Developing Innovative Partnerships to Reduce Deaths from All-Terrain Vehicle use in Agricultural Operations

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Introduction:
All-Terrain Vehicles (ATVs) have become an essential aspect of efficient agricultural work but have led to many injuries and deaths. Since 1982 over 12,000 people have been killed in the U.S. riding ATVs for occupational and recreational uses (CPSC, 2014). ATVs are used in farm and ranch operations with increasing popularity resulting in 65% of all occupational related deaths occurring in the Ag sector (Helmkamp et al., 2012). Occupational use of ATVs is on the rise in many sectors because of their versatility, adaptability and affordability but has led to a nearly 200% increase in work-related fatalities reported in the U.S. between 1999 and 2008 (Helmkamp, 2011).

Practice Innovation:
During challenging economic climates, it has become necessary for researchers and agricultural associations to work together as partners in the prevention of injury and deaths related to occupational ATV use. Using social marketing concepts and methods (Kotler et al., 2002), we developed a series of projects to increase the number of certified ATV safety trainers serving rural agriculture communities throughout the state of Montana. We designed participatory, community partner led projects for successful translation of ATV safety training through the Agricultural Extension Model to serve end users. The Agricultural Extension Model has been identified as one of the most successful approaches to translation of science to practice and adoption of research results (Rogers, 2003). Within this framework, theories work behavior (Campbell et al., 1993), planned behavior (Ajzen, 1991), the organization of work model (NORA Organization of Work Team, 2002), as well as social marketing principles were incorporated to enhance effective translation and dissemination of agricultural health and ATV safety knowledge, skills and abilities to end users. University researchers partnered with 11 agricultural Extension Agents in Montana. The partnership resulted in training and certification (by the ATV Safety Institute - ASI) for all 11 Agents located in rural areas throughout the State. The Agricultural Extension Service is made up of effective ‘change agents’ from communities throughout Montana. These agents live and work in the rural communities and provide support services for Ag operation success, they enjoy unique personal and professional relationships with operators and are perceived to be credible. Agents routinely promoted safe ATV use became certified to teach the five-hour ASI hands-on training in their communities with a focus on safe use for ranching work as opposed to recreational use. The Extension Agents were able to recruit Ag
producers through local communication channels for hand-on training in their communities. A series of trainings was launched in 2014 and continues throughout rural locations in MT with increasing numbers of Ag producers reached.

**Results:**

Certified Agricultural Extension Agents have trained over 75 producers to date. Evaluation of training sessions have enabled researchers to understand more about the specific needs of the producers, barriers and facilitators related to safe ATV use, and perceptions about ATV use in agricultural operations. ATVs among Montana ranching operations are used for general transportation, cattle handling, fence mending and weed control. Barriers exist to adoption of formal training and helmet use. We have found that the 5-hour ASI training overcomes many misperceptions and barriers about training and helmet use. Our data revealed that 88% of agricultural producers reported the training definitely increased their awareness of ATV safety issues and will alter their behavior. Using a pre/post test design with the trainees in the ATV safety program, we found 15% measurable gains in ATV safety knowledge and 100% of trainees reported the issues taught were applicable to their work. Producers indicated that they were likely to recommend the hands-on training to other producers as a result of their experience.

Additional outreach partnerships with Montana agricultural producers have resulted in ATV safety information Tip Sheets containing safety information aimed at the four primary uses of ATVs on cattle ranches. See Figure 1 for General ATV Safety and Figure 2 for ATVs and Animal Handling. These Tip Sheets were developed using participatory research to practice (R2P) model with community partners to enhance local messages about safe ATV use and to increase adoption of ATV the 5-hour hands-on field training. The Tip Sheets were disseminated throughout rural Montana. Feedback from Ag producers indicated that most, 97%, read the sheets, 78% reported that they were made more aware about ATV safety and 74% would change the way they operated their ATVs as a result of information on the Tip Sheets.

Ag Extension Agents were interested in additional portable tools for ATV safety field training. Durable ATV Safety Training Kits were developed for Agricultural Extension Agents that had taken the 5-hour hands-on training and/or obtained ASI certification. Thirty ATV Safety Training Kits were produced and disseminated to 30 Ag Extension agents to use under variable environmental conditions. The kits contained posters, placards, flip cards, tip sheets, slide presentations, additional handout and evaluation forms. Data is being collected on the effectiveness of this tool for ATV safety training.

An additional partnership between media and web technology professionals at the university has resulted in the development a culturally appropriate, 60 minute, web 2.0 interactive training/education experience conceived and designed by certified Ag Extension Agents. This training/education is aimed at increasing awareness of risk and hazards associated with ATV use.
in ranching operations and the need to be knowledgeable about safe vehicle use and operations:
1) pre-ride vehicle safety check, 2) personal protective equipment, 3) starting and stopping, 4) driving on uneven terrain, 5) navigating obstacles and 6) riding up, down and across hill sides.
The training and education are also reinforcing the need to take the 5-hour hand-on ASI training to achieve maximum learning, competency and safe vehicle operation.

The most recent project will deliver Public Service Announcements (PSAs) about ATV risks, hazards and available training in the local community. The PSAs will be disseminated throughout communities using multiple communication platforms while promoting a culture of adoption for ATV safety training and safe use in Ag operations.

**Conclusions:**
The effective partnership between university researchers and agricultural partners has led to Agricultural Extension Agents earning ASI certification in safe ATV use on the farm and significantly increased capacity and access to high-quality ATV safety training for ranchers in rural Montana. Certified Agents must provide two training sessions per year to sustain their certification. Each session trains between six and eight producers resulting in a guarantee of 132 – 176 producers being trained each year in safe ATV operations throughout Montana. Safety messages have been produced and disseminated with positive feedback. Various tools and messages have increased awareness of the risks and hazards associated with ATVs and the need for education and training for safe use. The success and sustainability of this project was only possible due to the strong collaboration and resources that that each partner contributed to the project.
Farm & Ranch
ATV SAFETY

General ATV Safety

- ATVs have operator age limitations—OBSERVE THEM.
- Keep an ATV well-maintained and do a safety inspection EACH time it is used.
- Use protective gear—a motorcycle helmet and a pair of glasses, goggles or face shield, all of which will help reduce the risk of injury as well as keep dust and debris out of your eyes.
- 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 you become stuck or flip the ATV).
- Always lean your body uphill to prevent tipping and flipping. Don’t be afraid to stand up and really lean into the hill.
- Be extra careful if you have a lead on the front or the back of the machine.
- Before dismounting stop ATV completely (preferably on a level surface), set brake, and shift into park.
- 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 Licensed ATV Safety Institute Trainer (www.atvsafety.org).
Farm & Ranch
ATV SAFETY

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 revving 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.

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