



From Research to Safe Practice on Farms

The impact of research by the Australian Centre for Agricultural Health and Safety on policy and practice

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THE UNIVERSITY OF SYDNEY

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INTRODUCTION

The Australian Centre for Agricultural Health and Safety (the Centre) based in Moree, is an independent research centre within the University of Sydney.

Its mission is:

Action research to assist rural Australians to attain improved levels of health and well-being by reducing the incidence and severity of injury and illness associated with life and work in agriculture.

In 1985 the Centre, as the Australian Agricultural Health Unit of the Moree District Hospital, was established to serve the farming population in the North West of NSW. The need for such a service nationally was rapidly recognized, with the Unit being transferred to administration through NSW Health and subsequently to that of the University of Sydney in 1998.

The Centre is the only agency of its type and is the recognised leader in research, information provision and its translation to improve safety policy and practice in agricultural communities in Australia. It also has a significant international reputation as a centre of excellence in agricultural health and safety - industry leaders in the United States have recently established the Agricultural Safety and Health Council of America, recognising that they have modeled the new agency on the Centre initiated Farmsafe Australia model.

The Centre has drawn together an interdisciplinary team of people including rural scientists, agricultural / health economists and public health specialists who are working with the Australian agricultural community, to implement a directed program of research, development and translation aimed at ultimately improving the health and well-being of the farming population in Australia.

The team is unique in its approach in bringing public health derived information and approaches into the agricultural sector and in building partnerships with various agricultural agencies to address health and safety. These networks and partnerships are a cornerstone of its operations and include its relationship with the peak farmers' organisation in Australia, the National Farmers Federation and each of its state affiliates.

The Centre maintains a program of research, promotion and educational development activity addressing key issues not being addressed by other states or agencies. It maintains the National Farm Injury Data Centre and has growing links with rural health worker organisations (rural doctors, rural Divisions of General Practice, Universities, National Rural Health Alliance and rural rehabilitation service providers).

Current programs include:

- Farm injury surveillance by the National Farm Injury Data Centre
- Mental health of farming populations
- Child injury prevention on farms
- Safety of young people on farms
- Older farmers health and safety
- Farm machinery safety
- Quad bike safety
- Pesticides safety
- Consultancies to corporate properties and stations

Data compiled by the National Farm Injury Data Centre indicates a significant reduction in the number of farm deaths in the past 20 years. In the 1989-92 period there was an average of 146 deaths per year, while in the most recent period for which national data is available 2003-06, this has reduced to 82 deaths per year. In raw numbers, this represents a reduction of 44% over this period. Additionally, if measured in terms of deaths per 10,000 farms or per 100,000 employees over the same periods, there has been a 35% and 54% drop in respective death rates.


The Centre with its active research program has been the key driver in national initiatives to reduce death rates in the agricultural population.

This document summarizes the nature of the action research that has been undertaken by the Centre and how these results have been applied to enhance the health and safety of agricultural industries in Australia.

Research Papers/Reports	Policy/practice document in which paper cited	Known policy/practice outcome
1. Farm production systems safety		
1.1 National Farm Injury Data Collection and Surveillance		
Farm Fatalities Research Studies		
<p>Lower T. Farm Injury Fatalities: Where are we and where to from here? <i>South Australian Public Health Bulletin (in press)</i></p>		
<p>Fragar L, Pollock K, Morton C. The changing profile of Australian farm injury deaths. <i>Australian & New Zealand Journal of Occupational Health and Safety</i> 2008; 24 (5):425-433.</p>	<ul style="list-style-type: none"> • 2 international citations 	<p>Data has been used:</p> <ul style="list-style-type: none"> • In development of the Farmsafe Australia Communication Framework and Strategy 2008-2010. • To develop strategic approaches to farm vehicle safety.
<p>Pollock K, Fragar L, Morton C. <i>Traumatic deaths in Australian agriculture.</i> Australian Centre for Agricultural Health & Safety 2007. (Chartbook series)</p>		
<p>Mitchell RJ, Franklin RC, Driscoll TR, Fragar LJ. Farm-related fatal injury of young and older adults in Australia, 1989-1992. <i>Australian Journal of Rural Health</i> 2002; 10: 209-219.</p>	<ul style="list-style-type: none"> • Farmsafe Australia. Health and Safety in the Australian Beef Cattle Industry – an Industry Strategy 2004-2009 Moree. 2004. • Farmsafe Australia. National Farm Machinery Safety Strategy 2000-2005, with Review 2004. • Farmsafe Australia. Health and Safety in the Australian Horticultural Industry – An Industry Strategy 2004-2009 Moree. 2004. • Farmsafe Australia (2002). Child Safety on Farms National Strategy Farmsafe Australia: Moree . • Farmsafe Australia 1999 Health and Safety in Cotton Industry - A national Strategy Farmsafe Australia Moree • Farmsafe Australia 1997 Health and Safety in Sheep Industries - A National Strategy Farmsafe Australia Moree. • 11 International citations. 	<p>This research resulted in an extensive range of programs, production of strategies and subsequent guidelines that were made widely available to the agriculture industries and government agencies.</p> <ul style="list-style-type: none"> ▪ The guidelines gained the endorsement of the agricultural industries and are accessible to industry members through the Farmsafe Australia website – www.farmsafe.org.au ▪ The research and guidelines have informed the development of content in Rural Short Courses: <ul style="list-style-type: none"> - <i>MFS-Managing Farm Safety</i>™ (over 10,000 farmers involved Australia wide). ▪ Formed the basis for development of national safety competencies in all rural training www.vetab.gov.au ▪ Roll Over Protective Structure (ROPS) rebate scheme implemented in Victoria, New South Wales and Queensland, with an estimated 20,000 ROPS retrofitted on tractors and a subsequent decline in roll over deaths. • A small business workers compensation premium discount scheme with the cotton industry. Participants successfully

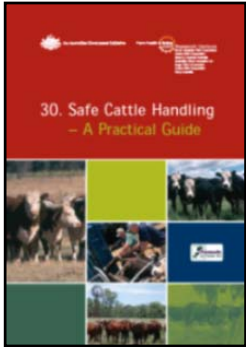
Research Papers/Reports	Policy/practice document in which paper cited	Known policy/practice outcome
		completed the Farmsafe Australia, Managing Farm Safety in the Cotton Industry course and implemented changes on their farms in order to receive a discount on workers compensation premiums. Over 50 farms successfully completing the program.
<p>Mitchell RJ, Franklin RC, Driscoll TR, Fragar LJ. Farm-related fatalities involving children in Australia, 1989-1992. <i>Australian & New Zealand Journal of Public Health</i> 2001; 25: 155-166.</p>	<ul style="list-style-type: none"> • 14 international citations 	
<p>Franklin RC, Mitchell RJ, Driscoll TR, Fragar LJ. Non-Work-Related Farm Fatalities in Australia, 1989-1992. <i>Journal of Agricultural Health and Safety</i> 2001; 7: 229-239.</p>	<ul style="list-style-type: none"> • 3 international citations 	
<p>Franklin RC, Mitchell RJ, Driscoll TR, Fragar LJ. Agricultural Work-Related Fatalities in Australia, 1989-1992. <i>Journal of Agricultural Health and Safety</i> 2001; 7: 213-227.</p>	<ul style="list-style-type: none"> • 17 international citations 	
<p>Franklin R, Mitchell R, Driscoll T, Fragar L. <i>Farm related fatalities in Australia, 1989-1992</i>. Australian Centre for Agricultural Health and Safety, Moree, Rural Industries Research and Development Corporation, Canberra and NOHSC 2000.</p>	<ul style="list-style-type: none"> • 31 international citations 	
Farm Injury Studies		
<p>Davies J, Franklin R. Injuries resulting from horse riding and motorcycle incidents on farms. <i>Journal of Occupational Health and Safety - Australia and New Zealand</i> 2006; 22: 51-59.</p>	<ul style="list-style-type: none"> • 1 International Citation. 	<p>Farm motorcycle injury data contributed to the development of the Farmsafe Australia, <i>Safe operation of All-terrain Vehicles and All-terrain Utilities on Australian Farms – An Industry Strategy 2004-2009</i>.</p>

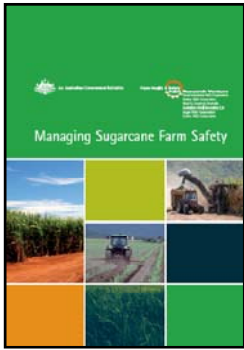
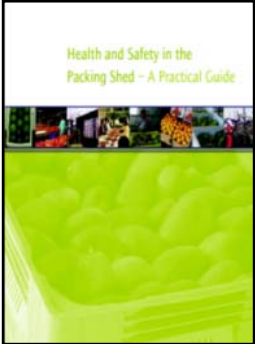

Research Papers/Reports	Policy/practice document in which paper cited	Known policy/practice outcome
<p>Franklin RC, Davies JN. Farm related injury presenting to an Australian base hospital. <i>Australian Journal of Rural Health</i> 2003; 11: 292-302.</p>	<ul style="list-style-type: none"> Rural and Regional Services and Development Committee, Parliament of Victoria 2006. <i>Final Report Inquiry on Regional Telecommunications Infrastructure for Business</i>. Government Printer for the State of Victoria. 8 international citations 	
<p>Franklin R, Fragar L. <i>The health and safety of Western Australian farmers, farm workers and farm families</i>. Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra. 2002.</p>	<ul style="list-style-type: none"> 5 international citations 	<p>The Western Australian study has informed various programs and projects that were subsequently funded by the Health Department of WA and Worksafe WA throughout rural Western Australia.</p>
<p>Franklin RC, Thomas, PR, Fragar LJ. <i>The Health and Safety of New South Wales Farmers, Farm Families and Farm Workers</i>. Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra. 2002.</p>	<ul style="list-style-type: none"> NSW Farmers Association <i>Farm Safety Guide</i>. NSW Farmers, Sydney 2005. 	<p>This document has provided the basis for safety priorities and programs for Farmsafe NSW, Workcover NSW and the NSW Farmers' Association</p>
<p>Fragar LJ, Franklin RC. <i>The Health and Safety of Australia's Farming Community</i> 2000. Australian Centre for Agricultural Health and Safety, Moree. 2002.</p>	<ul style="list-style-type: none"> Farmsafe Australia. <i>Child Safety on Farms National Strategy</i> Farmsafe Australia: 2002. Farmsafe Australia. <i>Noise Injury Prevention Strategy for the Australian Farming Community</i>. Farmsafe Australia: 2002. 30 international citations 	<p>This research resulted in an extensive range of programs, production of strategies and subsequent guidelines that were made widely available to the agriculture industries, government and manufacturers.</p> <ul style="list-style-type: none"> The guidelines gained the endorsement of the agricultural industries and are accessible to industry members through the Farmsafe Australia website – www.farmsafe.org.au Guidelines and on-farm resources are downloaded at a rate of 3-5000 per month from the Australian Centre for Agricultural Health and Safety and Farmsafe Australia websites. The research and guidelines have informed the development of content in Rural Short Courses; <ul style="list-style-type: none"> <i>MFS-Managing Farm Safety</i>™ (over 10,000 farmers involved Australia wide). <i>Return to Work on the Farm</i> (for rural rehabilitation service providers).


Research Papers/Reports	Policy/practice document in which paper cited	Known policy/practice outcome
<p>Franklin R, Crosby J. Farm related injury in NSW: Information for prevention. <i>New South Wales Public Health Bulletin</i> 2002; 13(5) : 99 -102</p>	<ul style="list-style-type: none"> • 4 international citations 	
<p>Franklin R, Chater AB, Fragar L, Ferguson K. <i>Rural Injury in Central Queensland: Injury data from eleven Emergency Departments and nine General Practice surgeries, 1995 – 1996.</i> Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra. 2000.</p>	<ul style="list-style-type: none"> • 5 international citations 	<p>These studies led to a national investigation into the health and safety of the Australian farming community. A subsequent paper of findings was published in 2002.</p>
<p>Franklin R, Fragar L, Page A. <i>The Health and Safety of South Australian Farmers, Farm Families and Farm Workers.</i> Australian Agricultural Health Unit, Moree. 1999.</p>		
<p>Chartbook Series</p>		
<p>1. Morton C, Fragar L, Pollock K. <i>Vehicle injury associated with Australian Agriculture – The Facts.</i> ACAHS 2008.</p>		<p>This series presents findings in readily downloadable formats that are being downloaded from the Farmsafe Australia website at a rate of 2-300 per month, by educators, contractors, policy makers and Public Health units.</p> <p>Data from this chartbook series has guided development of Farmsafe Australia sponsored national strategies to address safety associated with each topic.</p>
<p>2. Morton C, Fragar L, Pollock K. <i>The Safety of Young People in Australian Agriculture – The Facts.</i> ACAHS 2008.</p>		
<p>3. Fragar L, Henderson A, Morton C, Pollock K. <i>The Mental Health of People on Australian Farms – The Facts.</i> ACAHS and RIRDC 2008.</p>		
<p>4. Pollock K, Fragar L, Morton C. <i>Traumatic deaths in Australian agriculture – The facts.</i> ACAHS and RIRDC 2007.</p>		

Research Papers/Reports	Policy/practice document in which paper cited	Known policy/practice outcome
5. Morton C, Fragar, Pollock, K. <i>Health and safety in older farmers in Australia – The Facts.</i> ACAHS and RIRDC 2007.		
6. Morton C, Fragar L, Pollock K, Day L. <i>Occupational health and safety in the Australian dairy industry – The Facts.</i> ACAHS and RIRDC 2007.		
7. Fragar LJ, Pollock K, Morton C. <i>ATV Injury on Australian farms – The Facts.</i> ACAHS and RIRDC 2007.		
8. Fragar LJ, Thomas P, Morton C. <i>Injury on Farms in New South Wales - The Facts.</i> ACAHS and RIRDC 2005.		
9. Fragar LJ, Sankaran B, Thomas P. <i>Pesticides and Adverse Health Outcomes in Australia - The Facts</i> ACAHS and RIRDC 2005.		
10. Fragar, LJ, Stiller L, Thomas P <i>Child Injury on Farm - The Facts.</i> ACAHS and RIRDC 2005.		
11. Fragar LJ, Thomas P. <i>Machine Injuries on Australian Farms - The Facts.</i> ACAHS and RIRDC 2005.		
12. Fragar LJ, Pollock, K, Morton C. <i>Occupational health and safety risk in the Horticulture Industries - The Facts.</i> ACAHS and RIRDC 2005.		
13. Fragar LJ, Pollock K, Morton C. <i>Occupational health and safety risk in the Poultry Industry - The Facts.</i> ACAHS and RIRDC 2005.		

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Chartbook Series		
14. Fragar LJ, Pollock K, Morton C. Occupational health and safety risk in the Australian Beef Cattle Industry - The Facts. ACAHS and RIRDC 2005.		
Methods		
Hewitt RJ, Franklin RC, Fragar LJ. <i>Research methodologies for benefit – cost studies of farm occupational health and safety projects.</i> Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra. 2000.		Incorporates principles of agricultural and health economics to guide benefit-cost assessments of farm safety programs.
Fragar L, Franklin R, Coleman R. <i>The farm injury optimal dataset. Version 1.2.</i> Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra. 2000.		The development, testing and modification of the National Farm Injury Optimal Dataset has guided the collection, collation and publication of most farm injury research in Australia since the mid 1990's. The farm injury optimal data set has directly resulted in modification to the International Diseases Classification (ICD10) to more accurately define farm injury specifically related to 4 wheel motorcycles (All Terrain Vehicles – ATVs).
Franklin RC, Fragar LJ, Page AN. The national farm injury data collection: data to inform farm injury prevention programs. <i>Australian Epidemiologist</i> 2000; 7: 18-24.		
Fragar L. Coleman R. Health and safety in Australian Agriculture – Linking research, data and action. <i>Journal of Agromedicine</i> 1997; 4: 129-137.	<ul style="list-style-type: none"> Day L, Stathakis V. <i>Evaluation of farm injury prevention programs.</i> Rural Industries Research and Development Corporation. 2004. 	This paper describes the processes by which the National Farm Injury Data Centre, maintained by the Australian Centre for Agricultural Health and Safety, provides data and research information for programs of action research undertaken by the Centre with and for agricultural industries across Australia.

Research Papers/Reports	Policy/practice document in which paper cited	Known policy/practice outcome
1.2 Agricultural industries health and safety programs		
Specific commodity programs		
<p>Fragar L, Lower T, Temperley J. <i>Adoption of Health and Safety Change on Australian Farms and Fishing Enterprises - For industry, governments, service providers and other stakeholders.</i> Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra, 2010.</p>		<p>This research builds on earlier work assessing the available evidence regarding adoption. It provides an evidence-based framework upon which to base future priorities and interventions.</p>
<p>Lower T, Fragar L, Temperley J. <i>Health and Safety Baseline Survey of Australian Farm Enterprises.</i> Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra, 2010.</p>		<p>This study provides the first nationwide and comprehensive assessment of farm safety systems, control of major hazards and physical/mental health indicators across seven commodity sectors</p>
<p>Fragar L, Temperley J. <i>The impact of biotechnology and other factors on health and safety in the Australian Cotton Industry.</i> Australian Centre for Agricultural Health and Safety, Moree, 2008.</p>		<p>This research assessed the contribution that changes in biotechnology and practices have made to health and safety in the cotton industry.</p>
<p>Franklin RC, Fragar LJ, Houlahan J. <i>Health and safety risks associated with beef cattle production.</i> Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra, 2002.</p>	<p><i>Health and Safety in the Australian Beef Cattle Industry – An industry Strategy 2004-2009.</i> Farmsafe Australia, Moree, 2004.</p> 	<p>This research resulted in production of an on-farm OHS risk management package for the beef cattle industry.</p> <p><i>Managing Beef Cattle Production Safety.</i> Rural Industries Research and Development Corporation, 2005.</p> <p>The guidelines gained the endorsement of the beef cattle industry and have been made accessible to industry members through the Farmsafe Australia website – www.farmsafe.org.au</p>


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<p>Fragar LJ, Franklin RC, Allen C, Harding W. <i>Occupational Health and Safety Risk Associated with Sugarcane Production.</i> Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra, 2001.</p>		<p>This research resulted in production of an on-farm OHS risk management package for the Cane industry.</p> <p><i>Managing Sugar Cane Production Safety.</i> Rural industries Research and Development Corporation, 2007.</p> <p>The guidelines gained the endorsement of the Cane industry and have been made accessible to industry members through the Farmsafe Australia website – www.farmsafe.org.au</p>
<p>Franklin RC, Brown P, Fragar LJ, Houlahan JB. <i>Health and Safety Risks Associated with Horticultural Produce Production.</i> Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra, 2001.</p>	<p><i>Health and Safety in the Australian Horticultural Industry – An Industry Strategy 2004-2009.</i> Farmsafe Australia, Moree, 2004.</p> 	<p>This research resulted in production of an on-farm OHS risk management package for the horticulture industries.</p> <p><i>Managing Horticulture Production Safety.</i> Rural Industries Research and Development Corporation, 2005.</p> <p>The guidelines gained the endorsement of the horticulture industry and have been made accessible to industry members through the Farmsafe Australia website – www.farmsafe.org.au</p> <p>The Australian Centre for Agricultural Health and Safety was invited by the Commonwealth Department of Agricultural, Forestry and Fisheries to provide expert advice on OHS to assist farmers to meet EuropGAP standards.</p> <p>Occupational Health and Safety standards developed by ACAHS have been incorporated into requirements to export agricultural goods to the European and Japanese markets.</p>
<p>Franklin RC, Fragar LJ, Houlahan JB, Brown P, Burcham J. <i>Health and Safety Risks Associated with Cotton Production On-Farm.</i> Version 1.2. Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra, 2001</p>	<p>Materials being upgraded in 2011 with support from the Cotton RDC for inclusion in the Cotton myBMP program</p> 	<p>This research resulted in production of an on-farm OHS risk management package for the cotton industry.</p> <p><i>Managing Cotton Production Safety.</i> Rural Industries Research and Development Corporation, 2005.</p> <p>The guidelines gained the endorsement of the cotton industry and have been made accessible to industry members through the Farmsafe Australia website – www.farmsafe.org.au</p>


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<p>Fragar LJ, Franklin RC, Lower A. <i>Occupational Health and Safety Risk Associated with Sheep and Wool Production in Australia.</i> Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra, 2001.</p>	<p><i>Health and Safety in Sheep Industries - A National Strategy.</i> Farmsafe Australia, Moree, 1997.</p> <ul style="list-style-type: none"> • 5 international citations 	<p>This research resulted in production of a guideline that was made widely available to the sheep and wool industries and government agencies.</p> <p>The guidelines gained the endorsement of the agriculture industry and have been made accessible to industry members through the Farmsafe Australia website – www.farmsafe.org.au</p>
<p>Lower T, Fragar L, Temperley J. Improving health and safety in the Australian sheep industry. <i>Journal of Occupational Health Safety - Aust NZ</i> 2000, 16: 117-125.</p>		
<h3>2.1 Tractor and Machinery Safety Program</h3>		
<h4>Tractor Safety</h4>		
<p>Temperley J. <i>Tractor survey Ag-Quip 2007/08.</i> Australian Centre for Agricultural Health and Safety, Moree, 2009.</p>		
<p>Franklin RC, Stark K, Fragar L. Intervention strategies for the retrofitment of Rollover Protective Structures (ROPS) and fleet characteristic, farm tractors. <i>Safety Science</i> 2006; 44: 771-783.</p>	<ul style="list-style-type: none"> • Workcover NSW Rebate Scheme for replacement of worm drives with pin drives in shearing handpieces. • 1 International Citation 	<p>This evaluation of the tractor ROPS rebate scheme in NSW has provided the information on which the NSW Government has based further subsidy incentives for upgrading the safety of older farm machinery – e.g. shearing handpieces that cause hand injury to shearers.</p>
<p>Franklin R. <i>Evaluation of the New South Wales Rollover Protective Structure Rebate Scheme 2000-2004.</i> Australian Centre for Agricultural Health and Safety, Moree, 2005.</p>		
<p>Miller J, Fragar L, Franklin R. <i>Farm Machinery Safety – Injury involving tractor run-over.</i> Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra 2004.</p>		<p>This research resulted in design specifications for a <i>Safe Tractor Access Platform</i> that were promulgated by production of a guideline that was made widely available to the agriculture industries, government and manufacturers.</p> <ul style="list-style-type: none"> ▪ The guideline gained the endorsement of the agricultural industries and is made accessible to industry members through the Farmsafe Australia website –

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<p>Davidson A, McDonald G, Tullberg J, Collie S. Safe Tractor Access Platform. Australian Centre for Agricultural Health and Safety Moree 1996.</p>	<ul style="list-style-type: none"> • Day, L., Scott, M., Williams, R., Rechnitzer, G., Walsh, P., Boyle, S. Development of the Safe Tractor Assessment Rating System. Barton, ACT: <i>Journal of Agricultural Safety and Health</i> 2005; 11: 353-364. • Included in submission to Rural and Regional Services and Development Committee Parliamentary Inquiry- <i>Death and Injury on Victorian Farms</i> 2005. • SafetyLine Institute of Worksafe WA (Online safety guidelines) <i>Tractor Run Overs</i>. Government of Western Australia. • Steps to tractor safety. <i>Workplace Issues</i> July 2001 Workcover Tasmania and Workplace Standards Tasmania. 	<p>www.farmsafe.org.au</p> <ul style="list-style-type: none"> ▪ The governments of Western Australia, Tasmania and Victoria have adopted the recommended guidelines and are promoting the retro fitment of the platform to farmers in those states. ▪ Subsequently, leading tractor manufacturers based in the USA and Europe have incorporated safe access platform/steps into design of new tractors.
<p>Davidson A. National Tractor Safety Project Final Report. Australian Agricultural Health Unit, Moree. 1996.</p>	<ul style="list-style-type: none"> • Franklin, R C; Stark, K L and Fragar, L J <i>Evaluation of the New South Wales Rollover Protective Structure Rebate Scheme 2000 – 2004</i>. Australian Centre for Agricultural Health and Safety, Moree 2005. • Roll Over Protection Structure (ROPS) <i>Farm Safety Series</i> Feb 2003 Worksafe Victoria. • Woods, B. Victoria's rollover subsidy – A safety success. Victorian Workcover Authority <i>Farm Injury Prevention 99 Proceedings Papers</i> 1999. • Day L, Rechnitzer G. <i>Evaluation of the tractor roll-over protective structure rebate scheme 1997/98</i>. Monash Accident Research Centre. Monash University 1999. 	<p>This early research resulted in development of tractor safety programs in Victoria, NSW and Queensland with governments in each state instituting time-limited subsidy for retro-fitment of Rollover Protective Structures to older tractors.</p> <ul style="list-style-type: none"> • To date approximately 23,000 ROPS have been retrofitted, resulting in a demonstrable decrease in tractor rollover deaths in Victoria and New South Wales. Comparison between rollover deaths for the periods 1989-92 and 2003-06 indicate a 70% reduction in fatalities. • A guideline was published by the Australian Centre for Agricultural Health and Safety. The guideline gained the endorsement of the agricultural industries and is made accessible to industry members through the Farmsafe Australia website – www.farmsafe.org.au • The Farm Injury Data Centre monitors tractor deaths to track the decline in tractor roll-over and run-over deaths.


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Other Machinery Safety		
<p>Hawkins AP, Eather JJ, Fragar LJ. Improving Health and Safety in the Farm Workshop. <i>Australian & New Zealand Journal of Occupational Health and Safety</i> 2007; 24.</p>	<ul style="list-style-type: none"> ▪ Data used to develop two national guidelines: <ul style="list-style-type: none"> - <i>Farm Machinery Guarding – a practical guide</i>. 2006. Australian centre for Agricultural Health and Safety. - <i>Health and Safety in the Farm Workshop – a practical guide</i> 2005. Australian Centre for Agricultural Health and Safety. <div data-bbox="639 685 968 1144" data-label="Image"> </div> <ul style="list-style-type: none"> ▪ Farmsafe Australia. <i>National Farm Machinery Safety Strategy 2000-2005, with Review 2004</i>. Farmsafe Australia 2005. 	<p>This research resulted in an extensive range of programs, production of strategies and subsequent guidelines that were made widely available to the agriculture industries, government and manufacturers.</p> <ul style="list-style-type: none"> ▪ The guidelines gained the endorsement of the agricultural industries and is made accessible to industry members through Farmsafe Australia website – www.farmsafe.org.au (~600 downloads for Farm Machinery Workshop guide monthly). ▪ A national rural plant and machinery safety campaign was undertaken in all states through the respective workplace safety authorities. ▪ In 2010, national standards were adopted for front-end loaders and slashers under the National Industry Solutions Program <ul style="list-style-type: none"> - Workcover NSW. 2010. Front-end loaders and their attachments on tractors. A guide on health and safety standards. - Workcover NSW. 2010. Slashers . A guide to health and safety standards.
<p>Fragar LJ, Thomas, P. <i>Machine Injuries on Australian Farms - The Facts</i>. ACAHS and RIRDC 2005. (Chartbook Series)</p>		
<p>Athanasiov A, Gupta ML, Fragar LJ. An Insight into the Grain Auger Injury Problem in Queensland, Australia. <i>Journal of Agricultural Safety and Health</i> 2006; 12: 29-42.</p>	<p>Temperley J. Fragar L. 2008. Guarding grain augers – a guide to fitting a more practical guard. ACAHS, Moree.</p> <div data-bbox="568 1449 984 1740" data-label="Image"> </div> <ul style="list-style-type: none"> • 5 International Citations 	<ul style="list-style-type: none"> ▪ Workcover NSW 2007. Grain Auger Safety Standard. A new standard for guarding of grain augers that has been adopted Australia-wide, reducing the need for removal of manufactured guards for grain to flow.
<p>Athanasiov A, Fragar L, Gupta M. <i>Farm Machinery Safety – Injuries associated with Grain augers in Australia</i>. Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra, 2004.</p>		
<p>Athanasiov A, Gupta M, Hewitt RJ, Franklin RC, Fragar LJ. <i>Farm machinery safety – Power take off shaft guards</i>. ACAHS, Moree and RIRDC, Canberra, 2004.</p>		<ul style="list-style-type: none"> ▪ NSW Workcover PTO Rebate Program provides a full cost rebate of up to \$200 to NSW farmers who purchase PTO guards for their tractors and equipment. Commenced 2005 to be continued in NSW Workcovers 2011-14 Strategic Plan

Research Papers/Reports	Policy/practice document in which paper cited	Known policy/practice outcome
<p>Miller J, Fragar L, Franklin R. <i>Farm Machinery Safety – Injuries associated with posthole diggers.</i> Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra, 2004.</p>		<ul style="list-style-type: none"> Workcover NSW 2007. Post Drivers Safety Standard. A new standard for guarding of post drivers has been adopted Australia wide. Plans by Workcover NSW to develop a new industry standard for post-hole diggers.
<h2>2.2 Farm Vehicle Safety Program</h2>		
<h3>Motorcycle Safety (2 and 4 wheeled motorcycles)</h3>		
<p>Herde E, Lower T. <i>Farm related fatalities 2003-06.</i> Australian Centre for Agricultural Health & Safety 2011.</p>		Data used in development of Farmsafe Australia Strategic Priorities 2011
<p>Fragar L, Herde E. 2010. Quad Bike Deaths in Australia 2001-2009 - Mechanisms of Injury deaths on and off Australian farms.</p>	McDonald G. Critique of quad bike rollover simulations and evaluation of protective structures by Dynamic Research Inc. – Framing quad bikes. November 2010.	Data underpinning the evidence-base for the Trans-Tasman Industry Solutions Program Working Party Quad Bikes (Agricultural Industry)
<p>Temperley J. 2009. A review of the safety of quad bike attachments and some accessories. Australian Centre for Agricultural Health & Safety 2009.</p>	<ul style="list-style-type: none"> 	Data highlighted issue of attachments and their involvement in fatal incidents for the Trans-Tasman Industry Solutions Program Working Party Quad Bikes (Agricultural Industry)
<p>Farmsafe Australia ATV deaths 2007 register maintained by the National Farm Injury Data Center. www.farmsafe.org.au</p>	<ul style="list-style-type: none"> Farmsafe Australia <i>Safety of Older Farmers Strategy</i> 2005-2007. ACAHS Moree. 	Insurance Australian Group (IAG) Limited undertook a comparative study of the stability of small utility vehicles and All Terrain Vehicles. Findings of their study will be published in 2011.
<p>Fragar LJ, Pollock K, Morton C <i>ATV Injury on Australian farms – The Facts.</i> ACAHS and RIRDC 2007. (Chartbook series).</p>		
<p>Schalk T. <i>Australian farm motorcycles. Reducing the risk of injury associated with the operation of 2-wheel motorcycles and All Terrain Vehicles (ATV's).</i> A thesis submitted to the University of New England for Masters in the degree of Rural Science, 2002.</p>	<ul style="list-style-type: none"> <i>Safety of All-terrain Vehicles (ATVs) and other Small Utility Vehicles on Australian Farms – a practical management guide.</i> ACAHS, Moree, 2006. 	<p>This research resulted in an extensive range of programs, production of strategies and subsequent guidelines addressing ATV safety that were made widely available to the agriculture industries, government and manufacturers.</p> <p>The guideline gained the endorsement of the agricultural industries and is made accessible to industry members through the Farmsafe Australia website – www.farmsafe.org.au</p>

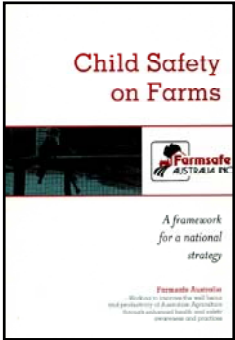
Research Papers/Reports	Policy/practice document in which paper cited	Known policy/practice outcome
	 <ul style="list-style-type: none"> Farmsafe Australia <i>Safe operation of All-terrain Vehicles and All-terrain Utilities on Australian Farms - An Industry Strategy 2004-2009</i> Farmsafe Australia, Moree, 2004. 	
Farm Vehicle Safety		
<p>Fragar L, Lower T. Motor transport and traffic safety in Australian agriculture – a review. <i>Journal of the Australasian College of Road Safety</i> 2010; 21(4): 22-26.</p>		
<p>Morton C, Fragar L, Pollock K. <i>Vehicle injury associated with Australian Agriculture – The Facts.</i> ACAHS 2008. (Chartbook series).</p>	<ul style="list-style-type: none"> Proposal to develop national farm vehicle safety strategy with resources. 	<p>Funding was received from NRMA for the development of a guideline/fact sheet on the need to use vehicle restraints while driving/riding in vehicles on farms.</p>
2.3 Pesticides and Human Health Program		
Practicability of Pesticides Safety Systems on Farms		
<p>Killey J, Temperley J, Fragar L. In Australia, Can a user know whether a pesticide is a Hazardous Substance? <i>Australian & New Zealand Journal of Occupational Health and Safety</i> 2009; 25 (2): 123-128.</p>	<ul style="list-style-type: none"> This ongoing project involves Commonwealth and State regulators working in collaboration with industry representatives as a Reference Group that is providing advice. 	<p>Implications and recommendations are being discussed in the Community Consultative Committee of the Australian Pesticides and Veterinary Medicine Authority. The Centre sits as an official member of the current APVMA Community Consultative Committee</p>
<p>Fragar L, Temperley J, Eather J, Killey J. 2009. <i>Effectiveness of risk control measures to reduce occupational exposure to pesticides.</i> RIRDC, Kingston, ACT,</p>		


Research Papers/Reports	Policy/practice document in which paper cited	Known policy/practice outcome
Pesticides and Health		
<p>Fragar LJ, Sankaran B, Thomas P. <i>Pesticides and Adverse Health Outcomes in Australia – The Facts.</i> ACAHS and RIRDC 2005. (Chart Book series)</p>		<p>The Western Australian Government involved the Australian Centre for Agricultural Health and Safety in discussions on Genetically Modified (GM) cotton in stage two of the Ord Development scheme, 2008.</p>
<p>Fragar L, Sankaran B, Thomas P. <i>Pesticides and human health — a report of health data related to pesticides in Australia.</i> A report to the Australian Pesticides and Veterinary Medicines Authority 2004.</p>		<p>This research was presented to the Commonwealth Minister for Agriculture, Fisheries and Forestry as part of the work with State Primary Industry Departments.</p>
<p>Faulkner L. <i>Human health and pesticides in agriculture in NSW – Issues, programs, and future directions for health workers.</i> Australian Centre for Agricultural health and Safety, Moree, 1993.</p>	<ul style="list-style-type: none"> ▪ Radcliffe JC. 2002. <i>Pesticides use in Australia – a review undertaken by the Australian Academy of Technological Sciences and Engineering.</i> Parkville, 2002. 	<p>The <i>Pesticides Use in Australia Review</i> (for which L Fragar contributed a paper), has been cited and used in subsequent Australian and State government policy papers addressing registration of pesticides and control reform.</p>
<p>Clarke L, Leatherman C. <i>Survey of accidental exposure to pesticides.</i> Australian Agricultural Health Unit, Moree, 1989.</p>		<p>This review report was the precursor of the pesticides safety program of the Centre.</p>
Pesticides and the Health Impact on Communities		
<p>Fragar L, Loblay R, Hartigan C, Baker D. <i>Report of the health impact of pesticides on affected persons in the Gunnedah community.</i> Australian Centre for Agricultural Health and Safety, Moree, 1996.</p>		<p>This report was partly responsible for the establishment of a Pesticides Community Committee in the Gunnedah Community affected by odours of pesticides. Two Community Guidelines were produced that remain in use where communities have concerns about pesticides use in their community:</p> <ul style="list-style-type: none"> ▪ NSW Health and Australian Centre for Agricultural Health and Safety. 1997 <i>Exposure to aerial pesticide sprays – information for communities in rural NSW.</i> 1997. ▪ NSW Health and Australian Centre for Agricultural Health and Safety 1997. <i>Exposure to pesticide spray drift – information for schools and other institutions in rural NSW.</i>


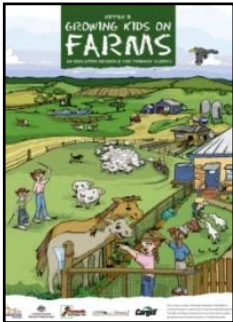
Research Papers/Reports	Policy/practice document in which paper cited	Known policy/practice outcome
Worker Exposure Studies		
<p>Fragar L, Sankaran B, Woods N, Hohenhaus M, Murray P, Nicholls J, Boyd A, Levot G. The potential dermal exposure of sheep ectoparasiticides by workers using different application systems. <i>Journal of Occupational Health and Safety – Australia and New Zealand</i> 2006; 22: 551-560.</p>	<ul style="list-style-type: none"> ▪ Australian Pesticides and Veterinary Medicine Authority <i>Diazanone Review 2005</i> APVMA. 	<p>The research from these studies has resulted in:</p> <ul style="list-style-type: none"> ▪ A significant reduction in the use of diazanon as a result of removal from registration for most uses, and stringent conditions to be applied to those uses for which diazanon is still registered.
<p>Fragar, L Sankaran B. <i>Worker Exposure to Diazanon.</i> ACAHS, Moree, 2005.</p>		
<p>Fragar, L Sankaran B. <i>Worker Exposure to Endosulfan in Horticulture Industries.</i> ACAHS, Moree, 2004</p>	<ul style="list-style-type: none"> ▪ Australian Pesticides and Veterinary Medicine Authority <i>Endosulfan Final Review Report and Regulatory Decision 2005 Endocrine Disruption technical report</i> 2005 APVMA. 	<p>The research from these studies has resulted in:</p> <ul style="list-style-type: none"> ▪ Changed conditions of registration and use of endosulfan in Australian broadacre and horticulture industries.
<p>Fragar, L Sankaran B. <i>Worker Exposure to Endosulfan in the Broadacre Industries.</i> ACAHS, Moree, 2004.</p>	<ul style="list-style-type: none"> ▪ Australian Pesticides and Veterinary Medicine Authority <i>Endosulfan Final Review Report and Regulatory Decision 2005 Endocrine Disruption technical report</i> 2005 APVMA. 	
<p>Fragar L, Sankaran B. Cholinesterase testing for rural workers: experience of a rural health surveillance program in New South Wales. <i>Journal of Occupational Health and Safety – Australia and New Zealand</i> 2004, 20: 325-334.</p>		<p>This research has influenced the pesticides health policies of:</p> <ul style="list-style-type: none"> ▪ Agricultural businesses. ▪ The Plague Locusts Spraying risk management policy of the NSW Department of Primary Industries.
<p>Sankaran B, Fragar L. <i>Cholinesterase screening for organophosphate exposure – preliminary results of the blood screening program of the Australian Centre for Agricultural Health and Safety</i> 2002.</p>		
<p>Clarke L, Churches T. <i>Pesticide exposure in cotton chippers in the Gwydir Valley</i> 1991-1992. Australian Centre for Agricultural Health and Safety, Moree, 1992.</p>	<ul style="list-style-type: none"> ▪ Australian Cotton Foundation Health and Safety Task Force. 1993. <i>Cotton Chipper Health and Safety – Management Options. A paper reviewing the current position and options relevant to health and safety of cotton chippers in the Australian cotton industry based on the recent study by the Moree Agricultural Health Unit.</i> Australian Cotton Foundation, Cotton Australia. 	<p>Changed policy and practice and establishment of re-entry periods for workers in sprayed cotton fields across Australia. This groundbreaking study established re-entry periods for cotton chippers and other field workers.</p> <ul style="list-style-type: none"> ▪ <i>Guidelines for safe cotton chipping work.</i> Guideline made available to all seasonal cotton chipping contractors and workers.




Research Papers/Reports	Policy/practice document in which paper cited	Known policy/practice outcome
	<ul style="list-style-type: none"> Radcliffe JC. 2002. <i>Pesticides use in Australia – a review undertaken by the Australian Academy of Technological Sciences and Engineering</i>. Parkville, 2002. 	
2.4 Farm Noise Injury Prevention Program		
<p>Depczynski J, Fragar L, Challinor K. Hearing status and noise injury prevention practices of Australian farmers from 1994-2008. <i>Journal of Agromedicine</i> 2011; 16 (2): (in press)</p>		<p>Development of Farmsafe Australia 2009. Noise Injury Prevention Strategy for the Australian farming community.</p>
<p>Depczynski J, Fragar L, Challinor K. Meeting national targets for preventing noise injury in young Australian farmers (15-24 years). <i>Journal of Health, Safety and Environment</i>. (under review)</p>		
<p>Lower T, Fragar L, Depczynski J, Challinor K, Mills J, Williams W. Improving hearing health for farming families. <i>Rural and Remote Health</i> 10 (online), 2010: 1350. Available from: http://www.rrh.org.au</p>		
<p>Lower T, Fragar L, Depczynski J, Challinor K, Mills J, Williams W. Social network analysis for farmers hearing services in a rural community. <i>Australian Journal Primary Health</i> 2010; 16(1): 47-51.</p>	 <ul style="list-style-type: none"> 2 International Citations 	<p>Better hearing for farming families project: <i>Improving services for prevention, early detection and management of noise injury for farming families and workers in three rural communities</i> has implemented activities to strengthen local networks and to support noise injury prevention and treatment services.</p> <p>Research from the study resulted in the development of resource material:</p> <ul style="list-style-type: none"> • <i>Shooting – Aim to keep your hearing</i>. Guidance Note: Australian Centre for Agricultural Health and Safety, Moree, 2008. • Guidance Note: Noise on Farms. • Rural Noise Injury Factsheet. • Farm Noise and Hearing Loss brochure
<p>Lower T, Fragar L, Depczynski J, Challinor K, Mills J, Williams W. Improving hearing health for farming families. <i>Rural and Remote Health</i> 10 (online), 2010: 1350. Available from: http://www.rrh.org.au</p>		
<p>Lower T, Depczynski J. Submission to Hearing health in Australia – Senate Community Affairs Committee. October 9, 2009 (on behalf of Farmsafe Australia)</p>	<p>Commonwealth of Australia. Hear Us: Inquiry into Hearing Health in Australia. May 2010.</p>	<p>Hearing health in Australia review defined rural hearing as a priority target group</p>

Research Papers/Reports	Policy/practice document in which paper cited	Known policy/practice outcome
Voaklander D, Franklin R, Challinor K, Depczynski J, Fragar L . Hearing screening impact on noise reduction strategies. <i>Journal of Agricultural Safety & Health</i> . 2009; 2: 119-127.		
Franklin RC, Depczynski JD , Challinor K, Williams W, Fragar LJ . Factors Affecting Farm Noise During Common Agricultural Activities <i>Journal of Agricultural Safety and Health</i> 2006; 12 : 117-125.	<ul style="list-style-type: none"> • 2 international citations 	
Voaklander D, Franklin R, Depczynski J , Challinor K, Fragar L . Evaluation of the NSW Rural Hearing Conservation Program. Sydney: NSW Health, 2006.		
Depczynski JD, Franklin RC , Challinor K, Williams W, Fragar LJ . Farm Noise Emissions During Common Agricultural Activities <i>Journal of Agricultural Safety and Health</i> 2005; 11 : 325-334.	<ul style="list-style-type: none"> • 14 international citations 	
Depczynski JD, Franklin RC , Challinor KC, Williams W, Fragar LJ . <i>Farm noise hazards: noise emissions during common agricultural activities</i> . ACAHS, Moree and RIRDC, Canberra 2002.	Farmsafe Australia . <i>Noise Injury Prevention Strategy for the Australian Farming Community</i> . Farmsafe Australia, Moree, 2002.	This work established the range of noise levels during common farming activities. This information has enabled estimates to be made on exposure times to these noises and provided practical guidance to farmers on prevention of noise injury.
Franklin RC , Challinor KC, Depczynski JD, Fragar LJ . <i>Noise exposure, hearing protection and noise injury in young adult farmers</i> . ACAHS, Moree and RIRDC, Canberra, 2002.		<p>This research has informed the development of</p> <ul style="list-style-type: none"> ▪ Industry endorsed fact sheets and <i>Guidance Notes</i> and programs for the farming community and farming service providers to reduce noise injury on farms ▪ Noise Injury Prevention Screening Program conducted at Agricultural field days in NSW in which over 300 farmers each year have their hearing tested.

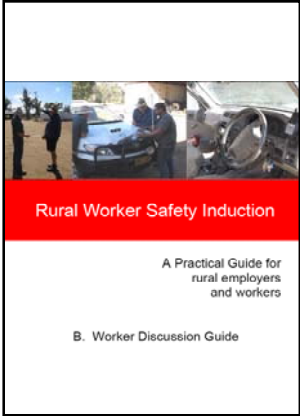
Research Papers/Reports	Policy/practice document in which paper cited	Known policy/practice outcome
3. Farm Population Safety		
3.1.a Child Safety on Farms - National Strategy		
<p>Stiller L, Depczynski J, Fragar L, Franklin R. An evidence-consultation base for developing child injury prevention priorities for Australian farms. <i>Health Promotion Journal of Australia</i> 2008; 19.</p>	<p>Farmsafe Australia. <i>Child safety on farms – A framework for a national strategy.</i> Farmsafe Australia, Moree, 1999.</p> <ul style="list-style-type: none"> 1 international citation 	<p>The Child Safety On Farms (CSOF) Program is an ongoing multifaceted strategy implemented by Farmsafe Australia. The program promotes practical child safety solutions based on research from 2003-2008 of the main child injury risks to children on farms (water, farm vehicles /machinery, motorbikes and horses); and evidence based solutions to these risks.</p>
<p>Depczynski J, Fragar L Pollock K, Herde E. <i>Progress in the reduction and prevention of toddlers drowning in farm dams.</i> Proceedings of the 2008 Australian Water Safety Conference Sydney May 15-16 2008.</p>		<p>A range of programs, production of strategies and subsequent guidelines have been made widely available to the agriculture industries and government.</p>
<p>Australian Centre for Agricultural Health and Safety <i>Farm Injury Prevention Project 2004-2007: Report on implementation of Child Safety on Farms strategy and deliverables.</i> ACAHS, Moree, 2007.</p>		<ul style="list-style-type: none"> The guidelines have gained the endorsement of the agricultural industries and are made accessible to industry members through the Farmsafe Australia website – www.farmsafe.org.au State Government Departments have picked up the guidelines and promoted key messages within internal programs including Department of Community Services in NSW, Department of Child Safety in Queensland. Guidelines have been adopted by the NSW Child Deaths Review Team in the investigation of child deaths in that state.
<p>Depczynski J, Hawkins A, Stiller L, Fragar L. <i>Self-reported child safety practices of farmers at major agricultural field days 2003 - 2006.</i> Proceedings of the Farmsafe Australia Conference Adelaide Sept 25-27, 2007.</p>		<p>Research by the National Farm Injury Data Centre indicates a significant reduction in child fatalities on farms for the 2001-2004 period, compared to the 1989-92, (prior to strategic interventions). In particular, fatalities are down 25-30% and drowning rates have halved. A direct causal link is not claimed, but CSOF program activity is likely to have contributed to these reductions through an increase in child safety awareness and practices, as indicated by agricultural field day surveys (3000 farmers surveyed between 2003 -2008).</p>
<p>Depczynski J. Child Safety on Farms - An Issue for Rural Communities. <i>The Australian Journal of Child and Family Health Nursing</i> 2006; 2: 9-11.</p>		
<p>Fragar, LJ, Stiller L, Thomas P. <i>Child Injury on Farm - The Facts.</i> ACAHS and RIRDC 2005. (Chartbook series)</p>		

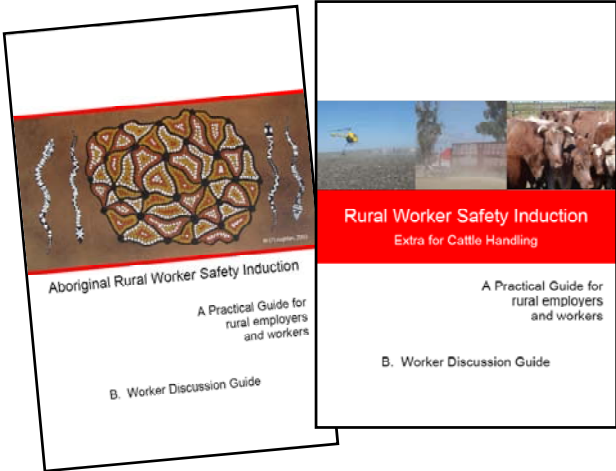
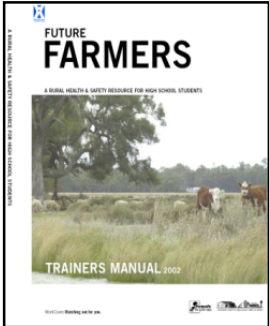
Research Papers/Reports	Policy/practice document in which paper cited	Known policy/practice outcome
<p>Mitchell RJ, Franklin RC, Driscoll TR, Fragar LJ. Farm-related fatalities involving children in Australia, 1989-1992. <i>Australian & New Zealand Journal of Public Health</i> 2001; 25: 155-166.</p>	<ul style="list-style-type: none"> ▪ Australian Water Safety Council. <i>Australian Water Safety Strategy 2008-2011</i> Australian Water Safety Council Sydney 2008 ▪ Australian Water Safety Council. <i>Australian Water Safety Strategy 2005-2008.</i> Australian Water Safety Council, Sydney 2005. ▪ 14 International Citations 	<p>The strategy has been implemented Australia-wide with a Commonwealth Department of Health and Aging series of projects.</p> <p>There have been measurable reductions in child deaths since the program began.</p>
<p>Page A, Fragar L. Recall of Farm Hazards in Australian Primary School Age Children Using A 3-D Visual Cue Test. <i>Australian Journal of Rural Health</i> 2001; 9: 216-221.</p>	<ul style="list-style-type: none"> • 3 International Citations 	<p>This research has provided evidence of effectiveness for the continuation of similar promotions aimed at small children across rural Australia.</p>
3.1.b Child Safety on Farms - Solutions		
<p>Depczynski J, Fragar L, Hawkins A, Stiller L. Safe play areas for prevention of young children drowning in farm dams. <i>Australian Journal of Early Childhood</i> 2009; 34 (3): 50-57.</p> <p>Depczynski J, Herde E, Fragar L. Secure house yards - preventing toddlers drowning in farm dams and waterways. Rural & Remote Health Conference. Albury, Nov 4, 2010.</p>		<p>Revised national regional TV campaign supporting construction of safe play areas throughout the summer period of 2010-11 funded by the Commonwealth.</p>
<p>Contact Inc. <i>Current State of Play in Child Care for Australian Farming Families -Issues, Barriers and Opportunities for Improvement. Final Report.</i> Australian Centre for Agricultural Health and Safety, Moree, 2005.</p>		<ul style="list-style-type: none"> ▪ Report launched at ICPA bi-annual Conference, Canberra August 2005. Incorporation of issues into ICPA policy. Extensive media coverage of childcare issues for farming families.
<p>Contact Inc.. <i>Child Care Options for Farming Families – Fact Sheet.</i> Farmsafe Australia Moree, 2005.</p> <p><i>Establishing child care services for farmers in your region.</i> Farmsafe Australia Moree, 2005.</p>		<ul style="list-style-type: none"> ▪ Identification of flexible child care options and widespread promotion of strategies to farm parents, farm managers, schools, service providers

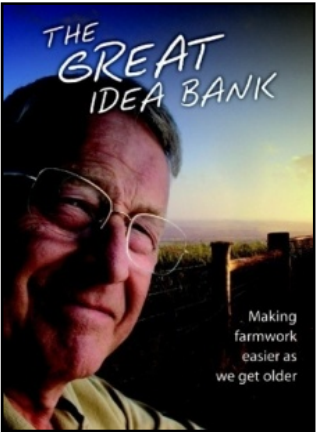
Research Papers/Reports	Policy/practice document in which paper cited	Known policy/practice outcome
<p>Stiller, S, Baker W. <i>Safer Fences for Children on Farms -Effective safe play area fencing options for rural properties.</i> Australian Centre for Agricultural Health and Safety, Moree with the Rural Industries Research and Development Corporation, Canberra 2005.</p>	 <ul style="list-style-type: none"> • Australian Centre for Agricultural Health and Safety. <i>Child safety on farms resource kits.</i> (CSOF resource compilation) 2006. • Farmsafe Australia <i>Safe Play Areas on Farms - a resource package</i> ACAHS & RIRDC 2005. • Farmsafe WA <i>Safe Play Areas on Farms Demonstration Project</i> (and DVD). 	<ul style="list-style-type: none"> ▪ This research was incorporated into guidance material and made widely available to the agriculture industries, government and manufacturers. ▪ The guideline gained the endorsement of the agricultural industries and is made accessible to industry members through the Farmsafe Australia website – www.farmsafe.org.au ▪ WA State Health funding of a Safe Play Area Demonstration Site at Kojonup WA, with accompanying workshops and production of a DVD. Subsequently promoted on-line and distributed to farm families ▪ Safe Play Areas on Farms resource book and DVD's were distributed to all tertiary institution health and education faculties and, all 220 Commonwealth Members of Parliament and Senators.
<p>Fragar L, Gibson C, Peters A, Franklin R. <i>Farmsafe farms for kids: evidence based solutions for child injury on Australian farms.</i> Australian Centre for Agricultural Health and Safety 2002.</p>	<ul style="list-style-type: none"> • Australian Water Safety Council. <i>Australian Water Safety Strategy 2008-2011</i> Australian Water Safety Council Sydney 2008 • Beattie N, Shaw P, Larson A. Water safety in the bush: strategies for addressing training needs in remote areas. <i>Rural and Remote Health</i> 8 (online), 2008: 855. Available from: http://www.rrh.org.au • Australian Centre for Agricultural Health and Safety. <i>Child Safety on Farms. A Guideline.</i> ACAHS, Moree, 2005. 	<p>This research informed development of the key messages and core resources of the CSOF Program, implemented from 2003-2008. These were made widely available to the agriculture industries and government; gained endorsement of the agricultural industries and are made accessible to industry members through the Farmsafe Australia website – www.farmsafe.org.au</p>
		<ul style="list-style-type: none"> ▪ RIPPER II: A child safety on farms guideline for primary school teachers. 2500 have been distributed on request to parents and teachers as well as being systematically distributed to all 3500 rural primary schools across Australia. The resource is also available online at www.aghealth.org.au

Research Papers/Reports	Policy/practice document in which paper cited	Known policy/practice outcome
		<p>Farmsafe Australia. <i>Child Safety on farms Guidance Note</i>. ACAHS, Moree 2007.</p> <ul style="list-style-type: none"> In excess of 1000 distributed in the past 3 years.
		<ul style="list-style-type: none"> Farmsafe Australia <i>Get Going: moving kids safely on farms</i>. ACAHS 2005. In excess of 800 distributed in the past 4 years.
		<p>Farmsafe Australia. <i>Child Safety on rural properties checklist</i>. Australian Center for Agricultural Health and Safety, Moree, 2004.</p> <ul style="list-style-type: none"> In excess of 7500 distributed in the past 6 years.

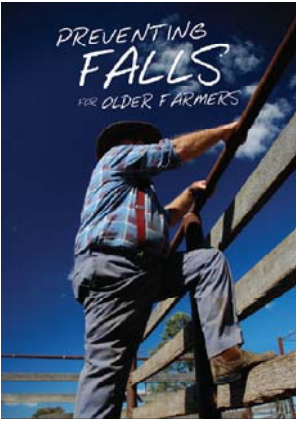
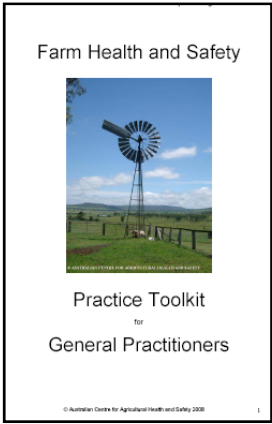

3.2 Safety of Young People on Farms

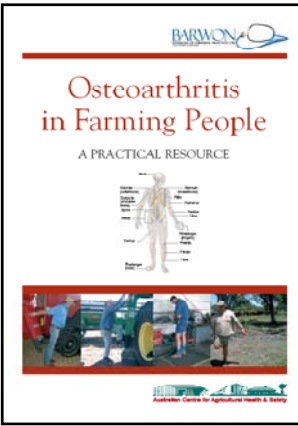

<p>Temperley J, Fragar L. Pre-start safety induction for entry level workers. ACAHS 2010.</p>	<p>Pre-start materials developed and additional resources for negotiating with contractors and for the horticultural sector.</p>	<p>Being used as a component of the NSW Workcover (2011-14) strategy in collaboration with NSW Farmers</p>
<p>Morton C, Fragar L, Pollock K. <i>The Safety of Young People in Australian Agriculture – The Facts</i>. ACAHS 2008.</p>	<p>Entry level rural worker induction employee guide and discussion guide.</p> <div data-bbox="842 1581 1142 1995" data-label="Image">  </div>	<p>Adoption of the worker induction material will be Australia wide</p> <p>Partnership are being formed with :</p> <ul style="list-style-type: none"> Youth Safe Australia College of Road Safety NRMA.


Research Papers/Reports	Policy/practice document in which paper cited	Known policy/practice outcome
<p>Hawkins A, Dahlstrom C, Fragar L, Temperley J. Improving Indigenous Worker Safety in Agriculture - a pilot study. <i>Aboriginal & Islander Health Worker Journal</i> 2010; 34 (6): 14-16,</p>	<p>Entry level aboriginal rural worker induction, and industry specific induction.</p> 	
<p>Fragar L, Gibson C, Peters A, Franklin R. <i>Farmsafe farms for kids: evidence based solutions for child injury on Australian farms.</i> Australian Centre for Agricultural Health and Safety, Moree, 2002.</p>		<p><i>Future farmers. A health and safety resource for High Schools</i> (2008 revised edn), contains commodity specific OHS information suitable for field day delivery.</p> <p>The resource has been distributed to 1600 rural high schools across Australia and is available on-line at www.aghealth.org.au</p>
Safety of Guest Workers		
<p>Morton C, Fragar L, Pollock K. <i>The Safety of Young People in Australian Agriculture – The Facts.</i> ACAHS 2008.</p>	<p>Commonwealth Department of Immigration and Citizenship. Temporary Business (long stay), sub class 457 visa.</p>	<p>The Centre was invited by the Commonwealth Department of Immigration and Citizenship to assist in the review of the Temporary Business (long stay), sub class 457 visa, and provide advice on qualifications, skill and experience necessary to satisfy visa requirements. ACAHS has been instrumental in the development of changes to the Subclass 457 policy for OHS standards.</p>
<p>Pollock K, Fragar L, Morton C. <i>Traumatic deaths in Australian agriculture – The facts.</i> ACAHS and RIRDC 2007</p>		


Research Papers/Reports	Policy/practice document in which paper cited	Known policy/practice outcome
3.3 Safety of Older Farmers		
<p>Australian Centre for Agricultural; Health and Safety. <i>Productive Australian farms free from health and safety risk.</i> Continuation of the National Farm Injury Prevention Project 2007-2008. Final Report. ACAHS, Moree 2008.</p>		<p>Promotion of <i>The great ideas bank – making farm work easier as we get older</i>, resource is being rolled out through local community agencies such as Rotary Australia, and through Industry groups including the Macadamia Industry at their 2008 annual conference.</p>
<p>Morton C, Fragar, Pollock, K. <i>Health and safety in older farmers in Australia – The Facts.</i> ACAHS and RIRDC 2007. (Chartbook series).</p>		
4. Rural Population Health		
4.1 Rural Health Studies		
<p>Depczynski J. <i>Evaluation of the Ag-Quip field days 2009.</i> 2010. Australian Centre for Agricultural Health and Safety.</p> <p>Depczynski J, Fragar L, Lower T. A comparison of behavioural risk factors for farm and non-farm residents in NSW. National Farmers Health Conference. Hamilton, Oct 12-13 2010.</p>		<p>Continued promotion of GP interventions at agricultural field days,</p>
<p>Jones S, Fragar L. Community programs to improve cardiovascular health and cancer prevention - A preliminary review of programs in rural Australia. ACAHS 2008.</p>		<p>Continued promotion of GP interventions at agricultural field days,</p>
<p>Misan G, Lesjak M, Fragar L. Health of rural populations. In: <i>A Textbook of Australian Rural Health.</i> Eds Haw S-T & Kilpatrick S. Australian Rural Health Education Network, Canberra 2008.</p>	<ul style="list-style-type: none"> • <i>Mental Health Programs in Remote Divisions of General Practice Primary Mental Health Care</i> Australian Resource Centre Flinders University 2004. • Van Erp <i>A Down... not out—the surprising evidence of disability in old age</i> The National SARRAH Conference 2004. 	

Research Papers/Reports	Policy/practice document in which paper cited	Known policy/practice outcome
<p>Fraser J, Hawkins A, Alexander C, Fragar L, Robertson C. Evaluation of the impact of a Research Methods Support Structure to increase research capacity in the New England Region of rural new South Wales. <i>Australian Health Review</i> 2006; 30: 427-434.</p>	<ul style="list-style-type: none"> • McDonald J, Harris E, Furler J <i>Discussion Paper: Research priorities and capacity building issues</i> 2002 Centre for Equity Training Research and Evaluation University of NSW, Department of General Practice, University of Melbourne. • <i>Addressing the Burden of Heart Failure in Australia: The Scope for Home-Based Interventions</i> The Journal of Cardiovascular Nursing, October 2001, 16:1. 	
<p>Fragar LJ, Gray EJ, Franklin RJ, Petrauskas V. A picture of health? A preliminary report of the health of country Australians. ACAHS 1997.</p>	<ul style="list-style-type: none"> • <i>Healthy Horizons. A Framework for Improving the Health of Rural, Regional and Remote Australians 1999 -2003</i> was endorsed by Australian Health Ministers in 1999. • JS Humphreys - Woner Lecture Series, 1998 - <i>Rural Health and the Health of Rural Communities</i> Monash University. • Dal Grande E, Taylor A, Wilson D. <i>South Australian Health & Wellbeing Survey, 2002 – 2000.</i> • Measey MA, Dal Grande E <i>Northern Territory Health and Wellbeing Survey Non-Indigenous Population.</i> NT Department of Human and Community Services. • <i>Collaborative Health and Wellbeing CATI Survey of adults living REPORT 2: ANALYSIS BY ARIA in Western Australia, Northern Territory and South Australia</i> Commonwealth Department of Health and Ageing. • South Australian Health Goals and Targets Health Priority Areas Survey Strategic Policy and Planning Branch. • <i>Central Campaigns Primary Care Partnership Integrated Service Plan 2001</i> Centre for Health Promotion Evaluation University of Melbourne. • Stratigos S (undated) <i>Equal is not equitable Medicare in the bush</i> Rural Doctors Association of Australia. 	<p>This study resulted in the “Picture of Health” report being presented at the National Rural Public Health Conference 1997 and has been referenced extensively in policy documents relating to rural health in Australia since that time.</p>


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Falls Injury Prevention		
<p>Farmsafe North West. Falls Injury Prevention Project Final Report to Commonwealth Department of Health and Ageing. ACAHS, Moree, 2008.</p>		<p>The industry endorsed <i>Preventing Falls in Older Farmers</i> resource was launched by the Federal Minister for Health and Aging and has been adopted nationally by the Rural Divisions of General Practice, to be included in the toolkit for rural General Practitioners.</p>
<p>Franklin RC, Thomas, PR, Fragar LJ. Falls in Agriculture. Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra, 2004.</p>	<ul style="list-style-type: none"> Farmsafe Australia. <i>Safety of Older Farmers - A National Strategy 2005 – 2008.</i> Farmsafe Australia 2006. 	
Rural General Practitioners Toolkit.		
<p>Fragar L, Franklin R, Gray L, Petrauskas V. The health of Australian farming populations – a vignette. in Rural Public Health in Australia 1997 – proceeding of the National Rural Public Health Forum .</p> <p>Depczynski J, Fragar L. Australian farmers a high risk population for rural health. 7th National Farm Health & Safety Conference, 13-15 October 2009. WA.</p>	 	<p>The <i>Farm Health and Safety Toolkit</i>, provides summary farm health and safety information to assist rural health professionals in their interactions with farmers.</p> <p>The GP toolkit has been adopted by rural divisions of General Practice for distribution to rural general practices, however additional partnerships are being sought to enable a wider distribution.</p>

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Older Health Workers		
<p>Fragar L, Depczynski J. Challenges at work for older nurses and allied health workers in rural Australia. <i>Health Services Research (In press 2011).</i></p>		<p>The research has been adopted by several health services in Australia and is being used to underpin considerations to retain health workers in rural areas.</p>
Osteoarthritis in Farming Research Program		
<p>Boughton KS, Fragar LJ. <i>Osteoarthritis in Farming People - a Practical Resource.</i> Australian Centre for Agricultural Health and Safety, Moree, 2004.</p>		<p>This research resulted in a:</p> <ul style="list-style-type: none"> ▪ Guideline ‘<i>Osteoarthritis in Farming</i>’ that was made widely available to the agriculture industries and government. ▪ Divisions of General Practice have also promoted the guideline to their GP’s.
Rehabilitation and return to work of injured and disabled farmers and farm workers.		
<p>Australian Centre for Agricultural Health and Safety. <i>Conducting Agricultural Worksite Assessments</i>, Modified Edition. ACAHS, 2008.</p> <p>Australian Centre for Agricultural Health and Safety. <i>Identifying, Selecting and Implementing Assistive Technology in the Agricultural Workplace</i>, Modified Edition. ACAHS, 2008.</p> <p>Boughton K, Fragar L, Davies G. <i>Rehabilitation Services for Injured and Disabled Farmers and Farm Workers, final report.</i> Australian Agricultural Health Unit, Moree 1997.</p> <p>Boughton K, Fragar, L, Davies G. <i>Vocational Rehabilitation in Australian Agriculture, background paper.</i> Australian Agricultural Health Unit, Moree 1996.</p>		<p>Results from the <i>Vocational Rehabilitation in Australian Agriculture</i> study led to:</p> <ul style="list-style-type: none"> • The establishment of the AgrAbility Australia- network of injured and disabled farmers and farm workers and carers. <p>At the time of publication there were 45 members, representing each state excluding the Northern Territory.</p> <ul style="list-style-type: none"> • Disability specific resources and assistive technology information, available from the Australian Centre for Agricultural Health and Safety or online at www.aghealth.org.au • A nationally available short course, <i>Return to Work on the Farm</i>. The course assists rehabilitation service providers in developing appropriate return to work programs for farmers and workers in the agricultural industries.

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Alcohol and Other Drugs		
<p>Eather J, Fragar L, Depczynski J, Lower T. <i>Alcohol and Farm Workplace Project.</i> Australian Centre for Agricultural Health and Safety, August 2010.</p>		<p>Data incorporated as a component of two major rural alcohol programs currently in progress - a) NSW Health Mental Health and Drug and Alcohol Research Committee and b) the Rural Industries Research and Development Corporations Collaborative Partnership for Farming and Fishing Health and Safety</p>
4.2 Zoonoses Program		
<p>Brucellosis risk reduction strategies for feral pig hunters (in conjunction with Hunter New England Health)</p>		
<p>Cryptosporidium, ongoing study.</p>		<p>Results from the 2007 Cryptosporidium study were used in the development of a checklist for the review of cryptosporidium infection. This work is of Public Health significance and continues to be a priority for NSW Public Health Units.</p>
<p>Fragar L, Milazzo A. <i>Optimal Dataset for Q fever surveillance.</i> Report produced for the national Q Fever Surveillance and Target Working Party. Australian Centre for Agricultural Health and Safety, Moree, 2001.</p>		
4.3 Stress, Mental Health and Suicide Program		
<p>Kelly B, Lewin T, Stain H, Coleman C, Fitzgerald M, Perkins D, Carr V, Fragar L, Fuller J, Lyle D, Beard J. Determinants of mental health and well-being within rural and remote communities. <i>Social Psychiatry and Psychiatric Epidemiology</i> 2010. DOI 10.1007/s00127-010-0305-0</p>	<ul style="list-style-type: none"> NSW Farmers Association 2006. <i>Blueprint for Mental Health on Farms</i> 2005 NSW Farmers Association Sydney. 	<ul style="list-style-type: none"> This research resulted in a range of programs aimed to address stress, mental health and suicide risk factors and protective factors for the farming community. The research informed the development of content in resources for farm families and support services.
<p>Fragar L, Stain HJ, Perkins D, Kelly B, Fuller J, Coleman C, Lewin TJ, Wilson J. Distress among rural residents – does employment and occupation make a difference? <i>Australian Journal Rural Health</i> 2010; 18:25-31.</p>		<ul style="list-style-type: none"> Production of <i>Managing the Pressures of Farming</i> resource (now in its fourth edition) which was made widely available to the farmers and farmer support services in northern NSW and has subsequently been endorsed and made accessible throughout NSW, Victoria, Queensland, Western Australia, South Australia and Tasmania. Over 20,000 handbooks have been distributed, with the resource currently being used in the pilot of the

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<p>Berry H, Hogan A, Owen J, Rickwood D, Fragar L. Farmers' mental health and climate change: A review of the evidence. <i>Asia Pacific Journal of Public Health</i>. (in press)</p>		<p>new Exceptional Circumstances project in Western Australia (2010).</p> <ul style="list-style-type: none"> ▪ Implementation of Farming Insights program with establishment of the NSW Farmers Association social and professional network of farm men aged 25-44.
<p>Kelly B, Stain H, Coleman C, Fitzgerald M, Fragar L, Fuller J, Lewin T, Lyle D, Carr V, Wilson J, Beard J. Mental health and well-being within rural communities: the Australian rural mental health study. <i>Australian Journal of Rural Health</i> 2010; 18: 16-24.</p>	<ul style="list-style-type: none"> • 9 International Citations 	<ul style="list-style-type: none"> ▪ Drought Seminar Series to inform health workers of mental health issues for farming communities. ▪ Training series for Rural Mental Health Line call centre staff. ▪ The NSW Farmers Blueprint for Mental Health on Farms has been the cornerstone of a network of interested stakeholders for over 4 years and is in the process of being revised (2011).
<p>Henderson A, Fragar L. Managing the pressures of farming - a farm and family business approach. Australian Centre for Agricultural Health & Safety 2007.</p>		
<p>Sartore G, Kelly B, Fuller J, Fragar L, Stain HJ, Tonna A. Improving mental health capacity in rural communities: Mental health First Aid delivery in drought-affected rural NSW. <i>Australian Journal of Rural Health</i> 2008.</p>		
<p>Fragar L, Kelly B, Henderson A, Tonna A, Peters M. Partnerships to promote mental health of NSW farmers – the New South Wales Farmers Blueprint for Mental Health. <i>Australian Journal of Rural Health</i> 2008; 16: 170-175.</p>		
<p>Fuller J, Kelly B, Sartore G, Fragar L, Tonna A, Pollard G, Hazell T. Use of social network analysis to describe service links for farmers' mental health. <i>Australian Journal of Rural Health</i> 2007; 15: 99-106.</p>		

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<p>Sartore G, Kelly B, Fragar L, Fuller J, Stain H, Tonna A, Pollard G. Building and evaluating effective mental health networks in rural communities. <i>Acta Neuropsychiatrica</i> 2006; 18: 269-270.</p>		
<p>Fraser CE, Smith KB, Judd F, Humphreys JS, Fragar LJ, Henderson A. Farming and Mental Health Problems and Mental Illness. <i>International Journal of Social Psychiatry</i> 2005; 51: 340-349.</p>		
<p>Kelly BJ, Stain HJ, Carr VJ, Beard JR, Fragar L, Lewin TJ, Lyle D, Hourihan F. Measuring the Mental Health of Rural Communities. <i>Australian and New Zealand Journal of Psychiatry</i> 2005; 39: A82-A83</p>		
<p>Kelly BJ, Stain HJ, Carr VJ, Beard JR, Fragar L, Lyle D, Lewin TJ, Tarren-Sweeney M, Hourihan F. Living in a Rural Community: Determinants and Consequences of Mental Health and Wellbeing. <i>Australian and New Zealand Journal of Psychiatry</i> 2005; 39: A117-A118.</p>		
<p>Fragar, LJ Henderson AJ. <i>Farming Insights: A Program for the Professional Farmer</i>. Australian Centre for Agricultural Health and Safety 2005.</p>		
<p>Fragar, LJ Henderson AJ. <i>Stronger Farm Families: Farm Family Business Project</i>. Australian Centre for Agricultural Health and Safety 2004.</p>		
<p>Page AN, Fragar LJ. Suicide in Australian Farming, 1988-1997. <i>Australian and New Zealand Journal of Psychiatry</i> 2002; 36.</p>	<ul style="list-style-type: none"> • 14 International Citations 	

Research Papers/Reports	Policy/practice document in which paper cited	Known policy/practice outcome
4.4 Health and Rural Economy Studies		
<p>Pollock, K. S. 2010, <i>The economic cost of farm-related fatalities and the perceptions and management of health and safety on Australian farms</i>. PhD thesis, University of Sydney.</p>		<ul style="list-style-type: none"> ▪ This recently released economic assessment will have profound impacts on the direction of future health and safety initiatives in the Australian agricultural sector.
<p>Fragar L. The health of the people in agriculture and its interdependence with the health of rural communities. <i>NSW Public Health Bulletin</i> 2001; 12: 155-159.</p>		<ul style="list-style-type: none"> ▪ The research and guidelines have informed the development of content in Rural Short Courses; <ul style="list-style-type: none"> - MFS-Managing Farm Safety™ (over 10,000 farmers involved Australia wide). - <i>Return to Work on the Farm</i> (for rural rehabilitation service providers). - <i>Introduction to rural communities course for GPs. ACRRM.</i> - <i>Rural Economy Short Course (for Rural Health Community Health Workers).</i> - <i>Public Health Officer Training.</i>
4.5 Respiratory Disease in Agriculture		
<p>Clarke LJ. <i>Respiratory Disease in Agriculture</i>. Proceedings of a conference held at Moree, New South Wales. July 1998.</p>	 <p>The image shows two pieces of educational material. On the left is a brochure titled 'ASTHMA MANAGEMENT ON FARMS' with a picture of a combine harvester. It contains text about farm productivity and asthma symptoms. On the right is a poster with a similar title and content, featuring a list of key messages and contact information.</p>	<p>The Australian Government Department of Health and Ageing 2004 funded, Asthma Management on Farms project resulted in the development of a resource kit. The resource kit was distributed through Farm Safety Action Groups in NSW for use in local areas.</p> <p>The resource kit included:</p> <ul style="list-style-type: none"> • Asthma factsheet • Asthma brochure (pictured left) • Asthma poster (pictured left) • Asthma leaflet

Research Papers/Reports	Policy/practice document in which paper cited	Known policy/practice outcome
5. Farmsafe Australia Approaches and Evaluation.		
<p>Fragar L, Houlahan JB. Injury Prevention approaches in Australian agriculture. <i>NSW Public Health Bulletin</i>, 2002.</p>		<p>This research guided the policy direction of:</p> <ul style="list-style-type: none"> ▪ Farmsafe Australia ▪ State Farmsafe Organisations ▪ Local farm safety action groups ▪ Contributed to farm safety promotion policy and practice application throughout Australia.
<p>Franklin R, Crosby J. Farm Related Injury in NSW: Information for Prevention. <i>NSW Public Health Bulletin</i> 2002; 13: 5.</p>		
<p>Fragar, LJ, Franklin RC, <i>Farmsafe Australia Goals Targets and Strategy 1996-2001 Mid Term Review.</i> Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra, 1999.</p>		