dust and noise

Resources: TR-91-1, TR-91-12, and TR-91-14

3.1 Lead a discussion of the human and environmental factors that influence tractor safety using packet materials and transparencies. Have participants relate personal experiences that illustrate this topic. (10 min.)

3.2 Divide participants into groups and use newspaper clippings of tractor accidents as case studies to discuss the influence of human and environmental factors on the accident. **(15 min.)**

3.3 Have the participants work in groups to develop suggestions to minimize hazards contributed by human and environmental factors, then share ideas with entire group. **(30 min.)**

4. **What types of accidents are common in tractor operation and what can be done to correct these problems?**

A. Tractor rollovers.
   1. Causes
      a. gravity
      b. centrifugal force
      c. rear-axle torque
      d. leverage
   2. Typical hazards causing rollovers to the rear.
      a. improper hitching
      b. failure to use ballast
      c. "popping" the clutch
      d. frozen or mired rear wheels
      e. driving up excessive slopes
   3. Typical hazards causing rollovers to the side.
      a. traveling across steep slopes
      b. turning too sharply
      c. ditches and embankments
      d. obstructions
      e. mounted equipment (i.e. loaders)

   Resources: TR-91-1, TR-91-3, TR-91-4, TR-91-5, TR-91-6, TR-91-7, TR-91-8, TR-91-12, and TR-91-14)

B. Falls and runovers
   1. extra rider
   2. operating tractor from other than the seat
   3. operate at a safe speed
   4. take frequent rests
   5. use steps and platforms provided (three point contact)

   Resources: TR-91-1, TR-91-3, TR-91-4, TR-91-5, TR-91-6, TR-91-7, TR-91-8, TR-91-9, TR-91-12, and TR-91-14)

C. Crushed
   1. crush points
   2. hitching
   3. raised equipment

   Resources: TR-91-1, TR-91-7, TR-91-12, and TR-91-14)

D. Entanglement in PTO
   1. proper shielding
   2. proper clothing
   3. establish "danger zones"
   4. disengage PTO before dismounting
   5. never step over PTO shaft

   Resources: TR-91-1, TR-91-7, TR-91-12, and TR-91-14)

E. Collisions with other vehicles
   1. SMV and lighting
   2. mirrors
   3. signals
   4. lack of visibility

   Resources: TR-91-1, TR-91-7, TR-91-12, and TR-91-14

4.1 Lead a discussion of the types of accidents common in tractor operation and strategies to reduce them using packet materials and transparencies. (10 min.)

4.2 View videotape on tractor rollovers. *Prevention: Tractor Rollover and Tow Rope Accidents*, by North Dakota Extension **(15 min.)**

4.3 Have participants use toy tractors to investigate stability on various slopes and under various conditions. **(15 min.)**

4.4 Demonstrate, or have participants investigate, stability on various slopes and under various conditions using the "Drive Head over Wheels" display available from your area extension office. **(15 min.)**

4.5 Divide participants into groups and use resource #3 or other news articles as case studies to study causes leading to tractor rollovers **(30 min.)**

4.6 Divide participants into groups and have them develop strategies that will eliminate tractor hazards in their own operations. **(30 min.)**

5. What laws and regulations pertain to tractor operation?

A. OSHA

Resources: TR-91-12, and TR-91-14

B. Traffic laws

Resources: TR-91-11, TR-91-12, and TR-91-14

C. State and local ordinances

Resources: TR-91-11

5.1 Lead a discussion of Laws and regulations pertaining to tractor operation using the packet materials and overheads. (5 min.)

5.2 Have an official speak to the participants on the laws and regulations pertaining to tractor operation. **(20 min.)**

6. What safety features can manufacturers provide on tractors that will minimize injuries in tractor rollover accidents?

A. ROPS and seat belt
B. fire extinguisher
C. locking brake pedals
D. SMV emblem
E. lighting
F. reflectors
G. color coded controls
H. adjustable seats
I. steps and hand holds
J. skid resistant platforms and steps
K. shields
L. safety interlock switches

M. ignitions keys
N. warning labels
O. operators manual

6.1 Lead a discussion of safety equipment found on tractors using the packet materials and transparencies. (10 min.)

6.2 Have an equipment manufacturer representative or implement dealer talk about safety features on tractors. **(20 min.)**

6.3 Have participants examine a tractor and point out the safety features incorporated into tractor design. **(20 min.)**

6.4 Take a field trip to a local implement dealer and have participants compare and evaluate safety features on several different tractors. **(60 min.)**

6.5 Have participants evaluate the safety features of tractors found in their operations. (Take home assignment)

Resources: TR-91-1, TR-91-7, TR-91-12, and TR-91-14

Review and Application:

1. **What are some human factors involved in fatal tractor accidents?**

   Carelessness, poor judgement, attitude, fatigue, lack of knowledge or training, haste, stress, showing off, depression, or intoxication are factors that can result in a fatal accident on a tractor.

2. **What procedures and practices can be recommended to reduce tractor side rollovers?**

   Train all tractor operators, restrict your speed to driving conditions, be familiar with your operator's manual, space rear wheels to the widest setting practical, lock brake pedals together before driving on public roadways, use engine braking when going downhill, avoid crossing steep slopes, and operate front-end loaders in the lowest possible position and with care.

3. **What forces are involved in tractor rollovers?**

   Gravity, centrifugal force, rear axle torque, and drawbar leverage.

4. **Describe center of gravity and how it relates to tractor stability.**
   The center of gravity can be thought of as that single point or location on a tractor that causes it to act or react as if all its weight were concentrated at that point. Understanding center of gravity force will help you keep your tractor firmly on the ground. If enough force is exerted on a tractor causing it to lean or tilt to a point where the center of gravity moves beyond the stability baseline, the tractor will rollover.

5. **Describe how centrifugal force is involved in side rollovers.**

When a tractor is going too fast around a sharp turn the centrifugal force will push outward and cause the tractor to become unstable and rollover.

6. **Why are extra riders on a tractor considered an unnecessary hazard?**

Extra riders on a tractor are not needed to operate the tractor, do not have a safe place to sit or anything to hang on to. Extra riders can easily fall off when going over a bump or depression and be run over by the tractor or the towed implement.

7. **What are some of the conditions that can cause side rollovers?**

Excessive speed, high center of gravity, potholes and ditches, hilly or sloping fields, sharp turns, hitting a raised object such as a stump, and improper operation of mounted equipment (such as traveling with a front-end loader in the raised position).

8. **State some practices that can be used to reduce or control rear rollovers.**

Some things that can be done to control rear rollovers are to provide front-end weights, avoid going forward up steep slopes, hitch only to the drawbar, and start slowly when pulling a heavy load.

9. **What would a pre-operational check of a tractor include to assure safe running condition?**

Check tires for proper inflation, clean windows, position seat for operator, and check seat belts, brakes, and steering response, lights for operating at night, rearview mirrors, and slow-moving vehicle sign.

10. **What safety features can manufacturers provide on tractors that will minimize injuries in tractor rollover accidents?**

Rollover protective structures (ROPS) and seat belts.

11. **How does adding weight to a tractor increase stability?**

Adding front-end weights or rear-wheel weights or ballast can help counterbalance front and rear mounted equipment so that the operator has improved control of the tractor. Adding weights will help maintain a low center of gravity.

Evaluation:

Use the "How much do you know?" quiz (TR-C, included in this section) as a pre- and post-test, or an introduction to discussion.

Answers to quiz: 1-c; 2-b; 3-e; 4-d; 5-a; 6-e; 7-d; 8-c; 9-e; 10-d

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Resource List
Tractor Rollovers

The following materials are referred to by number in the teaching guide. To preview copies of these materials, check out the *Instructional Materials* and a *Practical Guide: Tractor Rollovers* notebook, available at area extension offices. Details about how to order your own copy of these materials follow the resource list. All materials have been reviewed for applicability to the topic, cost, and reading difficulty (indicated by Reading Grade Level that corresponds to year in school).

Resource Number	Description	Reading Grade Level	Cost
TR-91-1	Equipment Manufacturers Institute (1989). *Agricultural Tractor Safety Manual*	11	>$1
TR-91-2	Farm Bureau Women in Illinois and County Companies Insurance (1989). *ROPS Save Lives.*	5	<$1
TR-91-3	Pennsylvania State University Cooperative Extension (1990). Preventing *Tractor Turnover to the Side.*	9	<$1
TR-91-4	Pennsylvania State University Cooperative Extension (1990). *Preventing Tractor Turnover to the Rear.*	7	<$1
TR-91-5	*Successful Farming* (1990, March). "Staying Alive."	7	<$1
TR-91-6	*Successful Farming* (1991, March). "*So that kids might live."*	7	<$1
TR-91-7	National Safety Council (1978). *Farm Tractor Safety.*	10	<$1
TR-91-8	Iowa State University Cooperative Extension (1989). *Employer's Instructional Guide: Training Employees Who Operate Agricultural Tractors.*	12	<$1
TR-91-9	Iowa State University Cooperative Extension (1991). *Farm Accident Data Sheet.*		<$1
TR-91-10	Bureau of National Affairs, Inc. (1981). *Occupational Safety & Health Reporter, Construction Safety Standards.*		
TR-91-11	State of Iowa (1987). *Iowa Laws: Motor Vehicle Handbook.*		
TR-91-12	Deere & Company (1989). "Tractors and Self-Propelled Machines," *Fundamentals of Machine Operation: Agricultural Safety.*	8	>$10
TR-91-13	North Dakota State University Cooperative Extension (1988). Prevention: *Tractor Rollover and Tow Rope Accidents.* (videotape)		$5
TR-91-14	Hobar Publications (1988). *Safe Operation of Agricultural Equipment.*	10	>$10

SOURCES OF RESOURCE LIST MATERIALS

Multiple copies of the materials on the Resource List may be obtained by contacting the appropriate organization on the following list.

TR-91-1
Hubbard Publishing Inc.
PO Box 525
Windsor WI 53596
Telephone: (608) 846-9293

TR-91-2
Illinois Farm Bureau
Field Services Division
1701 Towanda Avenue
Bloomington, IL 61701
Telephone: (309) 557-2219

TR-91-3
TR-91-4
Agricultural Engineering Department
The Pennsylvania State University
246 Agricultural Engineering Building
University Park, PA 16802
Telephone: (814) 865-7685

TR-91-5
Farm Safety 4 Just Kids
130 East First St., PO Box 458
Earlham, IA 50073

TR-91-6
Successful Farming Magazine
1716 Locust Street
Des Moines, IA 50909-3023
Telephone: (513) 284-2903

TR-91-7
National Safety Council
1121 Spring Lake Drive
Itasca, IL 60143-3201
Telephone: (708) 285-1121

TR-91-8
Printing Services
Iowa State University
Ames, IA 50011
Telephone: (515) 294-3601

SECTION II

EMPOWERING THE COMMUNITY TO ACTION

IMPORTANCE OF THE ROLE OF THE COMMUNITY

It is vital to have community businesses and professionals involved in promoting and implementing farm safety programs. Studies have indicated that farmers seek farm safety information from these key people in their local areas.

Many recent models in safety and health promotions have found community-based support and participation to be a very important aspect of program success.

A recent study indicated that rural communities lose one business for every five-to-seven farmers who discontinue farming. A hidden cost of serious farm accidents is that often the family will discontinue farming, especially if the principal farm operator is killed.

It has been estimated that the yearly costs from deaths from tractor overturns in Iowa are a minimum of $3.78 million. This is based only on lost income potential and does not include hidden costs nor the costs of disabling injuries.

Identification of safety hazards and issues

It is important for program presenters to recognize that perceptions of hazards often do not match the realities, as evidenced by an Iowa Farm and Rural Life Poll. The survey was completed by 2,016 Iowa farm families. Farmers indicated they perceived insecticides as the most hazardous item they worked with and tractors as the least hazardous. Yet, for those reporting having had an accident, farm machinery was the number one item involved, with tractors being fourth, while no acute accidents involving insecticides were reported.

A recent study of 5 years of tractor-related accidents in Iowa indicated that tractors were involved in 53% of the agricultural fatalities and 40% of the agricultural accidents reported in Iowa's newspapers. It is nationally recognized that machinery is the number one item involved in farm-related accidents, and the tractor is the machine most often involved in a fatality. Tractor overturns are the number one cause of tractor-related deaths. Several studies (including the Iowa study) have shown that there have been no deaths in an overturn of a tractor equipped with a ROPS. ROPS will not prevent the overturn; however, ROPS and a seatbelt will protect the operator.

Individual hazards for a farm or workplace can be identified by means of available checklists. Implementing the corrections becomes a more challenging task. There are other issues involved in implementing farm safety. These barriers and issues need to be taken into consideration when corrections are considered. It is imperative that the unique aspects of agriculture be recognized. The agricultural professional is already aware of these unique qualities and there is no need to further elaborate here (e.g., independence, isolation, and not favoring regulation). Other social issues to be considered include the concepts of peer pressure, the cost of safety equipment (especially if it does not affect the function of the equipment), and the lack of an incentive or reward system for practicing safer farming.

Identification of intervention strategies

In order to identify effective intervention strategies, it is necessary to understand a basic premise essential to injury intervention. Two necessary factors involved in motivating behavioral change are: (1) personalization of the risk and (2) accessibility to the means for change.

As an agricultural professional or community leader, you are in a position to help in both of the above mentioned areas. You can help show farmers they are at risk when they follow unsafe practices. Perhaps, the area you can have the most influence in is providing "access to the means for change." Safety information may indicate the need for safety devices; however, if a person has to go through an obstacle course to obtain the necessary equipment, it will not be obtained and used.

Intervention strategies also include educational and training programs. Frequently, several businesses in a community will cooperate in sponsoring these programs. The following information is provided in order to assist those who may be in charge of developing or implementing educational programs for an agricultural audience.

Educational programs developed for agricultural audiences must consider the unique aspects of that audience. It is recognized that the agricultural learner wants ***practical information with immediate application***. Hands-on training is usually preferred.

When educational programs are developed and presented, it is necessary to recognize that people learn in different ways; thus, use of a variety of teaching methods will reach a greater number of people. Also, people learn better when more senses are involved (for example, sight and sound promote learning more effectively than sound alone). A tractor with retrofitted ROPS may be available in the community for demonstration as part of the meetings. This could address practical issues in retrofitting and provide hands-on experience.

Educational interventions and training can be presented with different target groups in mind. For example, farm spouses and children have become more involved in injury

prevention and preparedness. Programs should be focused according to the interest of the target groups. The entire farm family can be trained in preparedness practices of what to do in the event that something does happen and they are first on the scene.

Summary

Based on information obtained from farmers, it is recognized that community businesses and professionals play a major role in helping farmers improve their safety and health. In order to implement effective interventions, it is necessary to recognize the hazards and problem areas, and how to best reach the agricultural audience; then identify and incorporate strategies which address these issues in the most effective and appropriate manner.

With strong community support and influence, farmers can be encouraged to develop safer farming practices. Farm safety is not just the problem of the farmer. The well-being and productivity of our farmers involves participation, encouragement, and active promotion on the part of the entire rural community. The agricultural professional has an important role to play and can be a very influential member of the network of people working for the improved well-being of our farm families.

MARKETING AND PUBLICIZING THE PROJECT

Marketing and P.R. Committee Chair _____

Other Members _____

_____

The key to effective marketing is to use a variety of different methods to market the TRAC-SAFE program. This section contains ideas and resources to encourage enrollment in the project, publicize the effort, and keep participants interested. Feel free to devise your own schemes or choose from the following enclosed resources.

1. Key contact list to use for developing a local steering committee and/or base of support.

2. Reproducible program flyer describing the program to be distributed through Cooperative Extension, Community Colleges, FFA chapters, veterinarians, agribusinesses, etc. (see Appendix A).

3. Letter describing program and inviting participants to enroll (see Appendix B).

4. Letter soliciting support (financial or educational) from local key contacts (see Appendix B).

5. Media release to be localized (see Appendix B).

6. List any of your own ideas here.

_____

_____

_____

_____

Key Contact List

Educational efforts in agricultural safety have more impact when there is community involvement and support in organizing and carrying out the project.

Below is a list of potential contacts who may be interested in participating or supporting this project. Communities vary as to which services are available and which are the most active. You may personalize this list in any way that works best for your community.

Agricultural Engineering Consultants
Agricultural Health and Safety Clinics
Agricultural Organizations (for example Farm Bureau, NFO, WIFE)
Commodity Groups
Community Colleges
Cooperatives
Cooperative Extension Service
Farm Business Consultants
Farm Business Managers
Farm Equipment and Supply Dealers
Farm Safety 4 Just Kids Chapter
Feed Companies
FFA, 4H, Vocational Agriculture Chapters
Financial Institutions
Hospitals
Insurance Companies
Rural Electric Cooperatives
Veterinarians
Wellness Programs

List your ideas here _____

_____

_____

_____

_____

_____

_____

KICK-OFF MEETING

Kick-Off Meeting Chairperson _____

Other Committee Members _____

_____

Time, Place, Date of Kick-off Meeting_____

_____

A kick-off meeting can achieve the following objectives:

1) Expand awareness of the issues
2) Clarify program objectives and procedures
3) Provide technical support by introducing resources available locally
4) Provide a social support network of peers & community
5) Reinforce information presented in worksheets
6) Develop sense of program ownership
7) Facilitate participant sign-up and distribution of educational materials

TRAC-SAFE Kick-Off Meeting
Suggested Agenda

I. Welcome and introductions

II. Scope of the problem (see Appendix A for overhead masters)
   A. Tractor overturn statistics
   B. Prevention

III. Description of program
   A. What it covers
   B. Procedure
      1. Distribution
      2. Who to contact with questions
      3. Other components of program (follow-up meeting, news releases, informal discussions)
      4. Any fun contests, awards (most correct answers, most prompt, etc.)
   C. Support (from individuals, organizations, businesses)

IV. Local resources available (may wish to include displays, brief presentations, or demonstration of ROPS)

V. Question and answer

VI. Participant sign-up form and worksheets (see Appendix C)

VII. Complete meeting evaluation (see Appendix D)

VIII. Distribute materials

DISTRIBUTION OF MATERIALS

Distribution Chairperson _____

Other Committee Members _____

_____

_____

Worksheet materials are contained in Appendix C.

SUPPORTING INFORMATION

Support Chairperson _____

Other Members _____

_____

_____

It can be helpful in an on-going program to have some type of support or reinforcement between the kick-off and the ending meeting. Choose one of the ideas listed below or decide on a different set of methods that would work better in your area or with your particular audience.

* Have the media interview local farmers who have installed a ROPS on their tractor or interview a machinery dealer regarding numbers of ROPS sold.

* Hold informal discussion groups on a certain day of the week at a local gathering spot (cafe, elevator, implement dealership, etc.).

* Assign farmer partners or peer support groups at the kick-off meeting.

* Make follow-up calls to each participant.

* Have designated office hours to be available by phone or in person to answer questions or just discuss the information.

FOLLOW-UP MEETING

Follow-up Meeting Chairperson _____

Other Committee Members _____

_____

_____

The follow-up meeting is a chance for participants to discuss with one another what they have accomplished, ask specific questions of resource people, develop further action plans specifically for their farm and community, evaluate what they have learned and changed, and recognize and reward accomplishments. Suggestions included are intended to make it a fun, as well as educational, event.

Suggested Agenda

Dinner may be included, perhaps coordinated through a local commodity organization or other sponsoring businesses.

A keynote type of speaker could summarize resources available to use in implementing desirable changes.

Awards or incentive packages could be provided to those who correct a certain number of hazardous items.

Participants should be given some time to complete an action plan outlining their personal goals for change. It would be helpful to have resource people available to serve as consultants and critique the plan if so requested. Have volunteers share their plans with the other participants.

Evaluation forms (see Appendix D) should be collected from each participant who would then be awarded a certificate of completion (see Appendix C).

EVALUATION

Evaluation Chairperson _____

Other Committee Members _____

_____

_____

Evaluation is a very important component of any educational program. This project has several different parts to its evaluation plan:

1. The program evaluation form will tell how satisfied participants were with the overall procedure, information, and motivation to change. It can also help identify areas where additional resources need to be made available locally.

2. The commitment to excellence will give a baseline against which future improvements can be measured. A follow-up evaluation (in 6-12 months) could be conducted asking participants how many of their plans were accomplished and why or why not. A summary sheet is also included to return to the Great Plains Center for Agricultural Health Coordinator.

3. Commitment to Excellence Pledges are also included for businesses, and their involvement can be evaluated using these pledges.

4. A facilitator's evaluation form is included to be completed and returned to the Great Plains Center for Agricultural Health Coordinator.

Appendix A

Reproducibles and Overheads

Frequently Asked Questions: Tractor Overturn Safety

Fatalities from Tractor-Related Accidents (1988-1992), Iowa

For statistics in your region, please contact your local extension office, NIOSH Agricultural Center, OHNAC nurse, FACE-accident investigator, or other health and safety expert.

Safe Farm: Use Tractors with ROPS to Save Lives

Safe Farm: Extra Riders Mean Extra Dangers

Newspaper Clippings

Tractor Related Deaths are Preventable

Tractor Overturns by Horsepower

Tractor Overturns by Tractor Age

Tractor Overturns by Tractor Type

TRAC-SAFE PROGRAM

FREQUENTLY ASKED QUESTIONS

HOW COMMON ARE TRACTOR OVERTURN INJURIES?
Tractor overturns are the leading cause of work related death in agriculture.

CAN OVERTURN INJURIES BE PREVENTED?
Methods for preventing overturn injuries exist. The use of a ROPS ***and*** seatbelt is 99% effective in preventing death and serious injury in the event of a tractor overturn.

WHY IS A SEATBELT NEEDED WITH ROPS?
The seatbelt keeps the operator within the zone of protection in the event of an overturn. There have been no deaths in Iowa in tractor overturns where ROPS were used. Seatbelts are ***not*** to be used on tractors without a ROPS.

HOW DO I KNOW IF A ROPS IS AVAILABLE FOR MY TRACTOR(S)?
ROPS availability and cost estimates are provided in a ROPS directory prepared by the National Farm Medicine Center in Marshfield, Wisconsin, and distributed to county extension offices and equipment dealers across the US. For example Deere, Kubota, and CASE currently offer ROPS at affordable prices – contact your local dealer for details.

I CAN'T AFFORD ROPS FOR ALL MY TRACTORS, YET I WANT TO REDUCE MY INJURY RISK IN THE EVENT OF AN OVERTURN. WHAT CAN I DO?
Surveys have indicated that approximately two out of three farms already have at least ***one*** tractor with a ROPS. Thus, the safer alternative may simply be a matter of using the ROPS tractor for riskier operations. Another consideration would be trading an older tractor in for a model equipped with a ROPS.

IF ROPS ARE SO GREAT WHY CAN'T I MAKE MY OWN?
Only ROPS which have been tested to meet specific standards are acceptable. Tractors with a non-approved ROPS can split during the impact of an overturn. Anything less than an ***approved*** ROPS provides a false sense of security. Likewise, any altering of the ROPS (welding, drilling holes, or being involved in an overturn or collision) can affect the effectiveness of the ROPS itself. Due to the dynamic forces which act upon a ROPS during a tractor overturn, it is crucial that a ROPS is properly designed, manufactured, and installed. Proper materials and mounting hardware are necessary for ***SAFE*** performance in all temperatures and operating conditions.

(continued)

FREQUENTLY ASKED QUESTIONS
(continued)

WON'T A ROPS LIMIT THE WAY I CAN USE MY TRACTOR?
Many farmers feel the ROPS will interfere with the tractor's usage. However, less than 6% of farmers actually remove a ROPS because of interference. Foldable ROPS are presently available for many utility-sized tractors.

SOME OF MY TRACTORS HAVE CABS – ISN'T ROPS A PART OF THE CAB FRAME?
Many older tractors may only have what is known as a weather cab–meaning a ROPS is ***not*** a part of the frame. In the event of an overturn, these cabs may be more deadly than having nothing at all–they provide absolutely no chance for a person to escape quickly and the operator could possibly be crushed.

HOW DO I KNOW IF THE CAB ON MY TRACTOR HAS A ROPS AS A PART OF ITS STRUCTURE?
Suggested methods to determine if it is a ROPS structure include:

a) Look for a label indicating it is an approved ROPS. However, this is not uniformly located and may be covered up by the cab structure.

b) Look for the presence of a seatbelt–manufacturers ***only*** install seatbelts on ROPS equipped tractors.

c) Consult your dealer.

FOR MORE INFORMATION ABOUT TRAC-SAFE, CONTACT:

_____

_____

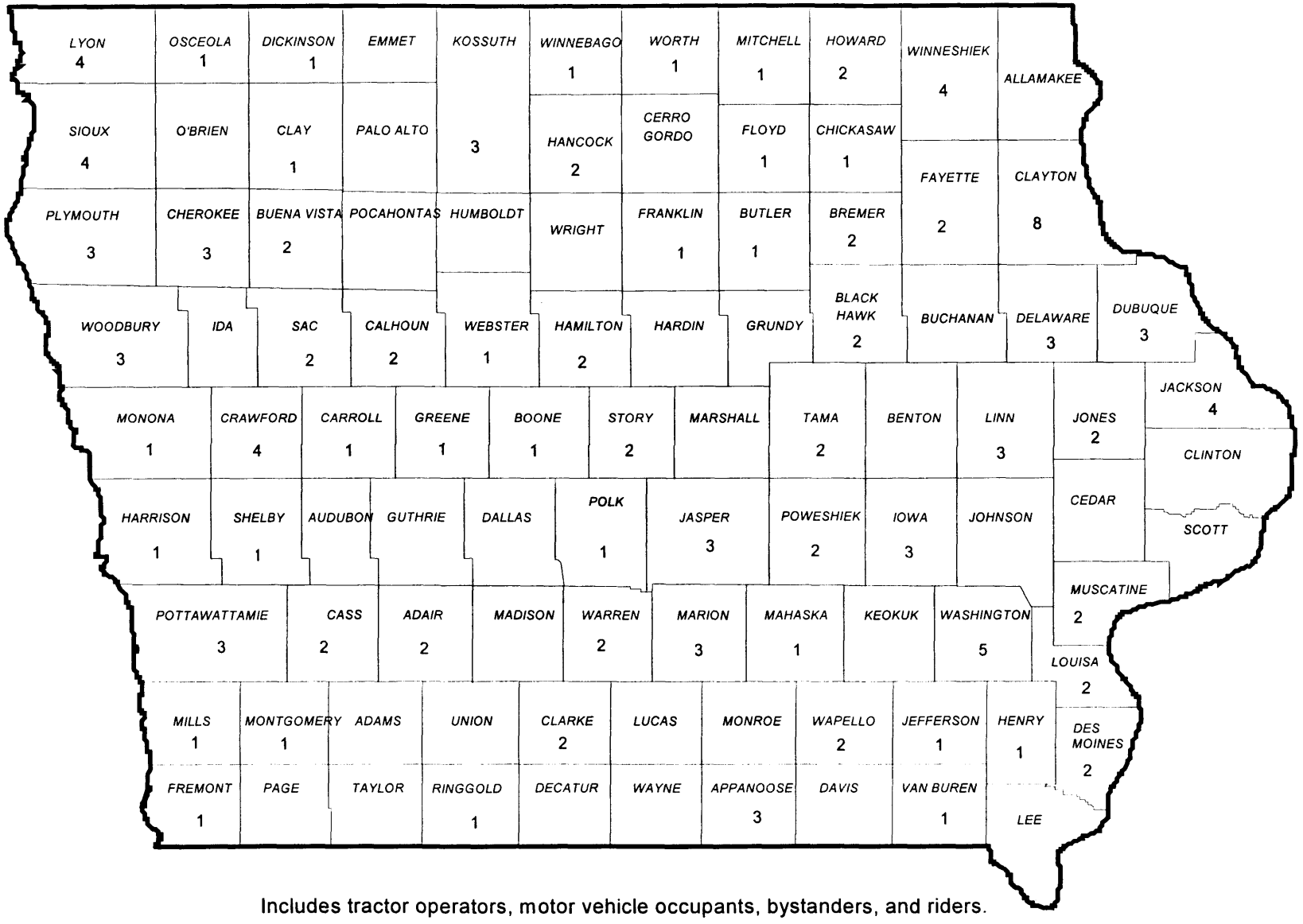
_____

_____

Developed by CJ Lehtola, The University of Iowa

Fatalities from Tractor-Related Accidents, 1988-92

(N=137)



Includes tractor operators, motor vehicle occupants, bystanders, and riders.

Does not include PTO accidents.

Source: Extension Service newsclipping data and Iowa Department of Public Health.

Safe Farm

Promoting Agricultural Health & Safety

Use tractors with ROPS to save lives

Tractors are common to all farm operations. They also are the major cause of death in agriculture today. Tractors are linked to more than half of farm-related deaths, both nationally and in Iowa. The National Safety Council estimates that 460 people were killed in 1990 while operating a tractor. About 52 percent of those deaths were the result of a tractor rollover.

This high death rate associated with tractor rollovers is not a new problem. Since 1970, tractor rollover has been the leading cause of farm operator deaths, according to the National Safety Council.

Statistics from tractor rollover accidents show that during the past two decades, about five people are killed each year for every 100,000 tractors in operation. In Iowa, tractors were linked to 24 deaths in 1990. The cumulative death toll from tractor rollovers since the development of the tractor is staggering.

What is ROPS?

ROPS, or rollover protective structure, is a cab or frame that provides a safe environment for the tractor operator in the event of a rollover. Also called anti-roll bars or ROPS cabs, all are designed to prevent death and minimize injury.

However, the first ROPS device was not marketed on new tractors until 1965. Many old tractors used today do not have ROPS.

The ROPS frame must pass a series of static and dynamic crush tests. These tests examine the ability of the ROPS to withstand various loads to see if the protective zone around the operator station remains intact in an overturn. The tests are extensive and destroy the rollover protective structure.

A homemade bar attached to the tractor axle, or simple sun shades, cannot protect the operator if the tractor overturns. **Farm operators should not add their own rollover protection devices to tractors manufactured without ROPS.** Without proper design and testing, homemade devices offer a false sense of security that can be more dangerous than operating a tractor without ROPS. The Occupational Safety and Health Administration and the American Society of Agricultural Engineers have standards on the design of rollover protective structures.

Use seat belts with ROPS

ROPS affords some safety during tractor overturns, but operators need more protection. **All operators of tractors equipped with ROPS must wear seat belts.** Without a seat belt, the operator will not be confined to the protective zone.

During an overturn, the operator of a tractor with ROPS could be thrown from the protected area and crushed by the tractor, or even the rollover protective structure itself, if the operator is not wearing a seat belt.

Never use seat belts on a tractor without ROPS. In this case, the operator has no

Tractor rollover safety

How much do you know ?

Test your skill with this quick quiz.

1. There are 460 deaths every year in the United States associated with tractors. What percentage of those are from tractor rollovers?
   a) 10 percent
   b) 52 percent
   c) 75 percent

2. Anyone can make and install heavy metal bars on a tractor to serve as a rollover protective device. True or false?

3. Which action(s) will reduce the chance that your tractor will roll over?
   a) increase speed when making sharp turns
   b) heading up a steep slope
   c) hitching higher than the drawbar to increase traction
   d) none of the above

4. If your tractor is equipped with a rollover protective structure, you cannot roll the tractor over. True or false?

See answers on back.

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University Extension
Ames, Iowa

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chance of survival because the seat belt will keep the operator in the seat as the tractor rolls over and crushes the operator. It is not certain whether the operator would be thrown clear from the tractor if seat belts were not worn, but that remains the operator's only chance of survival.

Reduce your rollover risks

There are several ways to reduce the possibility of tractor rollovers. However, these safety practices are not a substitute for ROPS. Follow these tips, and use seat belts on tractors equipped with ROPS, to keep operators safe.

• **Avoid sharp turns and reduce speed when turning.** A tractor has a high center of gravity and can tip. Compare the shape of a tractor and a race car—race cars can turn at high speeds because they are low to the road; a tractor cannot turn quickly without overturning because it sits high above the road.

• **Avoid driving on steep embankments, near ditches, and around holes.** These areas are prone to rollovers. The ground can give way, the tractor will lose support and roll over. When conditions require operation on steep slopes, always head down slopes and travel backwards up slopes. This will place the tractor in a more stable position and reduce rollover risks.

• **Hitch only to a drawbar.** Many accidents occur when loads are hitched to axle housing or other parts of the tractor. If you have a three-point hitch on your tractor, use only implements designed for a three-point hitch. Attaching implements to something higher than a drawbar can cause the tractor to roll over.

New equipment with ROPS

In 1985, tractor manufacturers adopted a voluntary standard to sell all tractors with ROPS in place. All new tractors are equipped at the factory with ROPS. The ROPS may be part of the cab structure and may not be visible, but the protection will be there.

Tractors made more than 40 years ago without advances in safety technology are operational today. It is estimated that less than one-third of the 4.4 million tractors used for agricultural purposes have ROPS. Older tractors often are used in situations typically associated with tractor rollover accidents, such as mowing the road ditch area, using a front-end loader, and hauling fallen trees.

Retrofit older tractors

Older tractors can be retrofitted with rollover protective structures. Check with your local dealer or Extension office. Extension staff have access to a book compiled by the Marshfield Clinic that lists manufacturers, models, and approximate costs of obtaining retrofit ROPS for tractors. Retrofitting can pose a difficult decision because its cost for an older tractor can exceed the machine's actual value. However, the true cost is in the lives that could be saved.

Prepared by Charles V. Schwab, extension farm safety specialist; Mark Hanna, extension agricultural engineer; and Laura Miller, extension communications. Design by Valerie King.

For more information

This publication covers only some aspects about the safe operation of tractors. For more information about avoiding tractor rollovers, contact your local extension office, or check these publications:

■ ISU Extension publications, *Employers' Instructional Guide*, Pm-632, and *Preventing Tractor Overturns*, Pm-1334c.

■ *A Guide to Tractor Roll Bars and Other Rollover Protective Structures*, available by writing the Wisconsin Rural Health Research Center, 1000 N. Oak Avenue, Marshfield, Wisconsin 5449-5790. Most local extension offices also keep a copy of this publication.

Tractor rollover safety

What can you do?

You can reduce your risk of being injured or killed while operating a tractor. Check your operation for the following items.

- ☐ Identify all tractors in your operation that have ROPS; check for seat belts.
- ☐ Post a reminder on tractors with ROPS for operators to wear a seat belt.
- ☐ Make a long-range plan to phase out or retrofit all tractors without ROPS.
- ☐ Identify tasks that would take you over steep embankments, near ditches, around holes, and other areas prone to tractor rollovers. Instruct everyone who operates a tractor in these areas to use only tractors with ROPS and seatbelts.

Answers to quiz: 1-b; 2-False; 3-d; 4-False

Safe Farm
Promoting Agricultural Health & Safety

Safe Farm is an Iowa State University Extension project helping to make Iowa farms a safer place to work and live.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Nolan R. Hartwig, interim director. Cooperative Extension Service, Iowa State University of Science and Technology, Ames, Iowa.

If you have access to the Internet, you can print this from the ISU Extension Publications homepage at <http://www.exnet.iastate.edu/Pages/communications/Safe_Farm.html>

Safe Farm

Promoting Agricultural Health & Safety

Extra riders mean extra dangers

It was a great day for a young boy to be out of school because he could help his dad around the farm. That afternoon they would be using the tractor to feed livestock. The boy's father thought his son would be safe in the tractor cab, like he had been many other times. He didn't expect the cab door to pop open when the tractor went over a rut. Before the father could step on the brakes, his son fell out of the cab and was run over by the rear wheel of the tractor. The boy was crushed underneath the weight of the tractor and died a short time later at a local hospital. The heritage being passed from one generation to the next ended in a few tragic seconds.

The details of this accident are fictitious, however, similar accidents have occurred in Iowa in recent years. Since 1990, eight Iowa youth under the age of 19 died when they were run over by a tractor. In all cases, they were an extra rider.

In most accidents involving extra riders, victims fall off or are thrown from the tractor during a rough ride or an accident in which the tractor rolls over. When this occurs, extra riders can be run over by either the tractor or an implement being towed, or both. In an overturn, the tractor often falls on top of extra riders.

Children aren't the only victims. According to the Iowa Department of Public Health, at least three adults within the last three years have died or were injured when they were an extra tractor rider.

The tragedy is that these accidents can be prevented. This publication discusses serious risks for extra riders and suggests how to eliminate those risks.

Why the risk?

Tractors are not passenger vehicles. They are built for one person to control and perform specific tasks. Passengers on tractors, in fact, can interfere with safe operation of the tractor. The extra rider can distract the operator, block access to controls, or obstruct the operator's vision.

Newer model tractors are designed to provide protection for only one person, the operator. All tractors manufactured since 1976 have a special rollover protective structure, or ROPS, that provides a safe environment for the operator if the tractor rolls over. The use of seat belts on tractors with ROPS will protect the operator from serious injuries.

Extra riders have no such protection. There is no safe environment for extra riders on tractors. Older model tractors without ROPS can offer no rollover protection for operators or extra riders.

Many people have the mistaken idea that enclosed cabs protect extra riders. This notion only gives tractor operators a false sense of security. Many tractor runover deaths happen when the child falls out of an enclosed cab. An enclosed cab can reduce the chance that a rider will be bumped off a tractor, it cannot eliminate that risk. The small measure of protection from an enclosed cab is not a guarantee of safety for extra riders.

The only situation in which an extra rider should be allowed on a tractor is during professional instruction of new operators. These conditions are strictly controlled and the trainer should have several years of experience in this area. Even in controlled situations, the professional

Tractor safety

How much do you know ?

1. How many Iowa youth have died during the past three years when they were run over by a tractor?
   a) none
   b) two
   c) eight

2. An enclosed cab is not designed to protect extra riders. True or false?

3. You only have to worry about extra riders who are children because adults can protect themselves on a tractor. True or false?

4. The following types of farm equipment are unsafe for extra riders:
   a) tractor
   b) all-terrain vehicle
   c) pick-up truck cab
   d) combine

See answers on back.

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Ames, Iowa

Pm-1518c I Revised I September1995

trainer assumes some risk of being thrown off the tractor.

Causes of runover accidents

There are many reasons why extra riders are thrown from the tractor and usually only one result—death. Sudden stops, driving over holes, stumps and debris, or a sharp turn can cause the extra rider to lose footing or be tossed off the tractor. Even if the tractor does not overturn, extra riders may be thrown from the vehicle.

Operators often think they can stop the tractor in an accident, especially if the tractor is moving very slowly or no difficult tasks are being performed. The most common comment from people involved in tractor runovers is how quickly they happen.

Runovers also can occur when the tractor is involved in an accident. One common scene happens when the rider is thrown after the tractor hits a building, bridge, or another vehicle. If the tractor overturns, the operator and rider both are in danger.

The 'no riders' rule

The only way to prevent extra rider injuries or deaths is to prohibit riders on tractors. Make a permanent policy to never allow riders on tractors.

This may be a difficult rule to follow, especially in situations involving visitors or young children. Depending upon the age of the child, it may be helpful to explain what can happen to tractor riders. Very young children may understand the fact that they aren't allowed to ride other heavy equipment, such as road graders or construction vehicles, either. They also may enjoy a ride on other farm vehicles designed for passengers, such as farm trucks or four-wheel drive vehicles. A chance to sit in the operator's seat while the engine is turned off and the key is removed also may satisfy a child's curiosity about tractors.

Make sure all tractor operators observe the "no riders" rule. Discuss with family members and farm workers the importance of the policy. It's also helpful to post "no riders" decals on all tractors to remind others about the policy.

The most effective way to observe the "no riders" rule is to eliminate the need for extra riders on tractors. Use or provide other vehicles that allow passengers, such as trucks or cars, when transportation is needed to fields or remote work sites.

Other problems

Other farm equipment may be unsafe for extra riders, too. All-terrian vehicles and skid steer loaders are designed for one person, as are riding lawnmowers.

The rule of thumb is to look for a seat for an extra rider, such as some combines that have an extra seat in the operator's station. Seats for extra riders should be added only by the manufacturer because many factors are considered in the safety design of farm equipment. A makeshift seat added to a farm vehicle by the owner cannot assure safety.

Enforcement of a "no riders" rule may be the single most important way for tractor operators to protect other people in their operation. The rule may challenge years of tradition, but it provides a safer way to pass on agricultural heritage than to allow tractor rides.

Prepared by Charles V. Schwab, extension safety specialist, and Laura Miller, extension communications. Design by Valerie King.

For more information

"No riders" decals may be purchased from the Farm Safety 4 Just Kids organization at (515) 758-2827. For more information about tractor safety, the following publications are available at extension offices:

- *Use tractors with ROPS to save lives*, Pm-1265d. 1992.
- *Safe operation of agricultural equipment*, Pm-646. 1988. Fee for publication.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Nolan R. Hartwig, interim director, Cooperative Extension Service, Iowa State University of Science and Technology, Ames, Iowa.

Tractor safety

What can you do?

A "no riders" rule for all tractors at all times may be the single best way you can assure the safety of others in your operation. Here are some tips:

- ☐ Discuss with family members and workers why a "no riders" rule is important.
- ☐ Apply "no riders" decals on all tractors and other farm equipment.
- ☐ Make sure all guests and hosts know your opinion about extra riders.
- ☐ Use a truck or car to haul passengers to fields or remote work areas.

Answers to quiz: 1-c; 2-True; 3-False; 4-a, b and sometimes d.

Safe Farm

Safe Farm is an Iowa State University Extension project helping to make Iowa farms a safer place to work and live.

If you have access to the Internet, you can print this from the ISU Extension Publications homepage at <http://www.exnet.iastate.edu/Pages/communications/Safe_Farm.html>

Man, 47, pinned by tractor dies

MASSENA — A 47-year-old rural Cumberland man died Wednesday afternoon when the tractor he was driving overturned and pinned him under it.

Cass County Deputy Sheriff said was using the tractor to mow weeds in a ditch along a county gravel road about 3 miles southwest of here when the accident occurred at 4:15 p.m.

worked for of rural Cumberland, and was mowing on land owned by his employer, said. The tractor tipped when one wheel hit a stump in the ditch, he said. had worked for for 27 years.

of rural Massena, a Cass County maintenance worker who was operating a road grader nearby at the time, found at 4:18 p.m. and called authorities.

The Cass County medical examiner pronounced dead at the scene, said.

Sumner man pinned, ki

SUMNER — A rural Sumner man was killed after the tractor he was riding on rolled into a ditch on top of him Friday, according to the Bremer County Sheriff's Department.

47, was riding a tractor being towed by a pickup truck driven by no age, of Wellman.

and were driving southbound on a county gravel road about 3 p. west of Sumner an said.

los tractor and wer ditch. The trac pinning him unc

was at the scene.

No charges spokeswoman sai

Farm accident claims life of when tractor overturns near Neola

54, was fatally injured Thursday, May 24 when the tractor he was driving overturned in a field near Neola. The tractor was equipped with a front-end loader and the accident apparently occurred as he started to drive up the side of a terrace.

HURT IN UPSET OF TRACTOR

A rural Alvord man received major head and leg injuries when the tractor he was driving upset on Monday, Sept 3 while he was mowing a ditch 1½ miles southwest of Lester with an IHC 1486 farm tractor. Injured was , 69.

The tractor tipped on its side and was thrown from the cab and pinned under the left rear wheel as the tractor was positioned its side. The accident victim was taken by ambulance to the MPC hospital in Rock Rapids.

Farm accident claims life of Hornick man

CLIMBING HILL, Iowa — A 71-year-old rural Hornick man was killed in a tractor accident northeast of Climbing Hill Tuesday afternoon.

was pronounced dead at the scene. Woobury County deputies reported that was using a tractor's front-end loader to try to move a piece of farm machinery when the tractor overturned.

The tractor belonged to of rural Anthon, Iowa. The accident occurred on property located in section of West Fork township. aunt owns the property and he serves as caretaker.

Deputy who was one of the deputies investigating the accident, said had some equipment on the property to be repaired by and was using tractor to try to move it.

discovered the accident at about 1:30 p.m. and called for help.

Tractor tips, kills farmer

ALGONA — 61, of rural Algona was killed Monday after a tractor he was operating tipped over, pinning him underneath.

was using a loader to fill in a ditch at his farm when the accident occurred about 4:30 p.m., according to a spokeswoman for the Kossuth County Sheriff's Office.

Algona firefighters used the Jaws of Life to free from under the tractor. was taken by Algona Ambulance to Kossuth County Hospital, where he later died.

The Iowa State Patrol assisted Kossuth County sheriff's deputies in the investigation.

Rollover kills farmer

WEBSTER CITY (AP) — A Cameron man was killed when his tractor rolled and pinned him on a Hamilton County road north of Webster City.

67, was southbound about 12:30 p.m. Tuesday when his tractor left the road, entered the west ditch and rolled on its top, the Iowa State Patrol said.

was declared dead at the scene by the Hamilton County medical examiner.

Larrabee man dies in farm accident

59, of rural Larrabee was killed in an accident on his farm Thursday about 3 p.m.

According to the Cherokee County Sheriff's Office, was operating a tractor with a front-end loader when the tractor rolled, pinning beneath it. miles east of

is fatally injured in farm accident

died Tuesday night at his home, after he was pinned beneath a tractor with a side-mounted mower. The and he fell from the

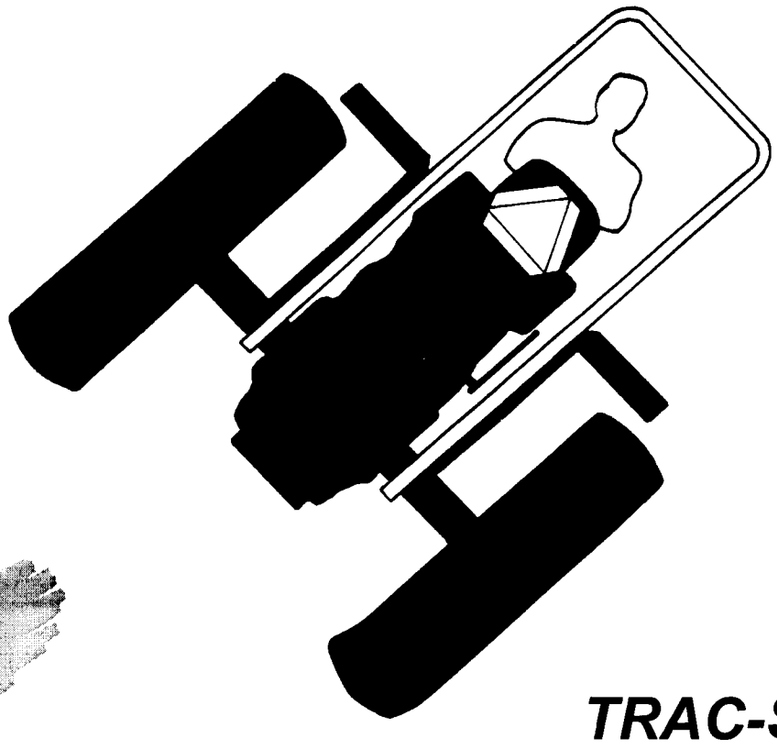
Aurelia man killed in tractor accident

The Cherokee

TRACTOR-RELATED DEATHS

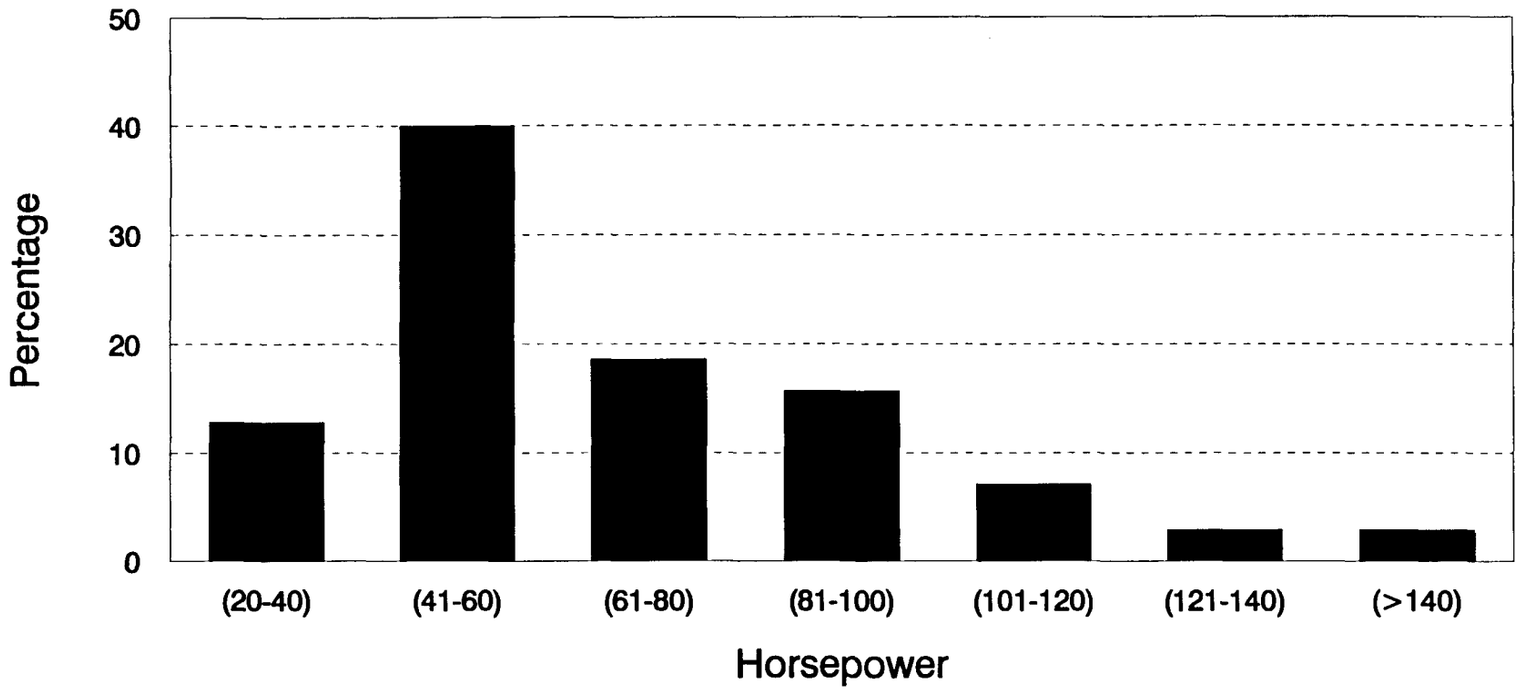
ARE

PREVENTABLE



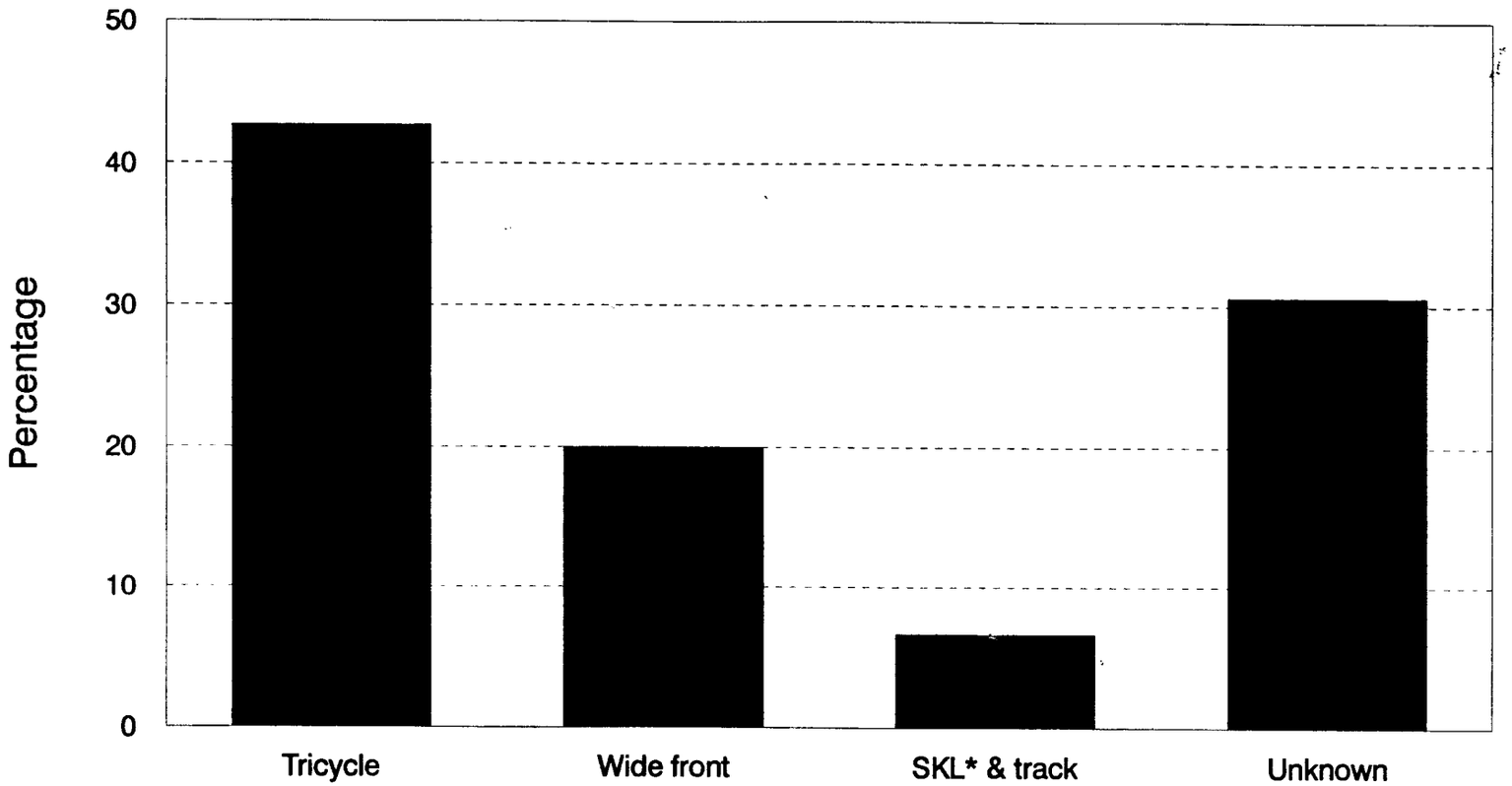
TRAC-SAFE

Tractor Overturns by Horsepower N=70



(for tractors involved in overturns where make & model were known)
Iowa 1988-92
C. Lehtola, The Univesity of Iowa

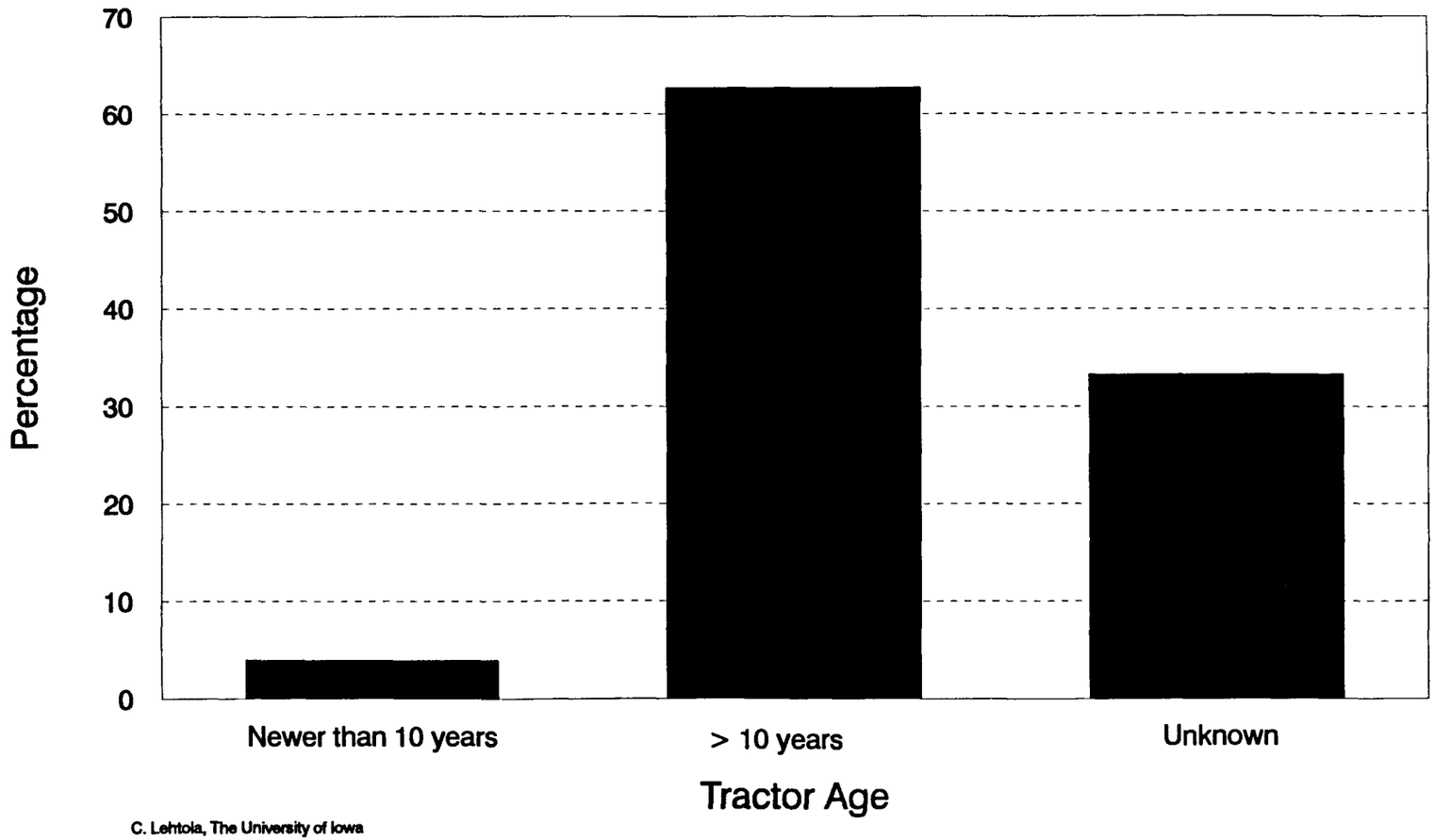
Fatal Tractor Overturns by Tractor Type, Iowa 1988-92
N=75



*SKL = Skidloader

C. Lehtola, The University of Iowa

Fatal Tractor Overturns By Tractor Age, Iowa 1988-92
N=75



C. Lehtola, The University of Iowa

Appendix B

Media Releases/Invitation Letters

Letter of Invitation to Participants

Letter of Invitation to Supporters

Media Release: Before the Program

Media Release: After the Program

Letter of Invitation to Participants

Date: _____

Dear (***invitee name***):

Increased media attention, fair displays, agri-business promotions, FFA activities, and extension programs, over the past few years, have focused on farm safety and health issues. These efforts have been very valuable in increasing peoples' awareness and recognition of risks and hazards associated with farming.

However, even though farming practices have changed over the past 50 years, the leading cause of farm deaths has not changed—this in spite of the fact that methods are readily available that can eliminate these deaths entirely. **THE TRACTOR OVERTURN CONTINUES TO BE THE NUMBER ONE CAUSE OF FARM RELATED DEATHS.**

As a community, we are concerned about the safety of our farm families. We are offering TRAC-SAFE, a program developed by the University of Iowa's Institute for Rural and Environmental Health. TRAC stands for Tractor Risk Abatement and Control. This program was developed to provide you with specific information for improved tractor safety as well as providing you with incentives and a plan for correction of the hazards that are identified.

We will kick off TRAC-SAFE with a meeting scheduled for (***time, date, place***). If you cannot attend the meeting but wish to participate, or if you have any questions, please contact (***name***) at (***phone #***).

We look forward to working with you. Thank you for your interest and participation as we work together towards making our farms healthier and safer places to work and live.

Sincerely,

Letter of Invitation for Supporters

Date: _____

Dear (***possible supporting organization***):

With the increased emphasis and awareness on farm safety over the past few years, many of you may have had an opportunity to participate in the promotion or implementation of a particular farm safety program. We thank you for your interest and involvement with these valuable programs.

Even though farming practices have changed significantly over the past 50 years, the leading cause of farm related deaths has not changed—this in spite of the fact that methods are readily available that can eliminate these deaths entirely. **THE TRACTOR OVERTURN CONTINUES TO BE THE NUMBER ONE CAUSE OF FARM RELATED DEATHS.**

As a community, we are concerned about the safety of our farm families, thus we are offering a program, TRAC-SAFE, developed by the University of Iowa's Institute for Rural and Environmental Health. TRAC stands for Tractor Risk Abatement and Control. TRAC-SAFE was developed to provide specific information for improved tractor safety as well as providing people with a plan for correction of the hazards that are identified.

We would like to ask for your support in presenting TRAC-SAFE. Examples of ways to become involved include:

display posters and brochures
encourage customers/members to participate
provide in kind services such as copying
provide time to help administer the program
sponsor mailings
participate on the Steering Committee
provide discounts or monetary support for offering incentives to participants
(others)

We will be contacting you within the next week to discuss TRAC-SAFE with you. If you have questions or comments in the meantime, please call (***name***) at (***phone #***). We hope you will seriously consider supporting TRAC-SAFE in whatever way is possible.

Thank you for your continued support towards the well-being of the farm families in this community.

Sincerely,

Before program presentation For Immediate Release

Date: _____

Contact: _____

Phone: _____

TRAC-SAFE ADDRESSES THE LEADING FARM HAZARD

Farming practices have changed significantly over the past 50 years; however, the leading cause of farm deaths remains the same. In spite of readily available methods to reduce these deaths, the tractor overturn continues to be the number one cause of farm related deaths.

A community based program, TRAC-SAFE, is now available to people who would like to learn more about the hazards of tractor operation and also the solutions that are available to improve safety. TRAC stands for Tractor Risk Abatement and Control.

TRAC-SAFE was developed at the University of Iowa Institute for Rural and Environmental Health. It is sponsored locally by (***sponsoring organization or group***). The program will begin with a kick-off meeting on (***date, time***) at the (***location, including city***), according to (***name and title of official***). The program involves a group presentation, followed by an individualized plan for each farmer to assess their tractors at risk and to identify solutions that can be implemented.

"We have heard too often about serious injuries. This is a good chance to take a look at the tractors on a farm and get them in safe shape," says (***name, organization, phone***). (**He/she**) encourages all tractor operators to join the program and contact him/her no later than (***deadline***).

After the program presentation For Immediate Release

Date: _____

Contact: _____

Phone: _____

LOCAL FARMERS TAKE ACTION TO PREVENT THE LEADING CAUSE OF FARM DEATHS

Area farmers and businesses are taking action towards preventing the number one cause of farm related deaths.

Farming practices have changed significantly over the past 50 years; however, the leading cause of farm deaths has NOT. In spite of readily available methods to reduce these deaths, the tractor overturn has continued to be the leading cause of farm related deaths.

(***Local statistics; area "1st person" testimonials - can be inserted here; or else as an adjacent side-bar or article***).

A recent (***date***) TRAC-SAFE program presented by (***sponsoring organization and instructor***) focused on the importance of taking measures to eliminate farm deaths. TRAC stands for Tractor Risk Abatement and Control.

"Use of the rollover protective structure (ROPS) and a seatbelt would eliminate deaths due to tractor overturns," (***name of program leader***) stated. "ROPS are available for all tractors manufactured since 1969 and for some earlier models as well. Additionally, John Deere, Kubota, and CASE-IH dealers are currently offering ROPS at cost. Farmers are now able to install a ROPS on John Deere, Kubota, and CASE tractors for about $500."

The TRAC-SAFE program was developed by agricultural engineer Carol Lehtola at the University of Iowa, Institute for Rural and Environmental Health.

In addition to the recently held kick-off meeting, TRAC-SAFE also provides farm families with the opportunity to individually assess their tractors for risks and to identify solutions that can be implemented. (***# participating***) area farmers are participating. (***# participating***) businesses are involved with providing incentives for participating farmers.

Appendix C

Participant Sign-up Forms and Program Worksheets

My Commitment to Excellence as a TRAC-SAFE Supporter

Our Commitment to Excellence as a TRAC-SAFE Farm

Tractor Rollovers, How Much Do You Know?

Study Guide Questions for Use with the Video: "Tractor Overturns and Tow Rope Safety" by NDSU

Study Questions for Use with the Video: "Consider the Flipside" by CASE Corporation

Tractor Safety Inspection Guideline

Tractors for Which ROPS Are Available

Tractor Risk Identification Factor (TRIF)

Prioritization for ROPS Retrofit

Will ROPS Interfere With Tractor Usage?

Certificate of Completion

SUPPORTER SIGN-UP

MY COMMITMENT TO EXCELLENCE AS A ***TRAC-SAFE*** SUPPORTER

I, _____, recognize that I/my organization can make a positive impact towards improving the safety and health of farmers and farm families in my community.

I agree to carry out at least two of the following farm safety support activities during the next six months.

(Place an "X" by activities you plan to do.)

I/my organization will

1. _____ support the TRAC-SAFE program financially. Please specify the amount $_____.

2. _____ provide resources, such as prizes, incentives, meeting locations, mailings, advertising, promotional help etc., for implementing the TRAC-SAFE Program. Please indicate resources:

3. _____ evaluate our products and services in order to ensure that they promote the safety and health of farm families. Please specify:

4. _____ promote the sale of safety-related items, products or services within the farming community. Please specify:

5. _____ continue promoting and encouraging agricultural safety as an ongoing activity after the initial six month sign-up.

Name of Firm/Individual: _____

Address: _____

Phone: _____

Contact Person: _____

Developed by CJ Lehtola, The University of Iowa

A copy should be kept by both the participating supporter and the program chair.

PARTICIPANT SIGN-UP

OUR COMMITMENT TO EXCELLENCE AS A ***TRAC-SAFE*** FARM

As a **T**ractor **R**isk **A**batement and **C**ontrol (TRAC-SAFE) Farm, we recognize that farming is one of the most hazardous occupations. We recognize that tractors are associated more frequently with fatal farm injuries than any other source.

We recognize that the entire farm family has an important role in reducing farm hazards. Therefore, to help reduce the tractor-related injury hazards on our farm and in our community, we as a family, pledge to do our best to achieve the following goals.

Therefore, having recognized that I (We), _____, can make a positive impact on reducing tractor-related injuries and fatalities, I (we) have made a commitment to complete at least ten of the following items

during the six month period beginning _____, 19____ and ending _____, 19____.

I/we will:

(Indicate the items selected with an "**X**")

1	____	review this packet of materials with family members and employees,
2	____	use the Tractor Safety Inspection Guideline to identify tractor hazards and corrective measures for all tractors used on our farm,
3	____	participate in a workshop or individual worksheet completion to accomplish the following: a) analyze all the tractors on our farm and determine their risk for overturn, b) develop a use plan for the farm so that the safest tractors are used for the riskier operations c) develop a priority plan for installation of **ROPS** on our tractors
4	____	install a **ROPS** on at least one of our tractors,
5	____	install and use seatbelts on tractors equipped with **ROPS,**
6	____	use tractors with **ROPS** for the more hazardous activities (slopes, mowing, etc.),
7	____	enforce ***NO RIDERS*** on tractors (especially children),
8	____	have tractor operators that are 16 and younger participate in a tractor operator training class
9	____	have an escort vehicle (pickup/car with flashing lights) travel behind the tractor where road travel may be especially hazardous (highways, hills, curves),
10	____	have family members (youth) participate in a Farm Safety Day Camp if one is locally offered,
11	____	encourage at least one other farm family to participate in the TRAC-SAFE Program,
12	____	have family members attend a "First on the Scene" course in regards to tractor injuries when locally offered,
13	____	keep this as an on-going process and review it annually

OTHER

____	_____
____	_____

Developed by CJ Lehtola, The University of Iowa

The participating farm family and the program chairperson should get a copy of this document.

TRACTOR ROLLOVERS

How much do you know?

Directions: Circle the best answer.

1. Over _____ of tractor fatalities in the U.S. are the result of overturn accidents.
a. one third
b. two thirds
c. one half
d. one fourth

2. What are the two primary forces that must be controlled to avoid side rollovers?
a. Rear axle torque and gravity
b. Gravity and centrifugal
c. Centrifugal and rear axle torque
d. None of the above

3. The normal location of the center of gravity of a tractor can be changed by which of the following?
a. Adding mounted equipment
b. Spacing rear wheels as wide as possible
c. Filling the fuel tank
d. all of the above
e. a and c

4. The primary forces in rear rollovers are:
a. Rear axle torque
b. Drawbar leverage
c. Centrifugal force
d. a and b
e. all of the above

5. An increase in tractor speed will increase the centrifugal force.
a. True
b. False

6. Human factors that can contribute to fatal tractor accidents are:
a. Carelessness
b. Poor judgment
c. Haste
d. Depression
e. all of the above

7. Extra riders on a tractor produce an unnecessary hazard because:
a. They may interfere with your operation of the controls.
b. They may lose their grip and fall when the tractor turns a corner or hits a raised object or a depression.
c. They have no safe place to sit.
d. a and c

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8. Overturn injuries on tractors can be best minimized by:
a. Prohibiting extra riders.
b. Driving slowly and avoiding steep hills
c. Having ROPS on the tractor and using seat belts.
d. Locking brakes together when traveling on the highway.

9. You can reduce the chance of rear rollovers by:
a. Providing front-end weights
b. Backing up steep slopes
c. Hitching only to the drawbar
d. Starting a heavy load slowly
e. all of the above

10. Which of the following statements is not true?
a. Driving too fast is often a contributing cause of side rollovers.
b. Locking the brake pedals together can help provide better stability when traveling on highways.
c. A rule of thumb is to use the same gear on your tractor to go down hill with a load as you would to pull the load uphill.
d. ROPS and use of seat belts will minimize injuries in side rollovers only.
e. none of the above

Cooperative Extension Service, Iowa State University of Science and Technology, and the United States Department of Agriculture cooperating. Robert M. Anderson, Jr., director, Ames, Iowa. Distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914

Answers to Pre/Post Test

TRACTOR ROLLOVERS
How much do you know?

---

1. C
2. B
3. E
4. D
5. A
6. E
7. D
8. C
9. E
10. D

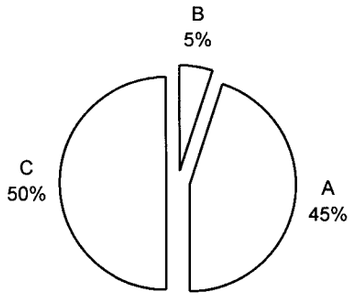
Study Guide Questions for use with the video *Tractor Overturns and Tow Rope Safety* by North Dakota State University

Write down or circle correct answers.

1. _____ of 100 overturns are to the side. (Choices are 15% or 85%)

   _____ of 100 overturns are to the rear. (Choices are 15% or 85%)

2. Label the categories of outcomes from tractor overturns where the tractors were ***NOT*** equipped with ROPS (Choices are: Unhurt, Seriously injured, or Killed).

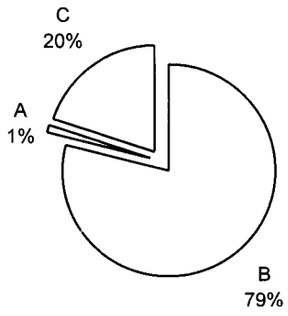


A. _____

B. _____

C. _____

3. Label the categories of outcomes from tractor overturns where the tractors ***WERE*** equipped with ROPS. (Choices are Injured, Unhurt, or Killed)



A. _____

B. _____

C. _____

TRAC-SAFE

4. Even though it is not specifically mentioned on the video; is there a recommendation in addition to ROPS that would further reduce injuries? Please specify.

_____

_____

5. A non-ROPS cab will protect the operator in the event of an overturn. T F

6. Which of the following is the correct answer for determining if a cab is equipped with a ROPS?

____ a. find *ASAE approved* imprint on ROPS frame
____ b. ask dealer
____ c. all cab tractors are equipped with ROPS
____ d. look for the presence of a seat-belt
____ e. all of the above
____ f. a, b, d only

7. A tractor must be going at least 5 mph before it can overturn. T F

8. Since human reaction time is slightly less than 1/2 the time it takes for a tractor to do a complete rear overturn, there is sufficient time for a person to react and jump clear. Why or why not: _____

_____

_____

Source: Study guide questions developed by C. Lehtola, The University of Iowa.

Answer Key for study guide questions
based on the video *Tractor Overturns and Tow Rope Safety*
by North Dakota State University

1. 85
   15

2. A. Killed
   B. Unhurt
   C. Seriously injured

3. A. Killed
   B. Unhurt
   C. Injured

4. Use of the seatbelt while using a ROPS equipped tractor.

5. F

6. F

7. F

8. No. The human reaction time is approximately 0.5 to 0.7 seconds; in a rear overturn, the tractor can reach the "point of no return" in 0.75 seconds and complete the overturn in as little as 1-1/2 seconds. Additionally, in a rear overturn there is no place to jump clear. Rear overturns are most often fatal.

Study Questions for Use with the Video *Consider the Flipside* by CASE Corporation

1. All tractors manufactured since _____ are equipped with a ROPS and seatbelt.

2. Tractor overturns account for over ____% of tractor related deaths.

3. Two out of _____ tractors are <u>not</u> equipped with ROPS and seatbelt.

4. Having a ROPS on a tractor will prevent an overturn from occurring. (True or False)

5. List four reasons people use for not putting a ROPS on a tractor.
   1. _____
   2. _____
   3. _____
   4. _____

6. Overturns can't happen to those who farm only level land. (True or False)

7. A person can be killed in a rear overturn in as little time as _____.

8. Why should home-made ROPS not be used?
   _____
   _____
   _____

9. All cab tractors have ROPS. (True or False)

Source: Study Questions developed by C. Lehtola, The University of Iowa

Answers for the Questions Based on the Video *Consider the Flipside* by CASE Corporation

1. Mid-80's

2. 50

3. Three

4. False

5.
   1 Interference
   2 Cost
   3 Availability
   4 "it won't happen to me"

6. False

7. 1.5 Seconds

8. Home made ROPS may not be strong enough—or the tractor may split. Approved ROPS is designed to provide protection without splitting the tractor.

9. False

TRACTOR SAFETY INSPECTION GUIDELINE

Inspection Date: _____

Tractor Make:_____ Model: _____ Year: _____

Configuration (circle one):
1 Wide Front
2 Tricycle
3 Articulated

Cab/ROPS type:
1 Cab with approved ROPS
2 Approved ROPS Frame (roll-bar)
3 Cab without approved ROPS
4 No ROPS or cab

Safety Factor	***Is in good condition***	***Needs to be installed/ repaired***	***Estimated cost of installation/ repair***	***Parts and service are available at:***
Cab with ROPS or ROPS frame				
Seatbelt (for ROPS tractors only)				
PTO master shield				
PTO stub shaft guard				
Headlights				
Taillights				
Amber flashers				
SMV (slow moving vehicle) emblem				
Brakes (incl. adjustment when coupled)				
Steering mechanism				
Visibility (including mirrors)				
Other:				

TRACTORS FOR WHICH ROPS ARE AVAILABLE

(Source: ROPS Directory, National Farm Medicine Center, Marshfield, WI)

AGRI-POWER								
		7000	8000	9000	11000			
ALLIS CHALMERS								
(also Deutz-Allis)								
160	170	175	180	185	190	200	210	220
5040	5050	6040	6060	6070	6080	6260	6275	7000
7030	7050							
BELARUS								
250	310	400	420	500	505	525	800	820
BOLENS								
			1502		1704			
CASE								
(also Case IH, Case/David Brown, IH, IH/Farmall)								
Hydro84	211	430	440	450	470	480	500	530
570	580	585	680	684	685	750	780	784
830	884	885	990	1030	1130	1140	1150	1190
1200	1290	1530	1537	1700	1737	1740		
CASE IH								
(also Case, Case/David Brown, IH, IH Farmall)								
234	244	252	275	385	395	450	484	485
495	584	585	595	684	685	695	784	785
795	884	885	895	995	1120	1130	1140	1294
1394	1494	1594						
CASE/DAVID BROWN								
(also Case, Case IH, IH, IH Farmall)								
780	885	990	995	1190	1210	1290	1390	1410
1490	1690	3800						
CATERPILLAR								
			657					
CBT/USA								
			8060	8240	8260			
CLARK								
			758					
JOHN DEERE								
M	40	300	301	310	400	410	420	440
500	510	540	544	620	644	650	655	670
700	710	750	755	756	760	770	820	830
850	855	856	860	870	900	950	955	970
1010	1020	1030	1040	1050	1070	1120	1140	1250
1450	1520	1530	1630	1640	1650	1830	1840	2010
2020	2030	2040	2120	2130	2140	2150	2155	2240
2255	2350	2355	2440	2510	2520	2550	2555	2630
2640	2750	2755	2840	2855	2940	2950	2955	3010
3020	3130	3140	4000	4010	4020	4030	4040	4230
4240	4320	4400	4430	4520	4620	4630	5010	5020
5200	5300	5400	6000	6030	7020	7520		
DEUTZ-ALLIS								
(see Allis-Chalmers)								
FERRARI								
			86	94	95			

TRACTORS FOR WHICH ROPS ARE AVAILABLE
(Source: ROPS Directory, National Farm Medicine Center, Marshfield, WI)

			FORD					
Balmar	CountrySuper		Fordson	GoldenJubilee		NAA	2N	8N
TW-5	TW-10	TW-15	TW-20	TW-25	TW-30	TW-35	260	345
445	541	600	601	640	641	700	740	800
820	821	841	850	851	860	1000	1100	1110
1120	1200	1210	1220	1300	1310	1320	1500	1510
1520	1600	1700	1710	1720	1900	1910	1920	2000
2100	2110	2110(84)	2120	2310	2600	2610	2810	2910
3000	3100	3300	3400	3500	3600	3610	3910	3930
4000	4022	4100	4110	4140	4200	4400	4410	4500
4600	4610	4630	5000	5011	5100	5200	5500	5600
5610	5900	6000	6600	6610	6700	6710	7000	7100
7200	7541	7600	7610	7700	7710	7810	8000	8600
8700	9000	9600	9700					
			FIAT/HESSTON					
55-46	55-56	55-66	60-66	65-46	65-56	70-66	80-66	80-90
90-90	100-90	466	480	500	566	580	640	666
680	766	780	880	980	4566	5546	5556	6066
6546	6556	7066	8066					
			IH					
			(see also Case, Case IH, Case/David Brown, IH/Farmall)					
A	AU	B	BN	H	Hydro70	Hydro84	Hydro86	
Hydro100	Hydro186	Hydro3488	M	70	95	100	130	140
154	184	234	244	245	254	255	260	274
275	284	300	350	354	364	384	385	400
404	434	444	450	454	460	464	484	485
504	544	574	584	585	606	624	656	664
666	674	684	685	686	706	756	766	784
785	786	806	826	856	884	885	886	906
956	966	986	1026	1056	1066	1086	1206	1256
1266	1456	1466	1468	1486	1566	1568	1586	1656
1666	2300	2400	2404	2424	2444	2500	2504	2506
2544	2606	2650	2656	2706	2756	3088	3200	3288
3388	3414	3444	3514	3544	3588	3616	3688	3788
3800	3850	4100	4156	5288	5488	6388	6588	6788
			KUBOTA					
B20	B1550	B1750	B2150	B4200	B5100	B5200	B6000	B6100
B6200	B7100	B7200	B8200	B9200	F2000	F2100	F2400	KH10D
L175	L185	L200	L210	L225	L235	L245	L260	L275
L285	L295	L305	L345	L355	L2050	L2250	L2350	L2550
L2650	L2850	L2950	L3250	L3350	L3450	L3650	L3750	L4150
L4350	L4850	L5450	M3000	M4000	M4030	M4050	M4500	M4950
M5030	M5500	M5950	M6030	M6950	M7030	M8030	M8580	M8950
M7500	M7580	M7950	R310	R400	R410	R510	4950	5500
5950	6030	6950	7030	7500	7950	8030	8950	
			LAMBORGHINI					
C-340	R-174	R-235	R-503	R-603	S-470	480	485	704
804	904							
			LEYLAND					
			384					
			LONG					
4N1	5N1	260	310	350	360	445	460	510
550	560	610	900	910	1010	1100	1110	1210
1300	1310	2360	2460	2510	2610	4455D		

TRACTORS FOR WHICH ROPS ARE AVAILABLE
(Source: ROPS Directory, National Farm Medicine Center, Marshfield, WI)

				MASSEY				
TEA	F-11	20	25	30	31	33	35	40
50	65	70	130	135	150	154	165	174
175	180	184	184-4	194	201	202	203	204
205	205-4	210	210-4	220	220-4	230	231	235
240	245	250	253	254	255	261	265	270
274	275	283	285	290	294	294-4	298	302
304	356	360	362	374	375	383	390	393
394	396	398	399	401	470	670	698	699
1010	1020	1030	1035	1040	1045	1080	1100	1105
1125	1135	1140	1145	1150	1155	1160	1180	1190
2135	2200	2244	3165					
				MINNEAPOLIS MOLINE				
				(see also White)				
			M-5	MY-40	400	500		
				MITSUBISHI				
		MT160	MT180	MT210	MT250	MT300	MT4501	
				MRS				
A-80	A-92	A-95	A-100	I-90S	I-95S	I-100S	I-105S	I-110
I-120								
				NUFFIELD				
			4-25			4-65		
				OLIVER				
M-68	2-44	2-62	2-63	2-78	5S	4-115	77	88
500	550	555	880	1250	1270	1370	1470	1550
1555	1650	1655	1750	1755	1850	1855	1950	1955
				SATOH				
		Beaver		Beaver III			Buck	
				SUPPORT SERVICES - POWER KING				
	1614	1618	1620	2414	2418	2420		
				TEREX				
			TS-14			TS-24		
				TIGER				
			450			470		
				VERSATILE				
			1150			1156		
				WHITE				
				(see also MM, Oliver)				
FB16	FB21	FB31	FB37	FB43	G350	G450	G550	G750
G955	G1355	2-30	2-32	2-35	2-45	2-50	2-55	2-60
2-62	2-65	2-70	2-75	2-85	2-105	60	80	550
700	1255	1265	1355	1365	1465	1470	1550	1555
1650	1655	1750	1755	1850	1855	1950T	1955	2255
				YANMAR				
GT-14	YM122	YM135	YM140	YM146	YM147	YM155	YM165	YM169
YM180	YM186	YM187	YM195	YM220	YM226	YM-240	YM276	YM330
YM336								

NOTE: For tractors not on this list contact local dealer parts department, as there may be ROPS available.

TRACTOR RISK IDENTIFICATION FACTOR (TRIF)

FACTORS IN TRACTOR OVERTURNS

(One form should be completed for each tractor without ROPS)

TRACTOR MAKE _____ MODEL _____ YEAR_____

HOURS USED _____ HOURS USED/YEAR _____ TRACTOR WEIGHT (LBS) _____

HORSEPOWER (HP) _____ WEIGHT/HP RATIO (LBS/HP) _____

Risk factor	***Circle When Applicable***
WEIGHT/HP Ratio Less Than 140	50
Narrow Front	60
Used on Slopes	80
Travels on Roadways	60
Used with a Rotary Mower	50
Used with a Front-End-Loader	30
Used to Haul Large Round Bales in Front	15
Tractor Operated for "CHORES" (usually used 1 hour or less at a time)	50
If primary operator is younger than 20	50
age 20-25	10
age 26-60	25
older than 60	50
Horsepower: less than 60 hp	55
60-100 hp	35
more than 100 hp	10

YOUR TRIF SCORE (Add circled scores, Max. 500) _____

Score	**Risk to Overturn**	**Recommendation**
Under 150	MODERATE RISK	ROPS BENEFICIAL
150-299	INTERMEDIATE RISK	ROPS RECOMMENDED
300-500	HIGH RISK	**ROPS HIGHLY RECOMMENDED**

All tractors are susceptible to overturn and should be equipped with ROPS.

IS AN APPROVED ROPS AVAILABLE FOR THIS MODEL? Yes _____ No _____

(See Directory Summary Sheets)

DO YOU OWN A TRACTOR WITH A ROPS WHICH COULD BE USED FOR THE HIGH RISK SITUATIONS INSTEAD OF THIS TRACTOR? Yes _____ No _____

Developed by CJ Lehtola, The University of Iowa

PRIORITIZATION FOR ROPS RETROFIT

*MODEL	A *TRIF SCORE	B EXPECTED FUTURE USE (YEARS)	C EXPECTED FUTURE USE (HRS/YR)	D EXPECTED FUTURE USE (HOURS) D=B*C	E CURRENT VALUE OF THE TRACTOR ($)	F ROPS RETROFIT COST ($)	G TRACTOR VALUE/ ROPS RETROFIT COST G=E/F	**H ROPS PRIORITY SCORE H=A*D*G**	*CAN A ROPS TRACTOR BE USED FOR HIGH RISK WORK INSTEAD OF THIS ONE? YES/NO

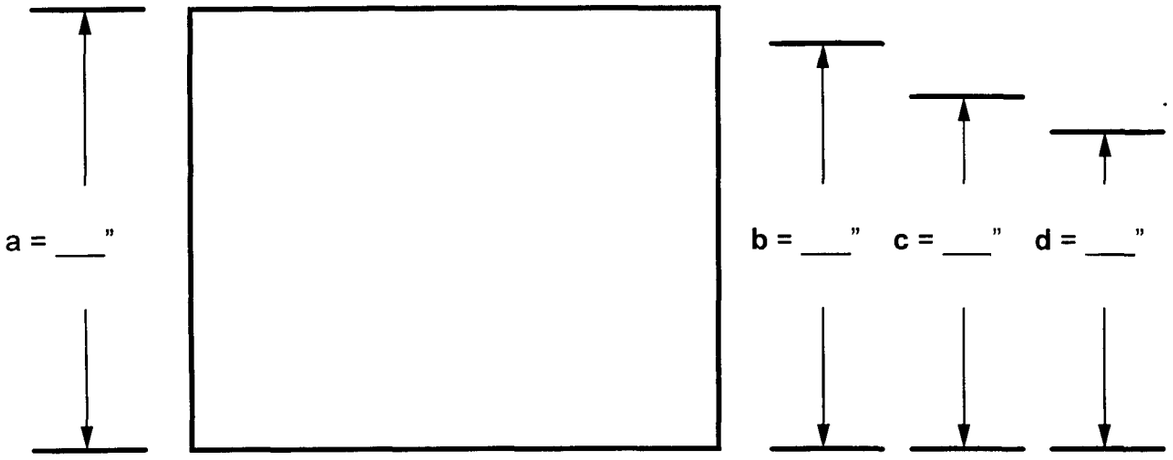
* Use information from TRIF Scoresheets for each tractor.

ROPS Priority Score (H) is a combination of risk factors (TRIF), future use of the tractor, tractor value and ROPS retrofit cost. The tractor with the highest score has the highest priority for installing ROPS. The ROPS Priority Score should be used as a suggestion only. There may be other important factors besides risk, use and cost to be considered. In some cases you may be able to use a ROPS tractor to replace a non-ROPS tractor in high risk situations.
It is recommended that all tractors used in high risk situations should have ROPS even if the high risk work occurs seldom and/or takes a short time.

WILL ROPS INTERFERE WITH TRACTOR USAGE?

Tractor Make_____ Model _____Year _____

The following measurements will help you to determine whether ROPS interferes with tractor usage. Obtain the measurement for the Limiting Height (a) from your farm structures, door openings etc. Measure the Tractor Height (d) at the highest point, such as exhaust or loader frame. The local equipment dealer should be able to give the Tractor Height measurements with ROPS (b) and Foldable ROPS Down (c) from design specifications.



a = Limiting Height at the Farm (for example door opening)
b = Tractor Height with ROPS
c = Tractor Height with Foldable ROPS Down
d = Tractor Height at the Highest Point (for example exhaust)

1 If **a** is greater than **b**, ROPS does not interfere and ROPS is recommended.
2 If **a** is less than **b**, but greater than **c**, foldable ROPS is recommended.
3 If **a** is less than **c**, consider possible alternatives as follows:
- 3.1 Limiting height can be modified, enabling the use of ROPS or Foldable ROPS.
- 3.2 Operator has a smaller tractor (with ROPS) that can be used in Limiting Height situations. ROPS is recommended.
- 3.3 No modifications can be made. ROPS cannot be installed. The tractor should be used with caution and high risk situations should be avoided.

4 If **a** is less than **d**, the tractor cannot be used in the Limiting Height situation and therefore ROPS does not interfere. ROPS is recommended.

TRAC-SAFE

Certificate of Completion

_____

Successfully Completed the ***TRAC-SAFE PROGRAM***

Sponsored by

_____

TRAC-SAFE

Tractor Risk Abatement and Control

Date _____ *, 19* _____

Signed _____

(Course Director)

Appendix D

Evaluation Forms

Participant's Evaluation

Facilitator's Evaluation

TRAC-SAFE Farms—Progress Report

TRAC-SAFE Supporters—Progress Report

Participant's Evaluation

Please circle the number that most closely represents your opinion about this program.

		Fully agree	Agree	Neutral	Dis-agree	Fully dis-agree
1.	The program format was appropriate	5	4	3	2	1
2.	The information was valuable	5	4	3	2	1
3.	The incentives to participate were adequate	5	4	3	2	1
4.	The program meetings were useful	5	4	3	2	1
5.	The time it took to complete this program was acceptable	5	4	3	2	1
6.	The program was good overall	5	4	3	2	1
7.	I would recommend it to someone else	5	4	3	2	1

8. What did you like best about the program? _____

_____

9. What did you like least? _____

_____

10. What safety changes did you make on your farm during this program?

ROPS installations _____

Other _____

11. What changes do you intend to make in your operation as a result of this program?

_____

_____

Please use the back of this sheet for any further comments. Thank you for your time.

Facilitator's Evaluation

Your cooperation will help us to improve updates to this program and to provide you with better programs in the future. When you have finished conducting this program, please complete this evaluation form and return it to:

Coordinator
Great Plains Center for Agricultural Health
The University of Iowa
100 Oakdale Campus #124 AMRF
Iowa City, IA 52242-5000

1. How many people enrolled in the course? _____

2. What types of outside support did you obtain (include sponsors, guest speakers, scholarships, marketing support)? _____

   _____

3. Provide any helpful hints or changes you would make for conducting this program in the future. _____

   _____

4. What was the most helpful aspect of the facilitator's guide? _____

   _____

5. What was the least helpful aspect of the facilitator's guide? _____

   _____

6. Briefly list activities or techniques you used in each of these sections:

   Tractor overturn statistics, causes, solutions _____

   Marketing/publicity _____

   Kick-off meeting _____

   Distribution of materials _____

   Supporting information _____

   Follow-up meeting _____

   Evaluation & wrap up _____

TRAC-SAFE Farms - Progress Report

Submitted by: _____

Address: _____

_____

_____

Phone: (_____)_____-_____

Starting Date: _____

Ending Date: _____

Item numbers correspond to those listed on *Our Commitment to Excellence as a TRAC-SAFE Farm* found in Appendix C.

ITEM #	Number of Farms Committed at Beginning	Total Number Completing the Item
1		
2		
3a		
3b		
3c		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		

Send a copy of this evaluation form at the *beginning* and *end* of the program to:

Coordinator
Great Plains Center for Agricultural Health
The University of Iowa
100 Oakdale Campus #124 AMRF
Iowa City, Iowa 52242-5000

TRAC-SAFE Supporters - Progress Report

Submitted by: _____

Address: _____

_____

_____

Phone: (____)_____-_____

Starting Date: _____

Ending Date: _____

Item numbers correspond to those listed on *Our Commitment to Excellence as a TRAC-SAFE Supporter* found in Appendix C.

ITEM #	Number of Businesses Committed at Beginning	Total Number Completing the Item
1		
2		
3		
4		
5		

Send a copy of this evaluation form at the *beginning* and *end* of the program to:

Coordinator
Great Plains Center for Agricultural Health
The University of Iowa
100 Oakdale Campus #124 AMRF
Iowa City, Iowa 52242-5000

Appendix E

Support Services and References

Support Services

References

SUPPORT SERVICES

Iowa is fortunate to have many agricultural safety-related programs and initiatives taking place. Resources are available for use by agricultural professionals and farm families.

The Great Plains Center for Agricultural Health (GPCAH) was established in 1990. It is one of the six centers in the United States funded by The National Institute for Occupational Safety and Health (NIOSH). GPCAH is based out of The University of Iowa and operates in Iowa, Nebraska, Kansas, and Missouri. GPCAH carries out research and prevention projects in agricultural health and safety and can help to organize community projects, such as TRAC-SAFE. For additional copies of this report or other information, contact the GPCAH Coordinator at 319-335-4887.

In 1990, the Iowa Legislature established the Iowa Center for Agricultural Safety and Health (I-CASH). I-CASH involves the cooperation of the Extension Safety Specialist at Iowa State University, The University of Iowa's Institute for Rural and Environmental Health, the Iowa Department of Public Health, and the Iowa Department of Agriculture and Land Stewardship. I-CASH was established for the purpose of efficiently utilizing Iowa's agricultural safety and health resources in order to improve the health and safety of Iowa's farm families. As an agricultural professional, if you need assistance with finding safety and health resources, you may contact I-CASH (319-335-4438) or the State Extension Safety Specialist (515-294-6360).

A network of clinics offering screening, testing, and educational services to farm families is being established in the state. Presently there are clinics at Spencer, Mason City, Cedar Falls, Dubuque, Farmington, Oskaloosa, and Harlan. Personnel involved with these clinics are excellent sources to contact for more specific and local information. Information on names and phone numbers can be obtained by contacting I-CASH at 319-335-4438.

The Iowa Department of Public Health employs four agricultural nurses in the Occupational Health Nurses in Agricultural Communities program (OHNAC). For more information, contact the Iowa Department of Public Health at 515-281-6646.

Farm Safety 4 Just Kids is based out of Earlham, Iowa, and currently has over 40 chapters throughout the United States and Canada. Farm Safety 4 Just Kids provides materials related to childhood injury prevention. The toll free number is 1-800-423-KIDS.

References for Tractor Overturn Safety Training

Lehtola CJ, Marley SJ, Melvin SW. 1994. *Five Years of Tractor Fatality Data in Iowa.* Journal of Applied Engineering in Agriculture 10(5):627-632. A copy can be obtained through I-CASH (319-335-4438).

ROPS Directory: 1990 and 1993. Prepared by National Farm Medicine Center, Marshfield, WI. Distributed to county extension offices and equipment dealers all across the US.

Safe Farm publication series, Pm-1265a-1, Pm-1518a-I, Pm-1563a-I. 1992, 1993, 1994 and 1995. Iowa State University Extension, Ames, Iowa. Single copies are available free at any extension office in Iowa. Each one-page fact sheet deals with a different topic in farm safety, including action steps and a list of additional references. To access these publications electronically or download a print-quality copy, go to the ISU Extension homepage located at URL: <http://www.exnet.iastate.edu/Pages/communications/Safe_Farm>.

Tractor Overturns and Tow Rope Safety: 1989. North Dakota State University (NDSU). Video available through NDSU (701-231-7882) at a cost of approximately $10. (A study-guide worksheet to use with the video is included in Appendix C of this manual. If desired, this could also be used as a pre/post test evaluation measure.)

Consider the Flipside. 1995. CASE Corporation. Video discusses tractor overturns and the importance of ROPS. A brochure showing how overturns can easily occur is also available. Contact local CASE-IH dealer or for a complimentary copy, write: Bill Thompson, Product Support, CASE Corporation, 7000 Durand Ave, Racine, WI 53406. A study guide worksheet to use with the video is included in Appendix C of this manual.

Tractor Rollovers: Instructional Materials and a Practical Guide for Agricultural Safety and Health. Iowa State University Extension. 1991. Available on loan from area extension offices in Iowa. Includes copies of most materials that have been evaluated and used in sample lesson plans.

Practical Guides for Teaching Farm Safety, AE-3078. Iowa State University Extension. 1993. Available at any extension office in Iowa. Teaching guides for eight farm safety programs are included, including tractor rollover.

AGRICULTURAL EQUIPMENT OPERATOR SAFETY SERIES

This series targets youth engaged in agricultural machinery operations and other farm operations. These seven videos were designed as a training resource for farm machinery operator safety programs fulfilling the federal law for child labor in Hazardous Occupations in Agriculture. The seven videos follow the outline from the student manual "Safe Operation of Agricultural Equipment," Extension publication Pm-646m. All seven segments are included on one videotape.

Number	Title	Time
#75708	Starting and Stopping Tractors	8:09
#75709	Tractor Safety on the Farm	8:49
#75710	Tractor Hitches, PTO's and Hydraulics	10:25
#75711	Tractor Safety on the Road	8:43
#75712	Why Farm Machinery Accidents Occur	9:50
#75713	Farm Machinery Accident Situations	8:22
#75714	Farmstead Safety	9:39

Available through the Media Resources Center, Iowa State University (515) 294-8022 or Area Extension Offices. Can also be ordered through Farm Safety 4 Just Kids (1-800-423-5437)

Content Specialists: *Don Goering, Deb Hall, Mark Hanna, Chuck Schwab*
Producer: *Dan Ossian*

Programs Funded by a grant from *Iowa Farm Bureau Life Charitable Contribution Trust.*

For more information

To preview samples of supplementary materials referred to in the tractor rollover teaching guide, contact any ISU Extension agricultural engineering field specialist to check out a three-ring binder, *Instructional Materials and a Practical Guide.* Materials referenced in the teaching guide have been reviewed for cost, content, and appropriateness for use in a safety presentation.

Teaching guides about other topics in farm safety are included in another ISU Extension publication, *Practical Guides for Teaching Farm Safety,* AE-3078, available for purchase from any ISU Extension office. Extension agricultural engineers also have safety video tapes, displays, and slide presentations. Most area extension offices have copies of the three-ring binders for check-out, too.

Area Extension Offices:

Central
10861 Douglas Ave., Suite B
Urbandale, Iowa 50322-2020
(515) 270-8114

ISU Outreach Center
P.O. Box 2068
Cedar Rapids, Iowa 52406
(319) 398-1272

ISU Outreach Center
500 College Dr.
Mason City, Iowa 50401
(515) 424-5432

ISU Outreach Center
P.O. Box 8015
1501 E. Orange Road–Hawkeye Center
Waterloo, Iowa 50704
(319) 296-4025

Northwest
4301 Sergeant Rd. Suite 214
Central United Life Building
Sioux City, Iowa 51106
(712) 274-0048

Southeast
633 Pennsylvania
Ottumwa, Iowa 52501
(515) 682-8324

Southwest
900 E. 7th St., P.O. Box 460
Atlantic, Iowa 50022
(712) 243-5750

IOWA STATE UNIVERSITY
University Extension

Ames, Iowa

Agricultural Engineering Field Specialists:

Kris Kohl
Buena Vista County Extension Office
800 Oneida, Suite C
Box 820
Storm Lake, Iowa 50588
(712) 732-5056
fax: (712) 732-5006

Shawn Shouse
Montgomery County Extension Office
RR 4 Box 34
Red Oak, Iowa 51566
(712) 623-2592
fax: (712) 623-2594

Greg Brenneman
Johnson County Extension Office
4265 Oak Crest Hill Road SE
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