



# All-terrain Vehicle Hazards – From Data to Action

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Dave Gilkey, David Elenbaas, John Rosecrance

NIOSH WestON 2014

Golden, CO



# Session Objectives



Those attending this session should be able to:

1. Describe the trends in ATV use across America,
2. Outline the unique uses and risks associated with Ag,
3. Recognize the benefits of collaboration, and
4. Discuss prevention strategies underway in MT.

# ATV Fatalities



## Fatalities in 2014 through July

- 209 ATV-related deaths (58 / 28% in July)
- 39 ROV-related deaths
- 72% of the ATV deaths occurred in single vehicle crashes
- 86% male riders

# ATV Fatalities in 2014



- *Only 3% of ATV-related fatalities were wearing helmets (97% were not wearing helmets!)*
- *The states with the highest number of ATV-related fatalities are: Pennsylvania, Florida, Missouri, and Ohio*
- *Colorado had 4 deaths*
- *Montana had 5 deaths*

# In the News

## Olympic gold-medal swimmer Amy Van Dyken-Rouen severs spine in ATV crash

BY: Deb Stanley, Marshall Zoliger  
POSTED: 8:24 AM, Jun 9, 2014  
UPDATED: 11:00 AM, Jun 10, 2014



AP Brennan Linsley  
June 18, 2014 4:48 PM

## Colorado's Olympic swimmer Amy Van Dyken-Rouen severed spine in ATV crash

BY: Deb Stanley, Marshall Zoliger  
POSTED: 8:24 AM, Jun 9, 2014  
UPDATED: 10:02 AM, Jun 10, 2014



## Olympian Faces Paralysis after ATV Accident



Six-time Olympic gold medal swimmer Amy Van Dyken-Rouen waves as she is transferred from an ambulance at the entrance to Craig Hospital, in Englewood, Colo., on Wednesday, June 18, 2014. Van Dyken-Rouen severed her spinal cord in a June 6 ATV crash. She had no feeling in her legs and feet after the accident, and said last week that she is still paralyzed. Van Dyken-Rouen, who is from Colorado, took a medical flight from Arizona to Denver on Wednesday for rehab at Craig Hospital, which specializes in spine injuries. (AP Photo/Brennan Linsley)

# Channel 9 News

## CSU professor: ATVs 'major public health problem'



CSU professor: ATVs 'major public health problem' 9NEWS at 6 p.m. 06/19/14.

EVALUATION OF AN AGRICULTURE SAFETY WORKSHOP  
AMONG  
MONTANA FARMERS AND RANCHERS

Joe Dartt, MS

2009

Need: ATV safety training for animal handling



# ATVs Overview

- ❖ 1970 – 2012
- ❖ 16-25 million Riders
- ❖ 10.5 million ATVs





# HICAHS Supplemental - NIOSH

- Dave Gilkey and Juhua Liu (submitted 2010)
  - ATV Use and Animal Handling
    - Aims: (Partnered with Doug Steele)
      1. Identify ATV uses
      2. Develop H&S information
      3. Craft dissemination plan
      4. Enhance risk awareness



# HICAHS Supplemental

Methods: (Executed 2011)

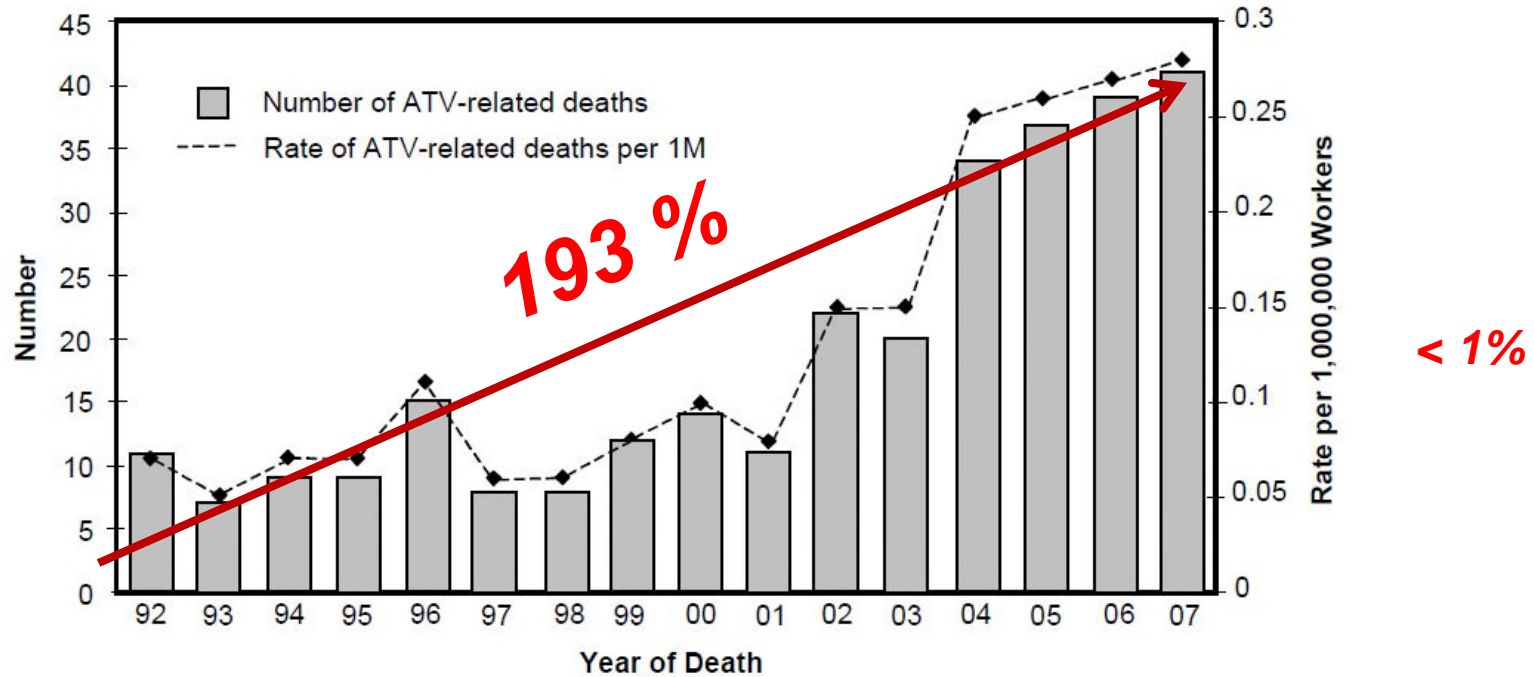
- 3 Mt Ag communities focus groups
- 5-8 Ag producers (n=21)

Survey about ATV knowledge,  
experiences, S & H training, Ag applications

- Social Marketing (PPPP)



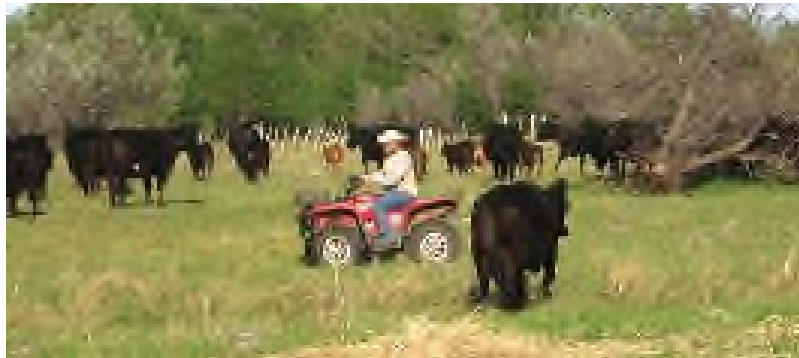
# Epidemiology



**Figure 1. Number and rate of work-related deaths resulting from ATV-related incidents, U.S., 1992-2007. Data for 1992-2002 exclude data for New York City; data for 2001 exclude fatalities that resulted from the September 11 terrorist attacks.**

# Findings

Ag - 20% users and  
65% of occupational  
related deaths



ASI training is  
not for Ag!

# HICAHS Supplemental - NIOSH

## Products:

1. ATV Tip Sheets (prototypes)
2. NORA Presentation at the UU
3. Poster presentation at MAP ERC Research Day
4. Presentation at the Brouha Work Physiology Symposium
  - A visit to the ASI in CA
  - A visit to NIOSH in Denver
  - Led to 3 subsequent projects

# ASI Training



# Community Project 1

ATV Safety Training for Ag Producers in MT (2012)

- John Pfister, MSU Ag Extension Agent
- Primary Objectives:
  1. Ag Extension Agents ASI Certified
  2. Train Ag Producers Using ASI Curriculum



# Community Project 1



## Methods:

- Ag Extension Agent to AZ
- Train 8 Ag Producers (5 hours)
  - Pre/Post Survey
  - 90 Day follow-up
- Focus Group (3hours)
  - Assess Applicability to Ag Operations





# Results

- Montana ranchers 5 male; 3 female ages of 23-63 yrs.
- The ranch sizes  $\approx$ 3000-  $\approx$ 10,000 acres.
- 5 out of 7 reported using ATVs 1-3 times per day.
- 12-19% improvement on pre/post testing.
- 50% of the respondents reported beneficial.
- 88% said it definitely increased their awareness of ATV safety issues and will alter their behavior.
- Additionally, 7 of 8 stated they would attend hands-on training in the future.

# Community Project 2

## ATV Safety Tip Sheets for Producers in MT

- Ken Nelson, MSU Extension Agent
- Primary Objectives:
  - 1) To develop and refine ATV Safety Tip Sheets for Ag operators,
  - 2) Pilot test the Tip Sheets in the Circle, MT community and region, and
  - 3) Evaluate operator's perceptions, impression and impacts to Tip Sheets.

# Products



Keep these tips in mind to prevent ATV accidents and finish the job right the first time.

## General ATV Safety

- ATVs have age limitations—**OBSERVE THEM.**
- Keep an ATV well-maintained and do a safety inspection each time it is used.
- Use protective gear—a motorcycle half-helmet and a pair of glasses will reduce injury risks without impairing your comfort or mobility.
- Fit the ATV to the job—bigger and faster is not always better. A smaller machine is easier to move by hand if necessary (e.g. if it flips on you).
- Always lean your body uphill to prevent tipping and flipping. Don't be afraid to stand up and really lean into the hill.
- Be careful if you have a load on the front or the back of the machine.
- Come to a complete stop, set brake and shift into park before dismounting.
- Even if you know your property well, keep an eye out for new environmental hazards like rocks, logs, sinkholes, ice patches, etc.
- Get hands-on training from a certified ATV Safety Institute trainer ([www.atvsafety.org](http://www.atvsafety.org))



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## ATV Safety



All-Terrain Vehicles (ATVs) can be a great tool on the farm or ranch, but using them improperly can greatly increase the risk of accident and injury on the job.



## ATV and Animal Handling

- Approach at low speeds to avoid frightening (startling) the animals.
- Be patient—if animals are causing you frustration, don't act on it. If you do, you'll overlook hazards that could injure you or the animals.
- Use caution when making sharp turns at higher speeds. Animals can always cut sharper corners than a vehicle. You might flip the ATV if you try to keep pace.
- Remember, you are eye-to-eye with the animals. Some ATV riders may appear less imposing to the animals and invite more resistance than if they were on horseback. Using the horn or rewiring the engine can help, instead of getting too close physically.
- If you've got a job to do, don't ride alone. Be aware of all riders' whereabouts. If you're moving animals, use ATVs alongside horses, dogs, trucks, etc.



- Communicate with others on ATVs or horses. Use hand signals, radios, or something similar.



## Spraying with ATVs

- Don't use an inferior spray system.
- Keep weight balanced—choose a spray system with the lowest practical center of gravity. (Sloshing liquid can change ATV handling.)
- Use a spray tank that has internal baffles. This will reduce liquid surges and improve overall stability when turning on slopes or hills.
- Choose booms that can be operated as low to the ground as possible or use a nozzle sprayer.
- ATVs should only be fitted with rear-mounted spray booms or other equipment to reduce the risk of pesticide exposure.



- Don't ride and spray when using a wand. If you're using this setup, make sure the ATV isn't moving while you're spraying.
- Do not drag your spray hose to avoid losing control of the ATV.
- Only use the speed that you need—the optimal speed for good spray distribution is probably slower than you'd like. High speeds mean higher chances of missing your target, and worse, possibly losing control of the ATV.

## Fencing with ATVs

- Use a trailer to transport heavy loads of posts and tools instead of stacking too much weight onto the ATV.
- If you know you're going to have to build or replace a lot of fence, take the pick-up truck or make multiple trips.
- Secure fencing tools and materials.
- Watch your speed—high speeds mean higher chances of losing control, especially if you're carrying extra weight.



# WestON 2012



- Dave Gilkey meets Dave Elenbaas  
Discussion about ATVs and WC data:
- WC Claims Assistance Bureau, Employment  
Relation Division, Dept. of Labor & Industry
  - 2013 Dave Elenbaas sends WC data on all  
ATV injuries and fatalities 2006 – 2012
    - 215 cases



# Epidemiology - 2012

## The Economic Burden of All-Terrain Vehicle Related Adult Deaths in the U.S. Workplace, 2003-2006

- J. C. Helmkamp, E. Biddle, S. M. Marsh, C. R. Campbell from NIOSH



- **Montana had the most deaths (13).**
- *Eighty-four (65%) of the deaths were workers in agricultural production at a cost of \$62.3 million.*
- *Short-term investments in prevention measures, such as training and helmets for workers, could provide lasting dividends by preventing work-related ATV deaths and reducing their economic impact.*

# Project 3

## ATV Safety Training Tool Kit for Agricultural County Extension Agents in Montana

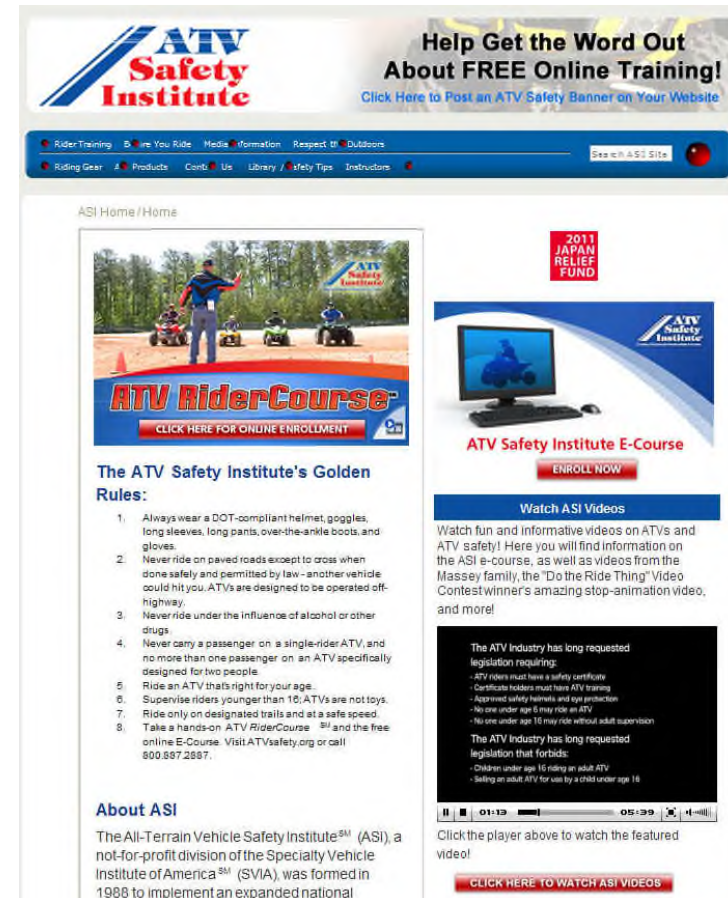
- John Pfister
- Primary Objectives
  1. Develop and refine tool kit materials including
  2. ASI certify 2 additional Extension Agents
  3. Pilot the ATV Safety Training Kit with the four ASI Certified Ag Extension Agents
  4. A training of 35 trainers in MT (AG Extension Agents)



# Capacity Building

## Certified Trainers - 11

- 4.5 – 5 hours
- Hands – on
- Pre-check
- PPE
- Safe Operation
- Ag Extension Agents



**ATV Safety Institute**

Help Get the Word Out About **FREE Online Training!**  
Click Here to Post an ATV Safety Banner on Your Website

Rider Training | **Share Your Ride** | Media Information | Respect the Outdoors  
Riding Gear | Products | Contests | Us | Library | Safety Tips | Instructors

Search the ASI Site

ASI Home / Home

**2011 JAPAN RELIEF FUND**

**ATV RiderCourse**  
CLICK HERE FOR ONLINE ENROLLMENT

**ATV Safety Institute's Golden Rules:**

1. Always wear a DOT-compliant helmet, goggles, long sleeves, long pants, over-the-ankle boots, and gloves.
2. Never ride on paved roads except to cross when done safely and permitted by law - another vehicle could hit you. ATVs are designed to be operated off-highway.
3. Never ride under the influence of alcohol or other drugs.
4. Never carry a passenger on a single-rider ATV, and no more than one passenger on an ATV specifically designed for two people.
5. Ride an ATV that's right for your age.
6. Supervise riders younger than 10; ATVs are not toys.
7. Ride only on designated trails and at a safe speed.
8. Take a hands-on **ATV RiderCourse** and the free online **E-Course**. Visit [ATVSafety.org](http://ATVSafety.org) or call 800.687.2687.

**About ASI**  
The All-Terrain Vehicle Safety Institute<sup>SM</sup> (ASI), a not-for-profit division of the Specialty Vehicle Institute of America<sup>SM</sup> (SVIA), was formed in 1988 to implement an expanded national

**ATV Safety Institute E-Course**  
ENROLL NOW

**Watch ASI Videos**  
Watch fun and informative videos on ATVs and ATV safety! Here you will find information on the ASI e-course, as well as videos from the Massey family, the "Do the Ride Thing" Video Contest winner's amazing stop-animation video, and more!

The ATV industry has long requested legislation requiring:  
- ATV riders must have a safety certificate  
- Certificate holders must have ATV training  
- Approved safety helmets and eye protection  
- No one under age 8 may ride an ATV  
- No one under age 16 may ride without adult supervision

The ATV industry has long requested legislation that forbids:  
- Children under age 16 riding an adult ATV  
- Selling an adult ATV for use by a child under age 16

Click the player above to watch the featured video!

CLICK HERE TO WATCH ASI VIDEOS



# Project 4 - Web 2.0



Ken Nelson, MT Ag Extension Agent

# Project 5 - Women In Ag and ATVs



Jody and Virginia

## ATV SAFETY

by Jodi Pauley  
Powell County Extension Agent, Montana State University

If you are a small acreage landowner, rancher, or an outdoor enthusiast, you may have invested in an all-terrain vehicle (ATV).

In addition to recreational use, ATVs also serve agriculture, business, commercial industry, and nearly 700 governmental and law enforcement agencies for on-the-job transportation and other uses. While they are extremely handy to have for carrying a weed sprayer or just a fun machine to use while recreating, there are also several safety factors to think about before operating an ATV.

The All-Terrain Vehicle Safety Institute® (ASI), a not-for-profit division of the Specialty Vehicle Institute of America® (SVIA), was formed in 1988 to implement an expanded national program of ATV safety education and awareness. ASI's primary goal is to promote the safe and responsible use of ATVs, thereby reducing accidents and injuries that may result from improper ATV operation by the rider. A December 2011 Consumer Product Safety Commission report indicated that since 1982, there have been more than 11,000 fatalities related to ATV accidents in the United States. Twenty-five percent of those were people younger than age 16, and 11 percent were younger than 12. Ridership has continued to grow with over 16 million people riding all-terrain vehicles today.



The ATV Safety Institute's Golden Rules are:

- Always wear a U.S. Department of Transportation (DOT)-compliant helmet, goggles, long sleeves, long pants, over-the-ankle boots, and gloves.
- Never ride on paved roads except to cross, where it can be done safely and is permitted by law.
- Never ride under the influence of alcohol or drugs.
- Never carry a passenger on a single-rider ATV, and no more than one passenger on an ATV specifically designed for two people.
- Ride an ATV that's right for your age.
- Supervise riders younger than 16; ATVs are not toys.
- Ride only on designated trails and at a safe speed.

The single most important piece of protective gear you can wear on an ATV is a helmet to protect yourself from a severe head injury in the event of an accident. When purchasing a helmet, look for stickers inside or outside of the helmet confirming compliance with standards from the DOT and/or the Snell Memorial Foundation. Helmets must fit properly whether you are fitting a child or an adult, and plan to replace a helmet if it has been in an accident or if it has been dropped and potentially damaged. Replace the helmet every few years as protective qualities will deteriorate over time. A face shield or goggles will also protect your eyes from injury; sunglasses are not enough protection. Gloves help prevent hands from getting sore, tired, or cold and offer protection in the event of a crash. The minimum protective footwear is a pair of strong, over-the-ankle boots with low heels to help prevent your feet from slipping off the footrests. A long-sleeved shirt and long pants are minimum requirements for rider protection, as well.

# Impact Evaluation

## The Collaborative Relationship:

- Baseline data has been shared and evaluated
- Future data on injury and fatality
- Lagging indicators of change has occurred due to the intervention
  - Will injuries and fatalities decrease?
  - Will characteristics of injuries change?
  - Will WC costs associated with ATVs decrease?

# Additional Trends



Side by sides:

- Polaris' 2015 Ranger models will offer two safety features.
- One is an interlocking seatbelt system that limits the speed of the side-by-side to 24km/h if the seatbelt is not engaged.
- The other is a speed key that can limit the speed of the side-by-side to 40km/h.
- Access to public roads.

# Thank You



# QUESTIONS?