



**National Farm Machinery
Safety Strategy**

June 1998

INTRODUCTION

Agriculture, forestry and fishing is the seventh largest industry in Australia, employing 427, 000 people and accounting for 5.1% of all industry.⁽¹⁾ The diversity of the Australian agricultural industry is well recognised as are its products and production techniques, currently this industry employs approximately 403,000 people in eight broad establishment categories.^(2,3)

The Australian Bureau of Statistics (ABS) 1993/94 AgStats figures revealed 150,389 producers, each having an estimated value of agricultural output (EVAO) greater than \$5,000. In 1993/94 approximately 469.1 million hectares were devoted to agricultural production in Australia. By 1997 this figure had increased to 471.1 million hectares. The number of residents on farms for 1996/97 is not known, however, 1990/91 figures reveal a total of 407,808 residents on Australian farms (219,306 males and 188,502 females).

In Australia work-related injuries are recognised as a major cause of premature deaths and injuries and represent an important social and economic burden.⁽⁴⁾ The impact of this social and economic burden is felt particularly in the rural sector. At present the agricultural sector is at higher risk of injuries and deaths than any other industry, except mining and transportation.⁽⁵⁾

A review of work-related agricultural fatalities in Australia between 1982-1984 reported the injuries fatality incidence to be 19.4 deaths per 100,000 persons per year, this represented 15% of all work-related fatalities identified.⁽⁵⁾ This rate is comparable with other countries, such as the United States (21.7/100,00) and New Zealand (27/100,000).⁽⁵⁾

The 1982-1984 fatality review also analysed fatality incidences for various farming occupational groups and the agent of death. The top five occupational groupings were: farm machinery operators; livestock workers; farm workers in mixed farming; sugar cane farmers; and unclassified farmers and farm managers.⁽⁵⁾ Mobile mechanical equipment was responsible for 70% of all deaths, of these, 40% of these deaths were caused by tractors or attached equipment.⁽⁵⁾ The fatality rate for farm machinery operators was a staggering 241/100,000 persons per year.

Worksafe Australia have undertaken a review of 1989-1992 work-related agricultural fatalities and preliminary data reveals that tractors are still the primary agent of death within the agricultural industry, accounting for 14.8% of all deaths.⁽⁶⁾ And as in 1982-1984, the group with

INTRODUCTION-continued

the highest fatality percentage being males, aged between 45-54 ('82/84: 19%, '89/92: 15%) and 55-64 years of age ('82/84: 20%, '89/92: 12%)

Until recently the national impact of farm machinery related deaths and injuries was not fully known. The identification of farm machinery operators as the number one occupational group at risk of a fatality (based on data from 1982-84) with a staggering fatality rate of 241/100,000 persons per year highlights the need for further investigation in this area.

Farm machinery deaths and injuries are a recognised problem on Australian farms and properties; as evidenced by the Goals, Targets and Strategy 1996-2001, adopted by Farmsafe Australia. The development of a national framework is one means of achieving those Goals:

1. Reduction in injuries related deaths on farms by 30%;
2. Reduction in compensable injuries by 30%;
3. Reduction in on-farm injuries hospital admissions by 30%.

Data related to farm machinery deaths and injuries is not consistent, timely or extremely detailed. The figures which follow have been calculated from available data sources and extrapolated to the national farming population using the 1993/94 AgStats figures provided by the ABS.

National emergency department (ED) presentations have been calculated using NSW ED data, for presentations secondary to farm machinery. This figure has been calculated to be 6,700 ED presentations annually. (This figure was obtained by extrapolating the NSW figure of 45.2 per 1,000 farms presenting to ED secondary to farm machinery for treatment).

This process was repeated to approximate the number of hospital admissions secondary to farm machinery per 1,000 farms nationally. For NSW the figure is 3.1-3.5 /1,000 farms per annum. Therefore, 500 hospital admissions could be expected nationally, each year due, to farm machinery related injury.

INTRODUCTION - continued

By combining Victorian and NSW figures it is possible to calculate a range, estimating the number of ED presentations and hospital admissions secondary to farm machinery injury nationally per annum. Using this method one could expect between 705 - 6,700 ED presentations and 270 - 500 hospital admissions per year around Australia.

On an annual basis it is estimated that 36 deaths occur each year as a result of farm machinery injuries-this includes deaths attributable to tractors, attachments, mobile farm machinery, and other machinery.

The formulation of this strategy was the product of the National Farm Machinery Safety Reference Group Meeting (NFMS Reference Group), which used a prepared Issues Paper to discuss and develop a strategic framework for the reduction of the risk associated with farm machinery. The NFMS Reference Group is composed of representatives from industry, occupational health and safety, injury research centres, producers and manufacturers.

POLICY STATEMENT

Farmsafe Australia has established the National Farm Machinery Safety Reference Group (NFMS Reference Group) with representation from across the rural industry. Farmsafe Australia through the NFMS Reference Group accepts the challenge of developing and implementing strategies which will reduce the number of deaths and injuries attributable to on-farm machinery injuries.

COMMITMENT TO ACTION

Farmsafe Australia through the NFMS Reference Group is committed to enacting processes and programs which aim to reduce the number of on-farm machinery injuries and deaths. Each member organisation will be responsible for communicating the progress of the strategy to its members and for providing direction to those responsible for the implementation process.

PLAN STRUCTURE

This document is divided into eight components. These components are:-

1. Establish a national framework for action;
2. Define the farm machinery injuries problem and identify priorities for action;
3. Strategies to address selected key problems;
4. Education and Training;
5. Standards;
6. Research;
7. Media and Promotion Strategy;
8. Resources.

Each of these components will be addressed separately in this document. However, it is acknowledged that there will be considerable overlap between them, and that action in all components will be necessary if there is to be a significant reduction in on-farm machinery deaths and injuries. The following plan is envisaged as proposed targets for action in the years 1999-2003.

Program 1 - Establish a national framework for action

Objective

1. To develop a nationally coordinated framework to reduce the number of deaths and injuries attributable to farm machinery.

Rationale

Farm machinery deaths and injuries is a complex problem involving multiple machinery types and agricultural establishments. It crosses state and territory boundaries and occurs across Australia. Historically, Australian farms and properties have a very poor record of injuries and illness when compared to other industries and populations. The lack of reliable, consistent and timely data makes it difficult to establish rates of deaths, injuries, and illness. However, from available data it has been possible to calculate some crude deaths and injuries rates secondary to farm machinery.

Program Indicators

- 1.1 The establishment of the National Farm Machinery Safety Reference Group of Farmsafe Australia as the ongoing NFMS Reference Group for a national farm machinery safety strategy.
- 1.2 The identification and involvement of key workers in the field of farm machinery safety — researchers, engineers, manufacturers, suppliers, educators and trainers, others — and ensure commitment from their agencies to the reduction of deaths and injuries attributable to farm machinery.
- 1.3 The NFMS Reference Group acting as an agent of effective communication between the member organisations and the programs being implemented.
- 1.4 The continuing development of a systematic approach to the collection and dissemination of deaths and injuries data related to farm machinery.
- 1.5 Regular published reports of activity through Farmsafe Australia.

Program 2 - Define the farm machinery injuries problem and identify priorities for action

Objective

1. To gather all relevant data and examine in more depth the nature, scope, and cost of farm machinery related deaths and injuries to the agricultural industry, in order to establish priorities for action.
2. To recommend priorities for action by the NFMS Reference Group based on solid, data driven evidence.

Rationale

Currently available reports using existing data relating to deaths and injuries do not adequately define and describe the machine related injuries problems on farms. Further analysis of data (including raw data) is likely to yield information sufficient to define ongoing priorities for action.

Program Indicators

- 2.1 Collection and collation of available data regarding farm machinery fatalities and injuries in Australia.
 - List of relevant databases
 - Analysis of available data with priorities established on the basis of severity of injuries, frequency of injuries, cost and risk of litigation.
- 2.3 Publication of annual reports which highlight the scope, size and cost of this particular area.
- 2.4 Development of priorities for action for the NFMS Reference Group.

Program 3 - Strategies to address selected key problems

Objective

1. The formation of specific Key Problem Working Groups to address the issues of:
 - i) Tractor runovers;
 - ii) Grain auger injuries;
 - iii) Post-hole digger injuries;
 - iv) Others as identified (these may include PTO shafts, guard material and linkages, and earth moving equipment).

2. Establish a process which can be used to address farm machinery problems as identified in due course by the NFMS Reference Group.

Rationale

The National Farm Machinery Safety Project Issues Paper (1998) identified:

- i) tractor runovers;
- ii) grain auger injuries;
- iii) post-hole digger injuries

to be the priority agents of deaths and injuries, by farm machinery, within the agricultural sector. The development of specific programs targeted at these areas is necessary to reduce the number of farm machinery specific fatalities and injuries.

As there are numerous machines in the agricultural sector associated with serious and disabling injuries, the early establishment of an effective procedure to examine each problem is essential.

Program Indicators

- 3.1 The formulation of Key Problem Working Groups with representation from key stakeholders.

Program 3 - Strategies to address selected key problems

Program Indicators

For each :

- 3.2 Statement of problem, include results from available data and the literature.
 - 3.2.1 Recommendations for safer work practice - for promotion, inclusion in training programs etc.
 - 3.2.2 Recommendations for improved machinery design for safety for manufacturers of new machinery and for the modification of existing machinery.
 - 3.2.3 Recommendations for modification of relevant standards in relation to the machine and/or practice.
 - 3.2.4 Recommendations for further research to properly define the problem, to improve safety of the machine, its operation and/or the relevant work system.
 - 3.2.5 Recommendations for implementation/ adoption of the recommendations.

- 3.3 Regular progress reports to the NFMS Reference Group for inclusion in the Annual Report.

Program 4 - Education and Training

Objective

1. The development of educational and training resources based on the information obtained from the NFMS Reference Group and its Working Groups program of work.
2. The identification of relevant education and training programs suitable for improving training resources.

Rationale

Continuing education and training programs provide an important means of disseminating specific information to identified groups. To ensure the producers and workers in the agricultural industry, who are exposed to farm machinery, are aware of the process of risk management concepts, effective training and education in this area is required and needs to be maintained.

Program Indicators

- 4.1 For each education program:
 - 4.1.1 Identification of target groups for specific programs. These may include farmers, workers, manufacturers, suppliers, educators.
- 4.2 Identification of relevant training network to education and training program undertake development.
- 4.3 Development of appropriate educational resources for target groups.
- 4.4 Regular reports to the NFMS Reference Group.

Program 5 - Legislation / Regulations / Standards

Objective

1. To identify national, state and territory legislation / regulations / standards, which relate to farm machinery design, farm machinery safety codes / designs and safe work practices.
2. To review the effectiveness of legislation and standards in improving farm machinery safety, including issues of national uniformity and interpretation.
3. To review the relative efficiency and effectiveness of specification, performance and process/systems based standards.
4. To review the optimal mix between different types of standards in the context of improving machinery safety.

Rationale

Legislation / regulation in various forms has been proven to be an effective injury prevention and control measure. However, the extent to which the current laws and regulations actually assist or hinder the progression of safe farm machinery environment requires further investigation.

A review of current standards / legislation will enable the identification of areas within current laws which need to be addressed if improvements are to be made in the design and / or work practice involving farm machinery.

A desktop review of legislation needs to be implemented by an empirical investigation (ie reviews with stakeholders, especially those who use farm machinery) of how different types of legislation/regulation/standards impact in practice on farm safety and the behaviour of regulatee.

Guidance for this process will develop from the program of work of the NFMS Reference Group and its Key Problem Working Groups.

Program Indicators

- 5.1 A review of national, state and territory legislation / regulations / standards and their implementation with recommendations to Farmsafe Australia, Standards Australia and government regulatory authorities.

5.2 Inclusion of review of relevant legislation and standards and their implementation in each of the Key Problem Working Groups reports.

Program 6 - Research

Objective

1. A program of research will be defined by the Reference Group as it proceeds to undertake its work in accordance with this strategy.
2. Farm machinery related research will be relevant and effective in reducing the number of deaths and injuries attributable to the use of farm machinery.

Rationale

For any machinery problem research may be needed in the area of:

1. Defining the injuries problem and its causal factors.
2. Defining effective preventive options.
3. Improved design of machinery and / or systems of work.

It is anticipated that a research component may be required for effective injuries prevention for most machinery problems addressed.

Program Indicators

- 6.1 Research needs are defined for each farm machinery problem by the Key Problem Working groups and programs recommended for implementation.
- 6.2 A program of research funded and implemented.
- 6.3 Adoption of research findings.
- 6.4 Report of research published in the Annual Report.

Program 7 - Media and Promotion Strategy

Objective

1. Initially to inform the rural industries, workers, manufacturing and design industries, distributors, training industries, researchers, regulators and others of the national strategy for farm machinery safety being initiated by Farmsafe Australia.
2. To inform relevant stakeholders of outputs and outcomes.
3. To develop a communication plan to ensure the dissemination of information / educational messages to the targeted populations.

Rationale

The media provides powerful tools for the dissemination of information and include radio, print, television, and the World Wide Web. An *appropriate* media strategy will provide the most effective use of these tools. It will ensure that the identified target groups will be the recipients of industry specific messages. The development and implementation of a media promotion plan will ensure that all available opportunities for information dissemination are identified and acted upon.

Program Indicators

- 7.1 Presentation of a communication / media strategy to the NFMS Reference Group.
- 7.2 Media launch of strategy and degree of uptake by the media across all state, territories and relevant industries.
- 7.3 The development of an information network for the dissemination of information / promotion / media to the relevant stakeholders.
- 7.4 The distribution of information - newsletters, promotional material, media releases, journal articles - to the targeted populations in a timely manner.

Program 8 - Resources

Objective

1. To maintain an ongoing program of grant applications through identified industry, government and commercial sources of funding.

Rationale

There are many agencies, public and private, which contribute to injuries prevention and agricultural industry research. The identification of suitable agencies provides an opportunity for future planning, ensuring the availability and / or accessibility of funds for the identified research programs.

This process will involve Farmsafe Australia and the NFMS Reference Group in aligning the farm machinery research program goals with those of the relevant funding agencies. Design of research proposals must clearly indicate the benefit to cost ratio of research investment.

Program Indicators

- 8.1 Identification of appropriate / relevant funding agencies and the agencies funding application goals and processes.
- 8.2 Development of a funding application timetable.
- 8.3 A program of funded research programs.

References

1. Australian Bureau of Statistics (ABS). Labour Force Survey, Australia, 1996-1997. Canberra: ABS, 1998. (Catalogue No 6203.0)
2. Worksafe Australia. Preliminary Results from WRFS2, 1989-1992. Regarding farming fatalities and type of farming machinery. Unpublished data, 1998.
3. Division of Workplace Health and Safety. Code of Practice: For Safeguarding of Rural Plant. Queensland: Department of Employment, Vocational Education, Training and Industrial Relations, 1992.
4. Griffith GR. The Economics of Farm Safety in Australian Agriculture. Final Report. NSW Agriculture, Rural Industries Research and Development Corporation, 1994.
5. Coleman R. Machinery Related Farm Injuries. Discussion Paper. Moree, NSW, Australian Agricultural Health Unit (Unpublished Report), 1996.
6. National Occupational Health and Safety Commission. National Standard for Plant Australian Government Publishing Service Canberra, 1994. [NOHSC:1010 (1994)].