

Reducing fatalities and serious injuries in agriculture associated with mobile plant

Rural Safety & Health Alliance Research Short Report - May 2024

Aim

This research aims to foster safe use of mobile plant on farms by:

- Better understanding how to initiate and sustain behaviour change on farm.
- Developing a repeatable, scaleable method for assessing mobile plant safety on farm.
- Identifying practical ways to underpin safe use of specific plant from whole safety system assessment.

Method

Mobile plant encompasses a wide range of equipment and machinery that has some form of self-propulsion, is under the direct control of an operator and is typically not used on a public road.

Tractors and quad bikes are much studied mobile plant associated with about 1 in 3 fatalities on farm. The scope of this research was the *other* mobile plant types which can also cause traumatic injury and are associated with 1 in 10 farm fatalities.

The research was conducted by Work Science in 2023 using a mixed method approach.

A scoping literature review and semi-structured interviews with 49 people in the agricultural sector provided insight into potential safe (and unsafe) behaviours and perceived barriers and benefits to taking action.

A survey of 229 growers was used to describe current practices and perceptions around 10 different types of mobile plant: what was used on the farm, how often, and what they saw as riskiest.

Work Science chose two conceptual models: the Health Belief Model for describing factors that influence the behaviour of individuals; and a Rasmussen-inspired model for assessing how the whole safety system can affect safe use on farm.

Results and discussion

The grower survey covered diverse farming enterprises ranging from 60 to 1,600,000 hectares, many (over 80%) involving livestock, and two-thirds producing more than one commodity.

Most of the survey farms used multiple types of mobile plant (six of the 10 plant types on average).

What growers saw as the riskiest plant to operate differed between farms.

Each of the 10 mobile plant types were nominated by at least one farm. Post-hole diggers/drivers and augers were chosen most often by farms that had these items (35% and 33% respectively).

Most growers (90%) believed others on farm expect a high standard of safety when risky plant is used.

Work practices support safe operation of the riskiest equipment. Many check equipment before use (90%), restrict who can use it (66%) and give safety briefings before starting high risk jobs (73%).

The survey reinforces that mobile plant is an essential part of farming, used in every business. Yet the term covers very different equipment types with different applications and safety risks. Industry-wide safer use of mobile plant is likely to require a specific focus on each type.



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The interviews and survey reinforced that Australian farmers are very aware of the potential for injury associated with mobile plant. People in the sector see the big risks to safety as time pressures, fatigue, distraction, lack of operator competency, machinery neglect and equipment modification.

This is a significant shift in attitudes prevailing in the early 2000s where incidents were often regarded as “just part of being a farmer”.

Concern about serious repercussions of injury for the farming family or farm business, a feeling of being vulnerable and that ‘it could happen on my farm’, is one of the pre-conditions for taking preventative action.

Under the Health Belief Model, perceived benefits and barriers to acting are strong predictors for adopting preventative practices - and the benefits need to outweigh the barriers for individuals to act.

While many benefits of adopting safe practices were mentioned at interview (such as avoiding harm to family or co-workers, reducing the costs and disruption of an incident, and the risk of regulatory action), the perceived barriers (such as time pressures, workload, the expense of doing proactive maintenance, availability of experienced staff, training resources etc) are substantial.

RSHA piloted use of the Rasmussen-inspired model recommended by Work Science to systematically examine risks across the safety system for augers. This approach readily identified areas that would benefit from better alignment and advocacy within the agricultural sector.

Summary

This report shows that safe use of mobile plant is a concern for those in the sector and on farm. The findings suggest that reducing perceived barriers, building self-efficacy and reinforcing the benefits of adopting safe practices will encourage behaviour change. The auger case study shows the potential for on farm practices to be made universally safer by acting on significant issues identified in non-farm aspects of the safety system.

Recommendations

The following recommendations are in accordance with the RSHA objective of using evidence-based information to make targeted collaborative RD&E investment decisions, where investment can have both human and economic impact.

Recommendation 1: Focus specifically on the different mobile plant types when aiming for industry-wide safer use of mobile plant.

Recommendation 2: Work with the benefits, barriers and cues for action when designing safety campaigns for specific mobile plant types.

Recommendation 3: Consider using the Rasmussen-inspired model to fast-track factors in the whole safety system that may be influencing safety on farm (for a mobile plant and potentially other aspects of WHS).

The Rural Safety and Health Alliance is a cross-sectoral collaboration comprising eight Rural Research and Development Corporations: AgriFutures Australia, Australian Eggs, Australian Pork Limited, Australian Wool Innovation, Cotton Research and Development Corporation, Dairy Australia, Grains Research and Development Corporation, and Meat and Livestock Australia.

