

Research Core Evaluation: Roadway Safety

Throughout the GPCAH region, roadway crashes continue to be an important cause of severe traumatic injuries to farmers as well as other roadway users. *Preventing farm equipment crashes* has been a long-term research priority for GPCAH to achieve our mission of injury reduction. The main objective during the current grant cycle is to develop a “We’re on This Road Together” Toolkit and training module. The train-the-trainer approach will be used to disseminate the campaign to Extension Educators who would then implement the toolkit into their communities directly.

2011-2016 (Ramirez/Peek-Asa): NEEDS ASSESSMENT

Farm-vehicle crashes endanger agricultural **AND** non-agricultural workers

DEMONSTRATED

- 30% of farm equipment crashes occur in **urban areas**
- **Non-ag vehicle** most frequently at fault
- **Stricter laws on lighting and marking** may lead to lower crash rates

BUT...

- Little understanding of **specific driver behaviors** behind crashes
- Need to address driving behaviors of both **ag and non-ag** vehicle operators
- Adoption of stricter laws on lighting and marking require **advocacy** for full effect



2016-2022 (Hamann/Peek-Asa): DRIVING BEHAVIORS (PHASE 1)

DEVELOPED

- **SaferTrek**: a device to collect driving data on farm- and non-farm vehicle interactions
- Algorithms to analyze **SaferTrek** data

USING SaferTrek, IDENTIFIED

- Unsafe driving behaviors in non-farm vehicles
- Passing
- Speeding
- Leaving headway space



SaferTrek Mounted on Rear of Farm Vehicle



Example of a Video Snapshot from SaferTrek

What **SaferTrek REVEALS** about farm-vehicles:

- Time on the road
- Routes frequented
- Frequency of encounters with other vehicles



2016-2022 (Hamann): COMMUNITY INTERVENTION (PHASE 2)

ENGAGED a **Community Advisory Board**

DEVELOPED a **Community Campaign**

“WE’RE ON THIS ROAD TOGETHER”

- “Slow Down”
- “Leave More Space”
- “Avoid Passing”



Community Campaign in Action: 4th of July Parade, Williamsburg IA

SURVEY on PASSING BEHAVIOR & CAMPAIGN REACH

- 10% perceived farm equipment as a top road safety concern
- Males more likely to pass farm equipment
- 60% recalled campaign
- 75% recalled campaign location
- 53% recalled messaging content
- 9% increase in exposure to road safety info from baseline to post-period

SCALING

How can we enable other communities to implement their **own** roadway safety campaigns?

Next... (2022-2027)

Partner with **Cooperative Extension System** to implement campaigns in multiple communities



Evidence of research output adoption includes:

- **Training:** The project cross-trained multiple individuals in public health techniques. PhD students in Civil Engineering devised algorithms and approaches to analyze *SaferTrek* data. MS students assisted in the analysis of survey question responses and manuscript preparation. Undergraduate students worked on video review and annotation.
- **Partnerships and Presentations:** Strengthened collaboration between Iowa State University and University of Iowa. Information was shared with Iowa Department of Transportation.
- **Education and Outreach:** Study findings were incorporated into GPCAH Core Course curriculum for agricultural safety and health professionals. In addition, GPCAH representatives continued to share information on farm vehicle lighting and marking and farm shows. The Roadway Safety webpage became one of the most visited pages on the GPCAH website. Tools developed in this study led to development of a process for analyzing naturalistic data on vehicle exposure and driving behaviors using the *SaferTrek* device, developed with funding from this project; this tool has been adapted for use in other studies, including one examining bike safety and injury prevention, subsequently funded by the CDC.