NATIONAL FARM INJURY DATA CENTRE

The Health and Safety of Western Australian Farmers, Farm Families and Farm Workers

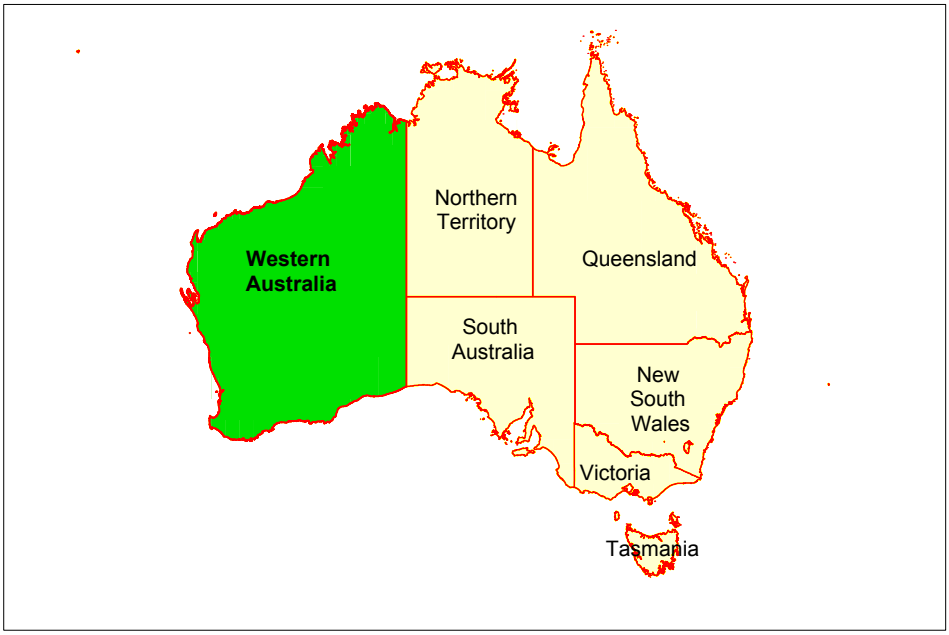
shaping the future

Farm Health & Safety Joint Research Venture
Rural Industries R&D Corporation
Grains R&D Corporation
Cotton R&D Corporation
Sugar R&D Corporation
Meat & Livestock Australia

RIRDC
RURAL INDUSTRIES RESEARCH & DEVELOPMENT CORPORATION

AUSTRALIAN CENTRE FOR AGRICULTURAL HEALTH AND SAFETY

The Health and Safety of Western Australian Farmers, Farm Families and Farm Workers



Richard Franklin
Lyn Fragar

March 2002

RIRDC Funded National Farm Injury Data Centre

ISBN: 0 642 58404 4

The Health and Safety of Western Australian Farmers, Farm Families and Farm Workers
RIRDC Publication no.: R02/008
RIRDC Project no. US-86A

Researcher contact details:
R Franklin
Australian Centre for Agricultural Health and Safety
University of Sydney
PO Box 256
Moree NSW 2400

Phone: 02 6752 8215
Fax: 02 6752 6639
Email: rfranklin@doh.health.nsw.gov.au

RIRDC contact details:
Rural Industries Research and Development Corporation
Level 1, AMA House
42 Macquarie Street
Barton ACT 2600
PO Box 4776
Kingston ACT 2604

Phone: 02 6272 4539
Fax: 02 6272 5877
Email: rirdc@rirdc.gov.au

Published in March 2002

The suggested citation is:
Franklin RC, Fragar LJ, (2002) *The Health and Safety of Western Australian Farmers, Farm Families and Farm Workers*. ACAHS & RIRDC: Moree.

Foreword

This report of farm injuries in Western Australia is the most comprehensive compendium of information about the farming community ever produced for Western Australia.

The report provides a reliable baseline from which future farm health and safety programs will be established and monitored and will be useful for:

- Defining the key OHS risks and program needs for specific agricultural industries in Western Australia.
- Defining the key OHS risks that are generic across all key agricultural industries in Western Australia.
- Development of effective health and safety programs that address key risks.

The report also identified deficiencies in the current information about occupational health and safety (OHS risks) in Western Australia and has provided direction for further work in identifying, quantifying and reporting on the OHS risks in agriculture within Western Australia.

The profile is a product of the National Farm Injury Data Collection project, funded by the Research and Development Corporations contributing to the Farm Health and Safety Joint Venture - Rural Industries Research and Development Corporation, Grains Research and Development Corporation, Australian Wool Innovation Limited, Cotton Research and Development Corporation, Sugar Research and Development Corporation and Meat and Livestock Australia. The Joint Venture is committed to improving the well-being and productivity of the agricultural industries through careful investment in research and development programs that assist industry to manage OHS risk in a cost effective way. This Profile is a key document that brings together all available information in the interests of Western Australian Agriculture.

Peter Core
Managing Director
Rural Industries Research and Development Corporation

Acknowledgments

This report was jointly produced by the National Farm Injury Data Centre (funded by the Research and Development Corporations contributing to the Farm Health and Safety Joint Research Venture – Rural Industries Research and Development Corporation, Grains Research and Development Corporation, Australian Wool Innovation Limited, Cotton Research and Development Corporation, Sugar Research and Development Corporation and Meat and Livestock Australia), the Health and Safety in the Sheep Industry Project (funded the Woolmark Company) and the Australian Centre for Agricultural Health and Safety (funded by NSW Health).

The Report was produced to inform Farmsafe Western Australia about the Health and Safety risks in their state.

The authors would like to thank the assistance of:
Western Australian Coroners Officer
Western Australian Health Department
Workcover Western Australia
The Australian Bureau of Statistics
Dr Tony Lower
Dr Peter Thomas
Ms Rebecca Mitchell
And all other individuals/organizations that provided advice, assistance and general help developing this profile.

Contents

Executive Summary

Title: The Health and Safety Of Western Australian Farmers, Farm Families and Farm Workers
Authors: Franklin RC and Fragar LJ
ISBN: 0 642 58404 4

This is an overview report of the health and safety of Western Australian farmers, farm workers, and farm families. This report presents the most up to date information about the farming community in Western Australia that was available at the time of publication.

There is no single database that holds all the information necessary to define the nature and scale of the health and safety problems in the farming community. This report provides information gathered from various sources such as the Western Australian Coroner, Workcover Western Australia, the Western Australia Health Department, the Australian Bureau of Statistics (ABS), and the Commonwealth Health Department.

The report is one in a series of reports produced by the National Farm Injury Data Centre. This report is complimentary to a report by Fragar and Franklin (2000) on the health and safety of Australia's farming community.

Between 1989 and 1999 (excluding 1993) there were 114 deaths that occurred on Western Australian farms. Of these 97 deaths were of workers or bystanders. This is on average nine to ten deaths per annum of people who were working at the time of the fatal incident, were bystanders to work, or involved an agent used for work purposes. The most common farm enterprises where the fatal incident occurred were cereal grains, sheep, and cattle enterprises. Common locations included paddocks clear for grazing, roads and lanes, and dams, water reservoirs and irrigation channels.

Common agents involved in fatalities on Western Australian farms included aircraft, tractors, trees being felled, and dams. Common mechanisms were hit by moving object, drowning and hitting object with part of the body. Half of the fatalities were of residents of the farm.

There were 7,358 lost-time injuries and disease workers' compensation claims between 1 July 1994 and 30 June 2000. These claims resulted in over $63 million being paid in compensation, or an average of $10,036 per claim and 309,467 days off work. This section examines workers' compensation claims for:

- Horticulture and fruit growing industries (An average 240 claims per annum, costing on average $10,750 per claim and losing on average 51 days per claim);
- Grain, sheep and beef cattle farming industries (An average of 526 claims per annum, costing on average $9,966 and losing on average 51 days per claim);
- Dairy cattle farming (An average of 30 claims per annum, costing on average $7,449 per claim and losing on average 39 days per claim);
- Poultry farming (An average of 42 claims per annum, costing on average $13,169 per claim and losing on average 61 days per claim);
- Other livestock farming (An average of 67 claims per annum, costing on average $10,184 and losing on average 48 days per claim);

- Other crop farming (An average of 30 claims per annum, costing on average $7,305 per claim and losing on average 44 days per claim); and
- Services to agriculture (An average of 318 claims per annum, costing on average $9,668 per claim and losing on average 45 days per claim).

In Western Australia between 1 July 1991 and 30 June 1999, there were 3,420 people admitted to hospital who had an injury where the location where the injury occurred was identified as a farm, or on average 427 hospitalisations per annum. Children represented 12% of all farm-related injuries and males represented 80% of all injuries. The most common agent of injury was farm machinery. Half of all hospital admissions were for one or less days.

There were relatively few incidents involving pesticides with 107 compensation claims over six years and 41 hospital admissions over eight years. However, while pesticides would not rank highly as a priority for farm injury prevention on the number of actual poisonings, there is widespread concern by agricultural industries and the wider community over safety issues surrounding pesticide usage.

There was no information available in Western Australia about the level of noise injury (Noise induce hearing loss) in Agriculture. However, noise is a significant and real problem for farmers. Noise damage is permanent, progressive, painless, and most importantly preventable.

Given the importance of grain production and grain handling in the state, respiratory disease associated with organic dust is probably under reported in deaths data in Western Australia. Between 1999 and 1997, there were 322 deaths per annum due to respiratory disease in Western Australia of farmers, farm managers, and farm workers.

The zoonotic diseases of Q fever (141 notifications since 1991), leptospirosis (55 notifications since 1991), hydatid (31 notifications since 1991) and brucellosis (zero notifications since 1991), are reportable to the state health authorities. Western Australia has small numbers of these diseases reported compared to other states.

The final section of the report looks at recommendations arising from the information collected. The recommendations target injury and illness data collection and management and suggest appropriate farm injury prevention programs for Western Australia.

List of Tables

List of Figures

Section 1. Introduction

Western Australia is the largest state in Australia covering one-third of the Australian continent. Western Australia has a population of 1,713,023, (which is 9.6% of the Australian population), covering over 2.5 million square kilometres. Within this population there are 856,464 (50.0%) males and 856,559 females (ABS 1998). In 1996 there were 37,364 people working in the agriculture, forestry and fishing industry representing 4.9% of the workforce. For those working in the agriculture, forestry and fishing industries 25,638 (68.6%) were male and 11,726 (31.4%) were female (Table 1.1).

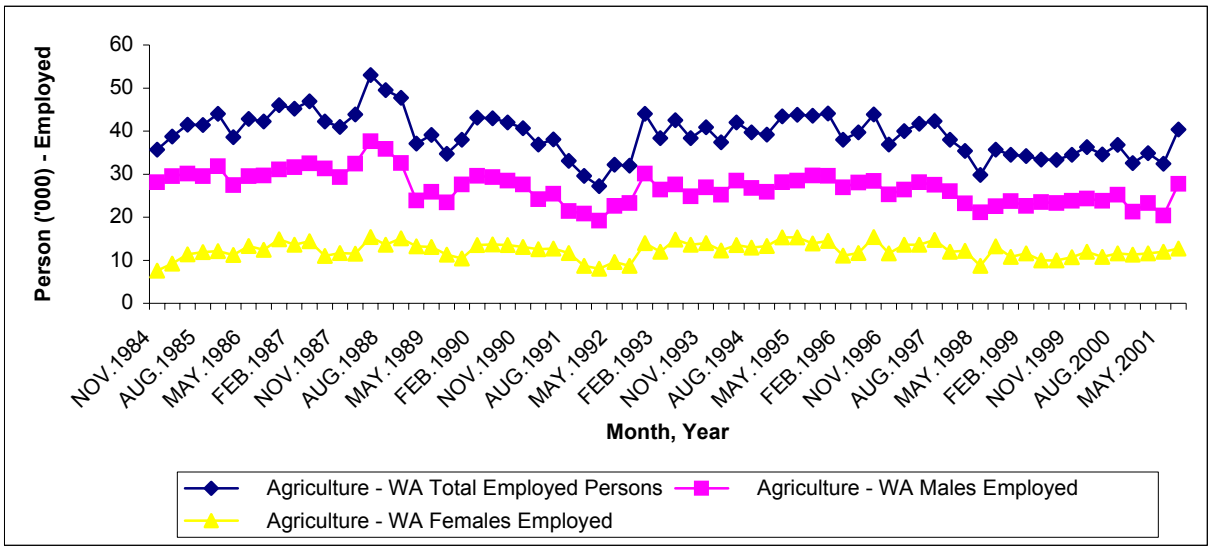
Table 1.1 Age and Sex structure of the Agriculture, Forestry and Fishing Industries Workforce, Western Australia, 1996

Age	Male	Female	Total
15-19	1,324	381	1,705
20-24	2,220	693	2,913
25-34	5,641	2,015	7,656
35-54	11,098	6,171	17,269
55+	5,355	2,466	7,821
Total	**25,638**	**11,726**	**37,364**

ABS (1998). CDATA

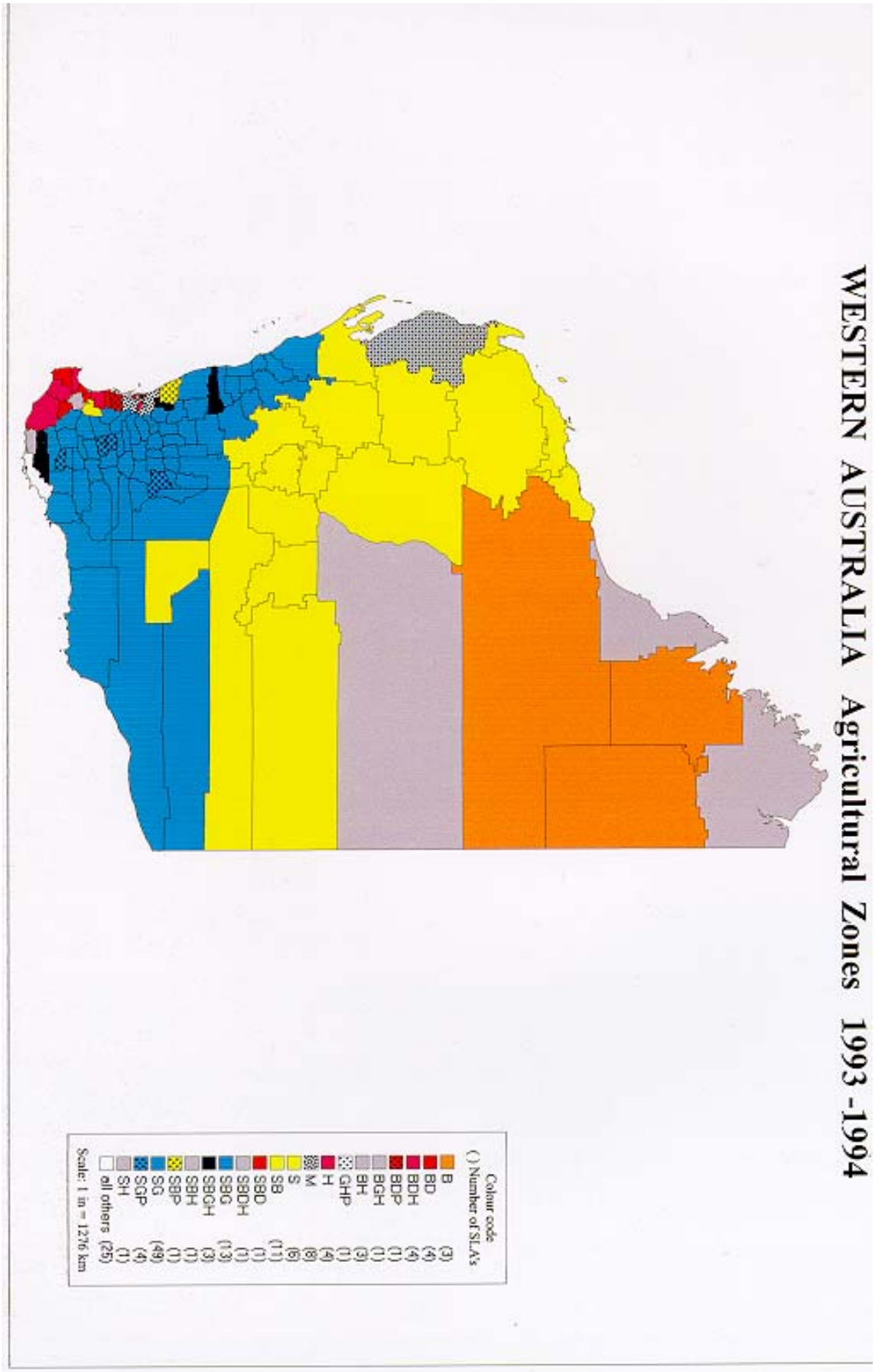
The number of people employed in the agricultural industry fluctuates from season to season and year to year. Figure 1.1 displays information about people employed in the agricultural industry from November 1984 to August 2001 by quarters.

Figure 1.1 People employed in Agriculture, Western Australia –Nov 1994 – Aug 2000 (Quarterly)



Source: ABS (2001). Labour Force (EJ) Employed – Industry – Australia – Quarterly. ABS Cat No. 6291.0.40.001. ABS: Canberra

Figure 1.2 Western Australia Agricultural Zones 1993-94



Codes: B=Beef, C=Cane, D=Dairy, G=Grains, H=Horticulture, I=Irrigation, M=Mixed, P=Pigs, S=Sheep.

The 1993/94 agricultural census conducted by the Australian Bureau of Statistics (ABS) collected information from 14,555 producers in Western Australia, each having an estimated value of agricultural output greater than $5,000. Although this does not represent all Western Australian farms it is a very close approximation. Producers with more than one property can fill in separate forms for each farm or one form for all. The net effect of this is unknown. (ABS, Agstats, 1994).

In 1997 the Australian Centre for Agricultural Health and Safety (ACAHS) mapped all of Australia into agricultural zones based on production data for 1993/94 (Fragar et al, 1997). This can be seen for Western Australia in Figure 1.2. The mapping of agricultural zones was accomplished by considering at the statistical local areas (SLA) for Western Australia and defining the major commodities for that SLA. In Western Australia there are 149 SLA's. Of these, 103 (69.1%) had significant agricultural activity occurring. The four major agricultural zones in descending order are: sheep/grain (48 SLA's), sheep/beef/grain (11 SLA's), sheep/beef (10 SLA's), and sheep (6 SLA's). Number of producers and value of production is displayed in Table 1.2.

Table 1.2 Number of establishments and value of commodity by agricultural industry, EVAO $5,000 and over, at 31 March 1997 - ABS Statistics

Agricultural Commodity [a]	Western Australia - No. Of Producers	%	Value ($'000)	Australia – No. Of Producers	%	Value ($'000)
Pastures - Total cut for hay	2064	14.9	34836.75	31558	21.8	441387.51
Cereals for grain	7688	55.4	1998628.33	48871	33.7	7177407.01
Sugar cane cut for crushing	13	0.1	2912.12	5319	3.7	1186431.05
Cut flowers	208	1.5	31037.51	1398	1.0	154970.77
Orchard trees (incl nuts)	931	6.7	83860.35	10052	6.9	1327570.29
Vegetables for human consumption - Total	795	5.7	174892.76	6890	4.7	1662319.05
All fruit (excl grapes)	1003	7.2	115171.93	11731	8.1	1667835.68
Grapes - Total	479	3.5	29193.63	6677	4.6	721389.11
Sheep and lambs	8727	62.9	-	56083	38.7	
Wool	8632	62.2	574555.00	54514	37.6	2621179.23
Milk	462	3.3	142649.94	14191	9.8	2808897.50
Meat cattle at y/e 31 March	5177	37.3	-	81942	56.5	-
Pigs	661	4.8	-	4003	2.8	-
Goats (excl unmanaged feral)	102	0.7	-	1072	0.7	-
Horses – Total	1187	8.6	-	23629	16.3	-
Eggs produced for human consumption	99	0.7	29297.90	663	0.5	274917.87
Honey	63	0.5	2576.26	1058	0.7	45887.55
Total value of livestock products - Value ($'000)	-	0.0	749281.52	-	0.0	5753552.44
Total [b]	13872	100.0	4254449.23	145082	100.0	28156054.06

a- Selected commodities
b- Totals do not add as some establishments are producing more than one agricultural commodity
Agstats 1997

In the 1990/91 agricultural census conducted by the ABS, the resident farm population information was collected. In the census there were 50,279 people residing on 13,202

agricultural establishments in Western Australia. Of these people, 27,195 (54.1%) were males and 23,084 (45.9%) were females. This represents an average of 3.8 people per holding or 381 people per 100 farms. This is the latest information on resident population available in Australia produced by the ABS.

Current activities centring on farm injury in Western Australia are relatively small in number. Farmsafe WA is involved in a number of these programs, with the main focus being the conduct of Managing Farm Safety training days for producers. Currently there are eight accredited trainers in WA covering the state. Other programs in which Farmsafe WA is involved include the Farmer Industry Working Group, which convenes a quarterly meeting with representatives from the Pastoralists and Graziers Association, West Australian Farmers Federation, Shearing Contractors Association and Worksafe WA to discuss mechanisms to resolve health and safety issues. Farmsafe WA is also involved in some wide-ranging marketing / promotional activities such as road sign displays, media releases and field day exhibits.

The South -West Population Health Unit based in Bunbury, is in the final stages of compiling a two year injury surveillance project in a nearby small farming community. The surveillance has utilised the Farm Injury Optimal Dataset and has focused on Emergency Department presentations at the communities' local hospital. These data will provide for the first time, some evidence regarding farm related injury presentations in a rural WA community. The Unit has also been working in collaboration with a range of stakeholders including the Department of Agriculture, Western Australian Farmers Federation, the Dairy sector and other commodity groups, to develop a model to cope with major industry events such as restructuring. In recent times, the region has had significant issues pertaining to both the forestry and dairy industries. This model aims to be transportable to other major industry events that may occur and impact on the management and provision of financial, mental health and counselling services.

The Southern Division of General Practice, which operates out of Albany, conducts the Giddy Goanna program through local schools and has been involved with displays at six agricultural shows over the past 12 months. The Division has also run a series of men's health evenings (eight), which have had a strong farm injury prevention component.

At the research level, the WA Centre for Rural Health and Community Development based in Bunbury, has recently commenced a program in the South West of the state to raise awareness of farm safety issues through an educational program, to assess risk profiles and specific hazards, and recommend effective education, training and support strategies to develop the skills necessary for adoption of best practices in farm health and safety. Farmsafe WA is also a partner in this study.

The Combined Universities Centre for Rural Health based in Geraldton is also undertaking some applied research. A major longitudinal program examining the effectiveness of ATV rider training in reducing self-reported injury in a high-risk group of adolescents at agricultural colleges is in process. Additionally, some preliminary measures assessing the potential for a farm injury alliance or network between organisations involved in this area across the state has been completed. Finally, a qualitative study assessing safety culture in agriculture has been undertaken, with the results currently being compiled. This program is likely to have an influence on the manner in which farmers are engaged into farm injury programs.

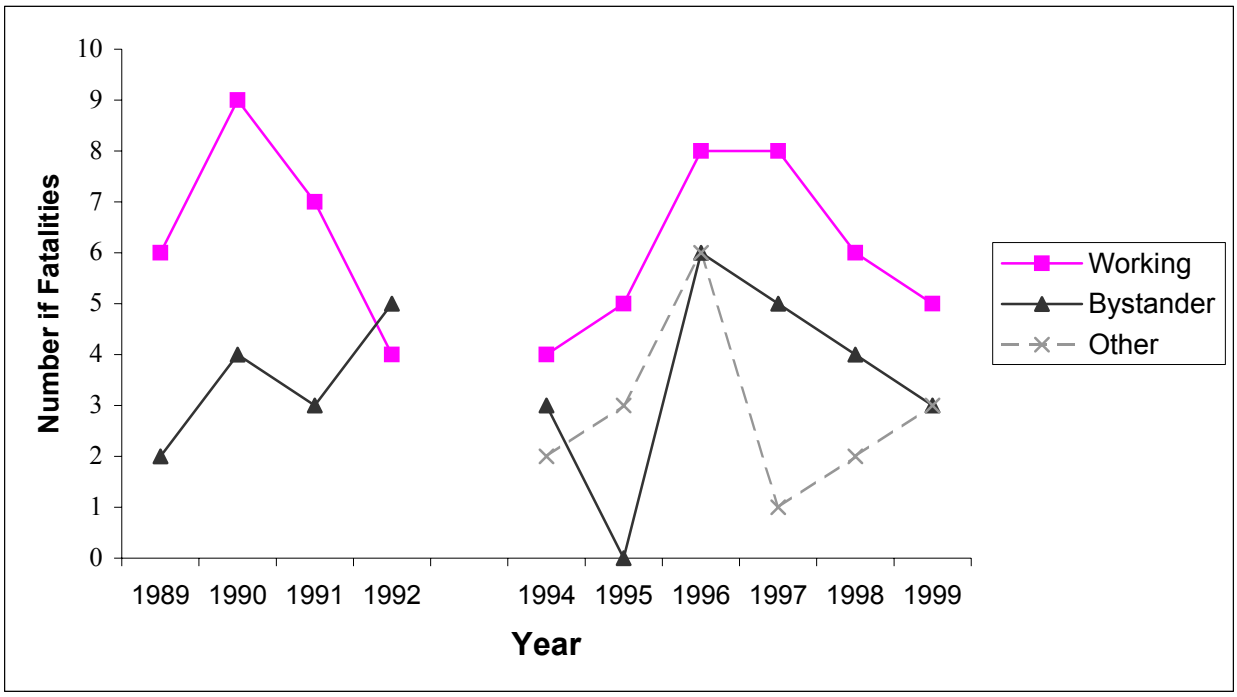
The aim of this study is to profile from the available information, farm-related factors of health and safety in Western Australia. The following chapters examine farm related deaths, injuries on farms that required hospitalisation, people employed in the agricultural industry who claimed compensation for a work-related injury, information about zoonotic diseases, respiratory disease, hearing injury (noise induced hearing loss) and pesticides.

Section 2. Farm Deaths in Western Australia

This section is in two parts, the first presents information on farm deaths from 1989-1992 in Western Australia and the second reports on farm related deaths in Western Australia from 1994-2000.

From 1989-1992, there were 40 farm-related fatalities to people who were working on farms or bystanders to work at the time of the fatal incident in Western Australia. Between 1994 and 1999, there were 74 farm-related fatalities, of which 57 (77.0%) fatalities were of people who were working on farms or bystanders to work at the time of the fatal incident in Western Australia. There has been a slight decrease in the number of fatalities per annum in Western Australia from 10 per annum in 1989-1992 to 9.5 per annum in 1994-1999 (Figure 2.1).

Figure 2.1 Number of fatalities per annum by work status, farm-related fatalities, Western Australia, 1989-1992 and 1994-1999 (N=114)



For the section "Farm-Related Fatalities in Western Australia, 1989-1992" no 'other' farm fatalities were included. This section is a reprint of the corresponding section in the Report "Farm-related fatalities in Australia, 1989-1992" by Franklin R, Mitchell R, Driscoll T, Fragar L p164-171

Farm-Related Fatalities in Western Australia, 1989-1992

The following information is reprinted with permission from the report: Franklin R, Mitchell R, Driscoll T, Fragar L (2000) Farm-Related Fatalities in Australia, 1989-1992 p164-171.

Between 1989 and 1992, there were 40 farm-related fatalities in Western Australia. This is an average of ten fatalities per year. Of the 40 fatalities in Western Australia, 26 (65.0%) were of persons working at the time of the incident and 14 (35.0%) were of bystanders (Table 2.1).

Of the 26 people working, 16 (61.5%) were farmers who were employed in the agricultural industry. This gave a rate for farmers of 16.6 per 100,000 farmers per year. There were also four (15.4%) farm hands and assistants who were employed in the agricultural industry and fatality injured at work.

Table 2.1 Number of fatalities per year by work status, farm-related fatalities, Western Australia, 1989-1992

Year	Working	Bystander	Total	%
1989	6	2	8	20.0
1990	9	4	13	32.5
1991	7	3	10	25.0
1992	4	5	9	22.5
Total	**26**	**14**	**40**	**100.0**

The age of people who were fatally injured is displayed in Table 2.2. Of the 40 fatalities, eight (20.0%) were of children aged less than 15 years. The age groups with the highest number of fatalities were the 25-34 years age group (9: 22.5%) and the 15-24 years age group (8: 20.0%). For working fatalities, the age group with the highest number of fatalities was the 25-34 year group (7: 26.9%). Most of the bystander fatalities were of people aged less than 35 years of age, with seven (50.0%) of the bystanders aged less than five years.

Table 2.2 Age group by work status, farm-related fatalities, Western Australia, 1989-1992

Age Group	Working	Bystander	Total	%
<5	-	7	7	17.5
5 - 14	-	1	1	2.5
15 - 24	6	2	8	20.0
25 - 34	7	2	9	22.5
35 - 44	2	-	2	5.0
45 - 54	5	1	6	15.0
55 - 64	1	-	1	2.5
65 - 74	1	1	2	5.0
75+	4	-	4	10.0
Total	**26**	**14**	**40**	**100.0**

The type of farm enterprise where the fatal incident occurred could be identified in 33 (82.5%) incidents. The cereal grains, sheep, cattle and pigs (8: 20.0%), meat cattle (6: 15.0%) and sheep and cereal grains (5: 12.5%) enterprises had the highest number of fatal incidents.

For working fatalities, meat cattle (6: 23.1%), sheep and cereal grains (5: 19.2%) and cereal grains, sheep, cattle and pigs (4: 15.4%) enterprises had the highest number of fatal incidents. For bystander fatalities, cereal grains, sheep, cattle and pigs (4: 28.6%), orchard and other fruit (3: 21.4%) and sheep (2: 14.3%) were the enterprises that had the highest number of fatal incidents (Table 2.3).

Table 2.3 Farm enterprise by work status, farm-related fatalities, Western Australia, 1989-1992

Farm Enterprise	Working	Bystander	Total	%
Agriculture	**24**	**14**	**38**	**95.0**
Orchard and Other Fruit	*1*	*3*	*4*	*10.0*
Vegetables Including Potatoes	*1*	*-*	*1*	*2.5*
Cereal Grains, Sheep, Cattle, Pigs	*4*	*4*	*8*	*20.0*
Cereal Grains	*1*	*-*	*1*	*2.5*
Sheep, Cereal Grains	*5*	*-*	*5*	*12.5*
Sheep	*1*	*2*	*3*	*7.5*
Meat Cattle	*6*	*-*	*6*	*15.0*
Nurseries	*1*	*-*	*1*	*2.5*
Agriculture NEC	*2*	*-*	*2*	*5.0*
Agriculture Not Known	*2*	*5*	*7*	*17.5*
Other	**2**	**-**	**2**	**5.0**
Total	**26**	**14**	**40**	**100.0**

The most common locations where people were fatally injured were dams, water reservoirs and irrigation channels (7: 17.5%) and paddocks under crop (6: 15.0%). For people who were working at the time of the fatal incident, there were twelve different locations where fatalities occurred. The most common locations of the fatal incident for workers were paddocks under crop (6: 23.1%) and areas of natural vegetation (4: 15.4%). For bystander fatalities, there were seven locations where the fatalities occurred. The most common location of the fatal incident for bystanders was dams, water reservoirs, and irrigation channels (6: 42.9%) (Table 2.4).

Table 2.4 Location on farm by work status, farm-related fatalities, Western Australia, 1989-1992

Location on Farm	Working	Bystander	Total	%
Paddock Under Crop	6	-	6	15.0
Paddock Clear for Grazing	2	2	4	10.0
Natural Vegetation	4	-	4	10.0
Stockyards Including Horse Yards	2	-	2	5.0
Roads, Lanes	3	1	4	10.0
Dam, Water Reservoir, Irrigation Channel	1	6	7	17.5
Shed, Farm Building NEC	1	1	2	5.0
Storage Shed Other	1	-	1	2.5
Farm Excluding Residence NEC	1	1	2	5.0
Farm Yard or Garden	1	2	3	7.5
Other Place Associated with Agricultural Work	1	-	1	2.5
Not Relevant	3	1	4	10.0
Total	**26**	**14**	**40**	**100.0**

The agents most commonly involved in fatal incidents were dams (7: 17.5%) and tractors (5: 12.5%). Other common agents of fatal incidents were aircraft (4: 10.0%), trucks and two-wheeled motorcycles (each 3: 7.5%). Common agents for working fatalities included aircraft (4: 15.4%) and tractors (3: 11.5%). The most common agent for bystanders was dams (6: 42.9%) (Table 2.5).

Table 2.5 Agent of fatal incident by work status, farm-related fatalities, Western Australia, 1989-1992

Agent	Working	Bystander	Total	%
Farm Vehicles				
Truck	2	1	3	7.5
Utility	-	2	2	5.0
Car	2	-	2	5.0
Motorcycle 2 Wheel	2	1	3	7.5
Aircraft	4	-	4	10.0
Total Farm Vehicles	**10**	**4**	**14**	**35.0**
Mobile Farm Machinery and Plant				
Tractor	3	2	5	12.5
Grain Auger	1	-	1	2.5
Other Mobile Farm Machinery and Plant NEC	1	-	1	2.5
Total Mobile Farm Machinery and Plant	**5**	**2**	**7**	**17.5**
Workshop Equipment				
Ladder Excluding Ladder Attached to Structure	1	-	1	2.5
Total Workshop Equipment	**1**	**-**	**1**	**2.5**
Other Equipment and Materials				
Gun, Rifle, Shotgun	1	1	2	5.0
Other Equipment and Material NEC	1	-	1	2.5
Total Equipment and Materials	**2**	**1**	**3**	**7.5**
Farm Structures				
Dam	1	6	7	17.5
Creek, River	1	-	1	2.5
Tank	-	1	1	2.5
Silo Grain	1	-	1	2.5
Other Farm Structures NEC	1	-	1	2.5
Total Farm Structures	**4**	**7**	**11**	**27.5**
Animals				
Horse	2	-	2	5.0
Snake	1	-	1	2.5
Total Animals	**3**	**-**	**3**	**7.5**
Working Environment				
Lumber	1	-	1	2.5
Total Working Environment	**1**	**-**	**1**	**2.5**
Total	**26**	**14**	**40**	**100.0**

The agent most commonly involved in the fatal injury of children was dams (4: 50.0%). Children less than five years of age (7: 87.5%) made up the majority of cases, with dams (4: 57.1%) being the most commonly involved agent (Table 2.6).

Table 2.6 Agent of fatal incident for children by age group, farm-related fatalities, Western Australia, 1989-1992

Agent	0-4 years	5-9 years	10-14 years	Total	%
Farm Vehicles					
Truck	1	-	-	1	12.5
Utility	1	-	-	1	12.5
Motorcycle 2 Wheel	-	1	-	1	12.5
Total Farm Vehicles	**2**	**1**	**-**	**3**	**37.5**
Farm Structures					
Dam	4	-	-	4	50.0
Tank	1	-	-	1	12.5
Total Farm Structures	**5**	**-**	**-**	**5**	**62.5**
Total	**7**	**1**	**-**	**8**	**100.0**

Vehicle accidents (11: 27.5%) were the most common mechanism of the fatal incident. Vehicle accidents most commonly involved aircraft (4: 36.4%), trucks, two-wheeled motorcycles and utilities (each 2: 18.2%). Other common mechanisms of the fatal incident included drowning (most commonly in dams) (8: 20.0%) and being hit by moving objects (5: 12.5%). For working fatalities, the most common mechanisms were vehicle accidents (8: 30.8%) and being hit by moving objects (4: 15.4%). For bystander fatalities, the most common mechanism was drowning (all in dams) (6: 42.9%) (Table 2.7).

Table 2.7 Mechanism of the fatal incident by work status, farm-related fatalities, Western Australia, 1989-1992

Mechanism	Working	Bystander	Total	%
Falls From a Height	2	-	2	5.0
Hitting Stationary Objects	1	-	1	2.5
Being Hit by Falling Objects	1	1	2	5.0
Being Bitten by an Animal	1	-	1	2.5
Being Hit by an Animal	2	-	2	5.0
Being Trapped Between Stationary and Moving Objects	2	-	2	5.0
Being Hit by Moving Objects	4	1	5	12.5
Contact with Electricity	2	-	2	5.0
Drowning	2	6	8	20.0
Shot by Firearm	1	1	2	5.0
Vehicle Accident	8	3	11	27.5
Rollover	-	2	2	5.0
Total	**26**	**14**	**40**	**100.0**

The most common activities being performed at the time of the fatal incident were recreation or playing activities (9: 22.5%) and transport for work purposes (7: 17.5%). For people working, the most common activities at the time of the fatal incident were transport for work

purposes (7: 26.9%); working with animals; and monitoring, observing or inspecting (each 4: 15.4%). For bystander fatalities, the most common activity at the time of the fatal incident was recreation or playing activities (9: 64.3%) (Table 2.8).

Table 2.8 Activity at time of fatal incident by work status, farm-related fatalities, Western Australia, 1989-1992

Activity	Working	Bystander	Total	%
Transport for Work Purposes	7	-	7	17.5
Transport for Recreation	-	2	1	2.5
Maintenance	3	-	3	7.5
Felling Trees or Clearing Land	1	-	1	2.5
Hunting	1	-	1	2.5
Working with Animals	4	-	4	10.0
Working with Crops	2	-	2	5.0
Mining Activities	1	-	1	2.5
Monitoring, Observing, Inspecting	4	-	4	10.0
Moving Goods	3	-	3	7.5
Recreation or Playing	-	9	9	22.5
Assault	-	1	1	2.5
Other	-	2	1	2.5
Total	**26**	**14**	**40**	**100.0**

Overall, the most common pathophysiological causes of death of persons fatally injured were head injuries (11: 27.5%) and drowning (8: 20.0%). Head injuries (7: 26.9%) were the most common pathophysiological cause of death for workers and drowning (6: 42.9%) was the most prominent cause of death for bystanders (Table 2.9).

Table 2.9 Pathophysiological cause of death by work status, farm-related fatalities, Western Australia, 1989-1992

Pathophysiological Cause of Death	Working	Bystander	Total	%
Head Injuries	7	4	11	27.5
Neck Injuries	1	-	1	2.5
Chest Injuries	1	-	1	2.5
Trunk Injuries	1	1	2	5.0
Abdominal Injuries	1	1	2	5.0
Multiple Injuries to Head and Other Body Parts	2	-	2	5.0
Multiple Injuries - Other	4	1	5	12.5
Drowning	2	6	8	20.0
Crush Asphyxia	2	1	3	7.5
Electrocution	2	-	2	5.0
Not Known	1	-	1	2.5
Medical Complications	2	-	2	5.0
Total	**26**	**14**	**40**	**100.0**

Blood alcohol tests were conducted for 20 (76.9%) of the workers and twelve (85.7%) of the bystanders. Of those with blood alcohol readings, three (15.0%) of the workers and one (8.3%) of the bystanders had a blood alcohol level greater than 0.05% g/100ml (Table 2.10).

Table 2.10 Blood alcohol content by work status, farm-related fatalities, Western Australia, 1989-1992

Blood Alcohol Content	Working	Bystander	Total
Nil Blood Alcohol Reading	15 (75.0%)	11 (91.7%)	26 (81.3%)
Blood Alcohol Reading Between 0.001% and 0.05%	2 (10.0%)	-	2 (5.2%)
Blood Alcohol Reading Greater than 0.05%	3 (15.0%)	1 (8.3%)	4 (12.5%)
Total	**20 (100.0%)**	**12 (100.0%)**	**32 (100.0%)**

There was no consistent monthly pattern of fatal incidents. However, April and May (each 7: 17.5%) were the months with the highest number of fatalities (Table 2.11).

Table 2.11 Month of incident, farm-related fatalities, Western Australia, 1989-1992

Month	1989	1990	1991	1992	Total	%
January	1	1	1	-	3	7.5
February	1	1	-	1	3	7.5
March	1	2	-	-	3	7.5
April	-	2	3	2	7	17.5
May	2	3	-	2	7	17.5
June	-	2	2	-	4	10.0
August	1	1	-	-	2	5.0
September	-	-	1	1	2	5.0
October	1	-	-	1	2	5.0
November	-	1	1	1	3	7.5
December	1	-	2	1	4	10.0
Total	**8**	**13**	**10**	**9**	**40**	**100.0**

Overall, the most common days of the week for farm fatalities were Monday and Saturday (each 8: 20.0%). For workers, Monday (7: 26.9%) had the highest number of farm fatalities. Saturday (5: 35.7%) had the highest number of fatalities involving bystanders. Weekends had more fatalities per day than weekdays for bystanders (Table 2.12).

Table 2.12 Day of incident by work status, farm-related fatalities, Western Australia, 1989-1992

Day of Week	Working	Bystander	Total	%
Sunday	3	2	5	12.5
Monday	7	1	8	20.0
Tuesday	3	1	4	10.0
Wednesday	2	3	5	12.5
Thursday	4	2	6	15.0
Friday	3	-	3	7.5
Saturday	3	5	8	20.0
Not known	1	-	1	2.5
Total	**26**	**14**	**40**	**100.0**

Of the 40 farm-related fatalities in Western Australia, 14 (35.0%) were of visitors, 24 (60.0%) were of residents and for two (5.0%) their visitor status was not known or not relevant. For people working, nine (34.6%) were visitors, 16 (61.5%) were residents and for one (3.8%) worker their visitor status was not relevant. For bystanders, there were five (35.7%) visitors, eight (57.1%) residents and for one (7.1%) bystander their visitor status was not known.

Farm Related Fatalities in Western Australia, 1994 –1999

Methodology

All deaths investigated by the Western Australian Coroner are recorded in a register (there are separate registers for each year and rural / metropolitan deaths). The registers include the following information: case number, name of the person, the region where the death occurred, a brief description of the cause of death, the date the case was entered into the register, the date the coroner made a finding and whether the death was due to natural or non natural cause.

The descriptions in the registers for all non-natural deaths between 1994 and 1999 were examined to determine if the incident was farm-related. Where there was not enough information to decide if a case was or was not farm-related, the coronial file was examined.

Between 1994 and 1999, 442 coronial files were examined to determine if they were farm-related (1994 – 98 deaths, 1995 – 81 deaths, 1996 – 91 deaths, 1997 – 86 deaths, 1998 – 117 deaths, 1999 – 58 deaths). Of the 442 coronial files examined, 74 (16.7%) were found to be farm-related. Two files could not be found, there were three files where the finding was pending and the remainder (363; 82.1%), were not farm related.

Analysis of the 76 farm related fatalities were undertaken using SPSS™ Version 10.0.

Results

Between 1994 and 1999, there were 76 farm-related fatalities in Western Australia. This is on average 12 fatalities per annum. Of the 74 fatalities in Western Australia, 36 (48.6%) were of persons working at the time of the incident, 21 (28.4%) were of bystanders and 17 (23.0%) were other fatalities that occurred on farms. There were between nine and ten farm-related fatalities per year during 1994 to 1999 for workers and bystanders in Western Australia (Table 2.13).

Table 2.13 Number of fatalities per year by work status, farm-related fatalities, Western Australia 1994-1999

YEAR	Working	Bystander	Other	Total	%
1994	4	3	2	9	12.2
1995	5	-	3	8	10.8
1996	8	6	6	20	27.0
1997	8	5	1	14	18.9
1998	6	4	2	12	16.2
1999	5	3	3	11	14.9
Total	**36**	**21**	**17**	**74**	**100.0**

The age of the people who were fatally injured is displayed in Table 2.14. Of the 74 fatalities, 15 (20.3%) were of children aged less than 15 years and of these twelve (80.0%) were aged less than 5 years. The age groups with the highest number of fatalities were the 0-14 years

(15: 20.3%), 25-34 years and 65+ years (11: 14.9%, respectively). For working fatalities, the age group with the highest number of fatalities was the 65+ years age group (10: 27.8%). The majority of bystander fatalities were of people aged less than 35 years of age, with 7 (46.7%) aged less than five years.

Table 2.14 Age group by work status, farm-related fatalities, Western Australia 1994-1999

Age group	Working	Bystander	Other	Total	%
0-14 years	1	9	5	15	20.3
15-24 years	2	2	3	7	9.5
25-34 years	5	4	2	11	14.9
35-39 years	4	1	-	5	6.8
40-44 years	1	1	-	2	2.7
45-49 years	5	-	2	7	9.5
50-54 years	1	-	2	3	4.1
55-59 years	3	1	1	5	6.8
60-64 years	3	3	-	6	8.1
65+ years	10	-	1	11	14.9
Unknown	1	-	1	2	2.7
Total	**36**	**21**	**17**	**74**	**100.0%**

The type of farm enterprise where the fatal incident occurred could be identified in 66 (89.2%) incidents. The sheep (8: 10.8%), and cereal grains, sheep, cattle and pigs (7: 9.5%) enterprises had the highest number of fatal incidents. However, there were 37 (50.0%) incidents where it could be identified that the incident occurred on a farm, but no information about the type of farm was available (Table 2.15).

Table 2.15 Farm Enterprise by work status, farm-related fatalities, Western Australia, 1994-1999

Agricultural Enterprise	Working	Bystander	Other	Total	%
Agriculture	34	16	15	65	87.8
Horticulture and fruit growing	*1*	*-*	*1*	*2*	*2.7*
Vegetable Including Potatoes	*1*	*-*	*-*	*1*	*1.4*
Stone Fruit	*-*	*-1*	*-*	*1*	*1.4*
Cereal Grain, Sheep, Cattle, Pigs	*4*	*3*	*-*	*7*	*9.5*
Cereal Grains	*2*	*-*	*-*	*2*	*2.7*
Sheep	*7*	*-*	*1*	*8*	*10.8*
Meat Cattle	*4*	*-*	*-*	*4*	*5.4*
Dairy	*1*	*-*	*-*	*1*	*1.4*
Horse	*-*	*-*	*2*	*2*	*2.7*
Agriculture Not Known	*14*	*12*	*11*	*37*	*50.0*
Forestry	1	-	-	1	1.4
Unknown	1	5	2	8	10.8
Total	**36**	**21**	**17**	**74**	**100.0**

The most common locations where people were fatally injured were paddocks clear for grazing (25: 33.8%), dams, water reservoirs, irrigation channels (13: 17.6%) and roads and lanes (9: 12.2%). For people who were working at the time of the incident, there were ten different locations where fatalities occurred. The most common location of the fatal incident

for workers was paddocks clear for grazing (15: 41.7%). For bystander fatalities, there were seven locations where the fatalities occurred. The most common location of the fatal incident for bystanders were dams, water reservoirs, and irrigation channels (8:38.1%). For other farm-related fatalities, there were ten locations where the fatal incident occurred. The most common location was paddocks clear for grazing (6: 35.3%) (Table 2.16).

Table 2.16 Location on farm by work status, farm-related fatalities, Western Australia, 1994-1999

PLACE	Working	Bystander	Other	Total	%
Paddock Under Crop	5	-	1	6	8.1
Paddock Clear for Grazing	15	4	6	25	33.8
Natural Vegetation	2	-	2	4	5.4
Stockyards Including Horse Yards	2	-	-	2	2.7
Roads and Lanes	3	5	1	9	12.2
Dam / Water Reservoir / Irrigation Channel	4	8	1	13	17.6
River / Creek	-	1	1	2	2.7
Shed / Farm Building NEC	2	1	-	3	4.1
Storage Shed Other	-	1	-	1	1.4
Farm Residence	1	1	-	2	2.7
Farm Yard/Garden	-	-	2	2	2.7
Shearers Quarters	-	-	1	1	1.4
Other Place Associated with Agricultural Work	-	-	1	1	1.4
Other place Associated with Agricultural Work Not Specified	1	-	-	1	1.4
Unknown	1	-	1	2	2.7
Total	**36**	**21**	**17**	**74**	**100.0**

The agents most commonly involved in fatal incidents were aircrafts (14: 18.9%) and dams (8: 10.8%). Common agents for working fatalities were aircrafts (6: 16.7%), tractors (4: 11.1%) and trees being felled (4: 11.1%). Common agents for bystanders were dams (6: 28.6%) and aircraft (5: 23.8%). For other farm-related fatalities the most common agent was aircraft (3: 17.6%) (Table 2.17).

Table 2.17 Agent of fatal incident by work status, farm-related fatalities, Western Australia, 1994-1999

Agent	Working	Bystander	Other	Total	%
Farm Vehicles					
Truck	2	-	-	2	2.7
Car	1	2	-	3	4.1
Motorcycle 2 Wheel	1	3	-	4	5.4
Motorcycle 4 Wheel	-	2	-	2	2.7
Aircraft	6	5	3	14	18.9
Farm Vehicle Other NEC	-	-	1	1	1.4
Total Farm Vehicles	**10**	**12**	**4**	**26**	**35.1**
Mobile Farm Machinery					
Tractor	4	-	-	4	5.4
Mobile Farm Machinery / Plant	1	-	-	1	1.4
Total Mobile Farm Machinery	**5**	**-**	**-**	**5**	**6.8**
Fixed Plant / Equipment					
Irrigating Equipment	1	-	-	1	1.4

Agent	Working	Bystander	Other	Total	%
Pump	1	-	-	1	1.4
Total Fixed Plant / Equipment	**2**	**-**	**-**	**2**	**2.7**
Workshop Equipment					
Ladder excluding ladder attached	1	-	-	1	1.4
Total Workshop Equipment	**1**	**-**	**-**	**1**	**1.4**
Material					
Round Bales	1	-	-	1	1.4
Total Material	**1**	**-**	**-**	**1**	**1.4**
Farm Structure					
House	1	-	-	1	1.4
Swimming Pool	-	-	2	2	2.7
Dam	2	6	-	8	10.8
Creek / River	-	-	1	1	1.4
Silo-Grain	-	1	-	1	1.4
Other Shed	1	-	-	1	1.4
Powerlines	1	-	-	1	1.4
Water Storage NEC	-	-	1	1	1.4
Total Farm Structure	**5**	**7**	**4**	**16**	**21.6**
Animal					
Horse	1	1	2	4	5.4
Cattle	-	-	1	1	1.4
Sheep	1	-	-	1	1.4
Dog	-	-	1	1	1.4
Total Animal	**2**	**1**	**4**	**7**	**9.6**
Environment					
Fire / Smoke	2	-	1	3	4.1
Trees being felled	4	-	-	4	5.4
Firearms	3	1	-	4	5.4
Total Environment	**9**	**1**	**1**	**11**	**14.9**
Other	**-**	**-**	**3**	**3**	**4.1**
Unknown	**1**	**-**	**1**	**2**	**2.7**
Total	**36**	**21**	**17**	**74**	**100.0%**

The agent most commonly involved in the fatal injury of children was dams (6: 40.0%). Children less than five years of age (12: 13.3%) made up the majority of cases, with dams (6: 50.0%) being the most commonly involved agent (Table 2.18).

Table 2.18 Agent of fatal incident for children by age group, farm-related fatalities, Western Australia, 1994-1999

Agent	0-4 Years	10-14 years	5-9 years	Total	%
Farm Vehicle					
Car	1	-	-	1	6.7
Motorcycle 4 Wheel	-	1	-	1	6.7
Total Farm Vehicles	**1**	**1**	**-**	**2**	**13.3**
Mobile Farm Machinery					
Tractor	1	-	-	1	6.7
Total Mobile Farm Machinery	**1**	**-**	**-**	**1**	**6.7**
Farm Structure					
Swimming Pool	2	-	-	2	13.3
Dam	6	-	-	6	40.0
Creek / River	1	-	-	1	6.7
Silo-Grain	-	1	-	1	6.7
Water Storage NEC	1	-	-	1	6.7
Total Farm Structure	**10**	**1**	**-**	**11**	**7.3**
Animals					
Horse	-	-	1	1	6.7
Total Animal	**-**	**-**	**1**	**1**	**6.7**
Total	**12**	**2**	**1**	**15**	**100.0%**

Being hit by moving objects (24: 32.4%) was the most common mechanism of the fatal incident. Being hit by moving objects most commonly involved tractors, trees being felled, and firearms (4: 16.7% each). Other common mechanism of the fatal incident included hitting objects with part of the body (22: 29.7%). Hitting objects with part of body commonly involved aircraft (10: 45.5%), two-wheeled motorcycles (4: 18.2%) and horses (3: 13.6%). For working fatalities, the most common mechanism was being hit by moving objects (20: 55.6%), most commonly involving tractors and trees being felled (4: 20.0%, each). For bystander fatalities, the most common mechanism was hitting objects with part of the body (9: 42.9%), most commonly involving aircraft (4: 44.4%) and two-wheeled motorcycles (3: 33.3%). For other farm-related fatalities, the most common mechanism was hitting objects with a part of the body (8: 47.1%), most commonly involving aircraft (3: 37.5%) (Table 2.19).

Table 2.19 Mechanism of the fatal incident by work status, farm-related fatalities, Western Australia, 1994-1999

Mechanism	Working	Bystander	Other	Total	%
Falls, Trips and Slips of a Person	4		2	6	8.1
Hitting Objects with a Part of the Body	5	9	8	22	29.7
Being Hit by Moving Objects	20	3	1	24	32.4
Heat, Radiation and Electricity	6	1	1	8	10.8
Chemicals and Other Substances		1		1	1.4
Other and Unspecified Mechanisms of Injury	1	7	5	13	17.6
Total	**36**	**21**	**17**	**74**	**100.0%**

The most common activities being performed at the time of the fatal incident were working for income (35: 47.3%), leisure activity (19: 25.7%) and other specified activity (14: 18.9%).

For people working, the most common activity was working for income (33: 91.7%). For bystanders' fatalities, the most common activities were leisure activities (11: 52.4%) and other specified activities (8: 38.1%). For other farm fatalities, the most common activity was leisure activities (8: 47.1%) (Table 2.20).

Table 2.20 Activity at time of fatal incident by work status, farm-related fatalities, Western Australia, 1994-1999

General Activity	Working	Bystander	Other	Total	%
Leisure Activity	-	11	8	19	25.7
Working for Income	33	1	1	35	47.3
Other Type of Work (Including House Work)	1	-	-	1	1.4
Resting, Eating, Sleeping, Other Personal Activity	-	-	1	1	1.4
Being Cared For	-	-	1	1	1.4
Other Specified Activity	1	8	5	14	18.9
Unspecified Activity		1	-	1	1.4
Unknown	1	-	1	2	2.7
Total	**36**	**21**	**17**	**74**	**100.0**

The agricultural context and the work phase for people who were working at the time of the incident are displayed in Table 2.21. This information can be used to establish the injury experience of people involved in mixed farming activities, as well as to define the risks associated with production activity. For farm-related fatalities, the most common agricultural and work phase activities were transport - flying (4: 5.4%) and forestry – felling / clearing (3: 4.1%). There were five (14.2%) incidents where the agricultural context and work phase could not be established.

Table 2.21 Agricultural Context / Work Phase at time of fatal incident for people working, farm-related fatalities, Western Australia, 1994-1999

Agricultural Context	Work Phase	Total	%
Animal production activities			
Cattle Production for Meat, incl Stud	Feeding / Watering	1	2.8
	Loading / Unloading	1	2.8
Sheep/wool production	Mustering Herding	2	5.6
	Feeding / Watering	2	5.6
	Inspecting	1	2.8
	Other NEC	1	2.8
Cropping production activities			
Grain Excluding Rice Production	Pesticide application / Aerial Spraying	1	2.8
Vegetables	Irrigating	1	2.8
Hay /Fodder	Harvesting / Picking / Cutting	1	2.8
	Boxing / carting / grading	1	2.8
Other Cropping	Planting seeding	1	2.8
	Irrigating	1	2.8
Forestry			
	Felling / clearing	3	8.3
	Trimming	1	2.8
	Transporting	1	2.8
Farm maintenance of buildings / structures / equipment / land			
	Building maintenance	2	5.6
	Earth moving / bulldozing	1	2.8
	Dam maintenance	1	2.8
	Fire fighting	1	2.8
Hunting			
Hunting NEC	Shooting	1	2.8
	Other NEC	1	2.8
Transport			
	Horse riding/handling	1	2.8
	Flying	4	11.1
Unknown	Unknown	5	14.2
Total		**36**	**100.0**

The most common nature of main injury for farm-related fatalities in Western Australia, were crushing injuries (33: 44.6%) and asphyxiation or respiratory difficulty (14: 18.9%). For people who were working at the time of the fatality the most common nature of main injuries was crushing injuries (23: 63.9%). For people who were bystanders to work at the time of the fatal incident, the two most common natures of main injuries were asphyxiation or respiratory difficulty (8: 38.1%) and crushing injury (7: 33.3%). For other farm-related fatalities, the three most common nature of main injuries were asphyxiation or respiratory difficulty (4: 23.5%), crushing injury and fracture (3: 17.6%, each) (Table 2.22).

Table 2.22 Nature of Main Injury, farm-related fatalities, Western Australia, 1994-1999

Nature of Main Injury	Working	Bystander	Other	Total	%
Cut/laceration	1	1	2	4	5.4%
Puncture	1	-	-	1	1.4%
Penetrating wound	2	1		3	4.1%
Haematoma / bruising	-	-	1	1	1.4%
Burn, full thickness	5	1	-	6	8.1%
Crushing injury	23	7	3	33	44.6%
Fracture			3	3	4.1%
Asphyxiation or respiratory difficulty	2	8	4	14	18.9%
Electric shock	1	-	1	2	2.7%
Unknown	1	3	3	7	9.5%
Total	**36**	**21**	**17**	**74**	**100.0%**

Blood alcohol and drugs were not tested or not involved in 73 (98.6%) cases.

There was no consistent monthly pattern of fatal incidents. However, January (11: 15.3%), June and December (10: 13.9% each), were months with the highest number of fatalities (Table 2.23). There were two incidents where the date of the incident was unknown.

Table 2.23 Month of incident, farm-related fatalities, Western Australia, 1994-1999

Month	1994	1995	1996	1997	1998	1999	Total	%
January	-	2	5	-	4	-	11	15.3
February	-	-	1	1	-	-	2	2.8
March	2	-	1	1	-	2	6	8.3
April	-	-	2	1	-	-	3	4.2
May	1	2	2	-	-	-	5	6.9
June	2	1	3	1	3	-	10	13.9
July	-	-	2	2	1	1	6	8.3
August	-	1	1	2	2	-	6	8.3
September	-	-	-	3	1	1	5	6.9
October	-	1	1	-	-	4	6	8.3
November	-	-	1	-	1	-	2	2.8
December	4	1	1	3	-	1	10	13.9
Total	**9**	**8**	**20**	**14**	**12**	**9**	**72**	**100.0**

Overall, the most common days of the week for farm fatalities were Monday (15: 20.8%), Wednesday (12: 16.7%), Friday and Saturday (11: 15.3% each). For workers, Tuesday and Wednesday (7: 20.0% each) had the highest number of fatalities. Monday (6: 28.6%) had the highest number of fatalities involving bystanders. For other farm-related fatalities, Sunday (5: 31.25%) had the highest number of fatalities. There were two fatalities where the date of incident was unknown (Table 2.24)

Table 2.24 Day of incident by work status, farm-related fatalities, Western Australia, 1994-1999

Weekday	Working	Bystander	Other	Total	%
Sunday	2	1	5	8	11.1
Monday	6	6	3	15	20.8
Tuesday	7	2		9	12.5
Wednesday	7	3	2	12	16.7
Thursday	3	1	2	6	8.3
Friday	6	5		11	15.3
Saturday	4	3	4	11	15.3
Total	**35**	**21**	**16**	**72**	**100.0%**

Of the 74 farm related fatalities in Western Australia, 36 (48.6%) were visitors and 38 (51.4%) were residents or their visitor status was unknown. For people working, 14 (38.9%) were visitors and 22 (61.1%) were residents or their visitor status was unknown. For bystanders, there were eleven (52.4%) visitors and ten (47.6%) were residents or their visitor status was unknown. For the other farm-related fatalities eleven (64.7%) were visitors and six (35.3%) were residents or their visitor status was unknown.

Summary

1989-1992

- There were ten farm-related fatalities per year during 1989-1992 for workers and bystanders in Western Australia
- The most common farm enterprises where the fatal incident occurred were cereal grains, sheep, cattle and pigs, meat cattle, and sheep and cereal grains.
- The most common locations of the fatal incident were dams, water reservoirs and irrigation channels, and paddocks under crop.
- Common agents involved in the fatal incident for working fatalities were aircraft and tractors. Dams were the most common agent of the fatal incident for bystanders.
- Common mechanisms of the fatal incident for workers were vehicle accidents and being hit by moving objects. The most common mechanisms of the fatal incident for bystanders was drowning.
- The most common activities undertaken by workers at the time of the fatal incident were transport for work purposes, working with animals, and monitoring, observing or inspecting. Bystanders were commonly involved in recreation or playing activities.

1994-1999

- There were between nine and ten farm-related fatalities per year during 1994 to 1999 for workers and bystanders in Western Australia.
- There were twelve fatalities to children less than five years of age.
- The most common farm enterprises where the fatal incident occurred were sheep; and cereal grains, sheep, cattle and pigs.

- The most common locations of fatal incidents were paddocks clear for grazing; dams, water reservoir, irrigation channel; and roads and lanes.
- Common agents involved in the fatal incident for working fatalities were aircrafts, tractors and trees being felled. Dams and aircraft were common agents of the fatal incident for bystanders. Aircrafts were common agents of the fatal incident for other farm-related fatalities.
- Common mechanisms for people working at the time of the fatal incident were hit by moving objects. The most common mechanism of the fatal incident for bystanders and other farm related fatalities was hitting objects with a part of the body.
- The most common activity undertaken by workers at the time of the fatal incident was working for income. Bystanders and other farm related fatalities were commonly involved in leisure activities.
- The most common nature of injury for people working at the time of the fatal incident was crushing injury. For bystanders, the most common nature of injuries were asphyxiation or respiratory difficulty and crushing injury.
- Half of the farm-related fatalities in Western Australia were residents of the farm.

Recommendations

1. Programs aimed at preventing farm-related deaths in Western Australia should focus on:
   - Vehicles
   - Tractors
   - Trees being felled
   - Children drowning (especially drowning in dams)
2. Regular reporting of farm-related deaths to Farmsafe Western Australia.
3. The development of a mechanism for Western Australia to contribute to the National Tractor Death Register and the National Child Deaths on Farm Register should be established.
4. Farmers should be encouraged to put into place an occupational health and safety plan for their farm that includes people who visit the farm.

Section 3. Western Australia Workers' Compensation

Information for this section has been provided by WorkCover Western Australia.

Workers' compensation information for the financial years 1994/95 to 1999/00 is presented below and was extracted from the workers' compensation lost-time claims database in December 2000. Lost-time claims are defined as claims resulting in an absence from work of one day (or shift) or more, or the death of the worker. Workers' compensation claims can be either a work related injury or disease, however throughout this section will be referred to as an injury. Information pertaining to workers' compensation claims is reported to WorkCover WA by approved insurers and self-insurers. Information is collated based on the financial year in which an injury occurred. Disallowed and duplicated claims are excluded from the data below.

WorkCover WA only releases data if it does not include any confidential or commercially sensitive information and where the contents of any cell in tabulation or other representation of data, cannot be identified. Where the content of a single cell is 5 or less, the figure is replaced by an asterisk (*) to ensure confidentiality.

People covered by the workers' compensation scheme in Western Australia are all workers.

The definition of "worker" is very broad and includes full-time, part-time, casual and seasonal workers. All workers should be covered regardless of how they are paid, whether it is wages, salary, commission, piece rates or even payment in kind. Apprentices must also be covered.

Sub-Contractors - If sub-contractors are engaged to do work which is for the purpose of your trade or business and they are paid mainly for their personal manual labour or services, they may be defined as a "worker".

Family Members- It is optional to cover members of the employer's family living in the employer's home. However, if cover is required the family members must be mentioned by name on the policy. If they suffer a work related disability, but are not named on the policy, their claim is not accepted.

It is compulsory to cover family members living away from the employer's home.

Working Directors- Companies have an option as to whether working directors who are deemed "workers" under the Act and have some ownership of the company are to be insured under the workers' compensation system. (Workcover Western Australia, 2001)

The term agricultural industry / industries used in this chapter are the sub-divisions of the agriculture industry of the Australia and New Zealand Industry Classification (ANZIC). It refers to the industry in which people work and not necessarily the work they were undertaking or the location in which the work was being performed at the time of the injury.

The workers' compensation rates for Western Australia are displayed in Table 3.1. The rates vary from 3.3% for services to agriculture NEC to 11.0% for horse farming.

Table 3.1 Workers' Compensation Premium Rates for Western Australia 2000/2001 – Agriculture and Services to Agriculture.

Industry	Premium Rates 2000/01 %
Plant Nurseries	4.82
Cut Flower and Flower Seed Growing	5.00
Vegetable Growing	7.98
Grape Growing	4.84
Apple and Pear Growing	5.95
Stone Fruit Growing	5.48
Kiwi Fruit Growing	5.65
Fruit Growing NEC	4.75
Grain Growing	6.15
Grain-Sheep and Grain-Beef Cattle Farming	6.38
Sheep-Beef Cattle Farming	7.42
Sheep Farming	8.03
Beef Cattle Farming	7.61
Dairy Cattle Farming	5.86
Poultry Farming (Meat)	7.21
Poultry Farming (Eggs)	7.01
Pig Farming	10.56
Horse Farming	11.02
Deer Farming	9.04
Livestock Farming NEC	9.20
Sugar Cane Growing	6.75
Cotton Growing	7.21
Crop and Plant Growing NEC	7.80
Cotton Ginning	5.19
Shearing Services	7.35
Aerial Agricultural Services	5.50
Services to Agriculture NEC	3.30

Source: Pearson, DDR (2000). Employers' Indemnity Policies (Premium Rates) ACT 1990. *Western Australian Government Gazette – Special Edition*. Wednesday 21 June 2000.

The following three Tables describe the actual number of lost-time claims in the agricultural industry (Table 3.2), the total actual cost of lost-time claims in agricultural industries (Table 3.3) and the total actual working days lost for workers' compensation claims in agriculture industries (Table 3.4). The number, cost and time off work varies from industry to industry, and is explored in greater detail with each of the industry groupings.

Following the information about number, cost and time off work, an examination of workers' compensation claims in Western Australia for grouped agricultural industries is undertaken. The grouped industries include: horticulture and fruit growing; grain, sheep, and beef cattle farming; dairy cattle farming; poultry farming; other livestock farming; other crop farming; and services to agriculture.

Table 3.2 Number of time lost claims by industry for Western Australian Workers' Compensation Claims, 1994/95 to 1998/99.

Industry in all Tables	94/95	95/96	96/97	97/98	98/99
Plant Nursery	57	58	41	43	37
Cut Flower and Flower Seed Growing	*	8	12	21	12
Vegetable	100	100	70	65	105
Grape Growing	16	20	21	51	39
Apple and Pear Growing	7	15	14	10	12
Stone Fruit Growing	*	*	*	6	*
Fruit Growing NEC	47	49	57	49	43
Grain Growing	6	17	20	17	15
Grain-Sheep and Grain-Beef Cattle Farming	383	397	336	351	329
Sheep-Beef Cattle Farming	40	44	36	31	30
Sheep Farming	53	73	73	67	45
Beef Cattle Farming	40	54	62	62	50
Dairy Cattle Farming	29	36	28	26	31
Poultry Farming (Meat)	45	52	20	12	9
Poultry Farming (Eggs)	8	11	16	23	15
Pig Farming	25	23	36	54	41
Horse Farming	14	24	27	18	13
Deer farming	*			*	
Livestock Farming NEC	16	13	16	7	8
Sugar Cane Growing				*	*
Crop and Plant NEC	87	25	8	23	*
Cotton Ginning				*	
Sheep Shearing	193	278	233	305	223
Aerial Agricultural Services	*				*
Services to Agriculture NEC	65	59	82	63	80

* Cell contains five or less cases

Table 3.3 Actual Cost of Lost Time by industry for Western Australian Workers' Compensation Claims, 1994/95 to 1998/99.

Industry	94/95 $	95/96 $	96/97 $	97/98 $	98/99 $
Plant Nursery	1269466	131161	118044	259787	372797
Cut Flower and Flower Seed Growing	*	7762	159751	87408	153583
Vegetable	1425350	1998714	1187706	902003	1194552
Grape Growing	236456	68592	292542	413762	106280
Apple and Pear Growing	304934	106293	297689	24730	72777
Stone Fruit Growing	*	*	*	44329	*
Fruit Growing NEC	68251	227357	674959	244654	322438
Grain Growing	68675	205544	414423	234772	59184
Grain-Sheep and Grain-Beef Cattle Farming	3572449	3755290	4200201	3873384	3173272
Sheep-Beef Cattle Farming	483925	764209	121124	212739	297312
Sheep Farming	293630	654285	474699	729283	664097
Beef Cattle Farming	238446	420252	646202	365030	298457
Dairy Cattle Farming	92010	461243	270941	65736	227376
Poultry Farming (Meat)	831807	548879	135398	137494	23505

Industry	94/95 $	95/96 $	96/97 $	97/98 $	98/99 $
Poultry Farming (Eggs)	41009	67278	483293	372267	137811
Pig Farming	169892	24765	135616	505413	303581
Horse Farming	172034	218877	386893	154478	89889
Livestock Farming NEC	54885	804993	254122	32639	115982
Sugar Cane Growing				*	*
Crop and Plant NEC	505625	48067	25870	508352	9458
Cotton Ginning				3206	
Sheep Shearing	988883	2127623	2601417	3295723	1909522
Aerial Agricultural Services	*				*
Services to Agriculture NEC	676083	1370511	854949	370208	730177

* Cell contains five or less cases

Table 3.4 Actual Number of Days Lost claims by industry for Western Australian Workers' Compensation Claims, 1994/95 to 1998/99.

Industry	94/95	95/96	96/97	97/98	98/99
Plant Nursery	4085	813	825	1565	1771
Cut Flower and Flower Seed Growing	*	69	793	628	622
Vegetable	7252	10183	5618	2366	6172
Grape Growing	696	565	567	2323	466
Apple and Pear Growing	690	814	1690	131	347
Stone Fruit Growing	*	43	*	225	*
Fruit Growing NEC	578	814	4729	1804	1772
Grain Growing	760	602	1753	1294	305
Grain-Sheep and Grain-Beef Cattle Farming	21920	17430	20362	17877	16782
Sheep-Beef Cattle Farming	2814	3394	736	1474	1722
Sheep Farming	1824	3386	2573	3606	3329
Beef Cattle Farming	1664	2623	3124	1991	1772
Dairy Cattle Farming	702	2158	1324	292	1438
Poultry Farming (Meat)	4192	2648	1018	671	121
Poultry Farming (Eggs)	214	519	1266	1404	718
Pig Farming	540	236	789	1705	1412
Horse Farming	1510	1283	2978	879	808
Livestock Farming NEC	250	1717	1113	143	736
Sugar Cane Growing				*	*
Crop and Plant NEC	3574	315	166	2478	*
Cotton Ginning				*	
Sheep Shearing	4771	12499	12713	14842	9745
Aerial Agricultural Services	*				*
Services to Agriculture NEC	3531	3861	2987	1385	3078

* Cell contains five or less cases

Horticulture and Fruit Growing

In the horticulture and fruit growing industries of Western Australia, there were 1,429 workers' compensation claims over the period 1 July 1994 to 30 June 2000, averaging 238 compensation claims per annum. Table 3.3 and 3.4 display the actual cost by industry per annum and the actual number of days lost respectively for the period 1 July 1994 to 30 June 1999. From these Tables, the average cost and average number of days lost per claim has been calculated. For the horticulture and fruit growing industries (which includes; plant nursery, cut flower and flower seed growing, vegetable, grape growing, apple and pear growing, stone fruit growing, and fruit growing NEC industries), the average cost per claim was $10,750 and the average number of days lost per claim was 51 days.

The number of claims by age group is displayed in Table 3.5. The number of injuries by age group increases until the 25-34 years age group and then decrease steadily until the 65+ age group, where there are very few claims.

Table 3.5 Age group for Western Australian Workers' Compensation Claims in Horticulture and Fruit Growing Industries, 1994/95 – 1999/2000.

Age groups	94/95	95/96	96/97	97/98	98/99	99/00
15-19	24	29	27	27	27	23
20-24	51	36	37	38	51	31
25-34	58	82	58	60	67	70
35-44	55	48	53	59	61	54
45-54	32	41	34	42	34	31
55-59	7	14	5	12	8	10
60-64	*	*	*	*	*	7
65+	*	-	-	-	-	-
Total	**233**	**254**	**218**	**245**	**251**	**228**

* Cell contains five or less cases

Of the 1,429 claims in the horticulture and fruit growing industries, 941 (65.9%) were by males and 488 (34.1%) were by females (Table 3.6).

Table 3.6 Gender for Western Australian Workers' Compensation Claims in Horticulture and Fruit Growing Industries, 1994/95 – 1999/2000.

Gender	94/95	95/96	96/97	97/98	98/99	99/00	Total	%
Female	86	89	70	81	96	66	488	34.1
Male	147	165	148	164	155	162	941	65.9
Total	**233**	**254**	**218**	**245**	**251**	**228**	**1429**	**100.0**

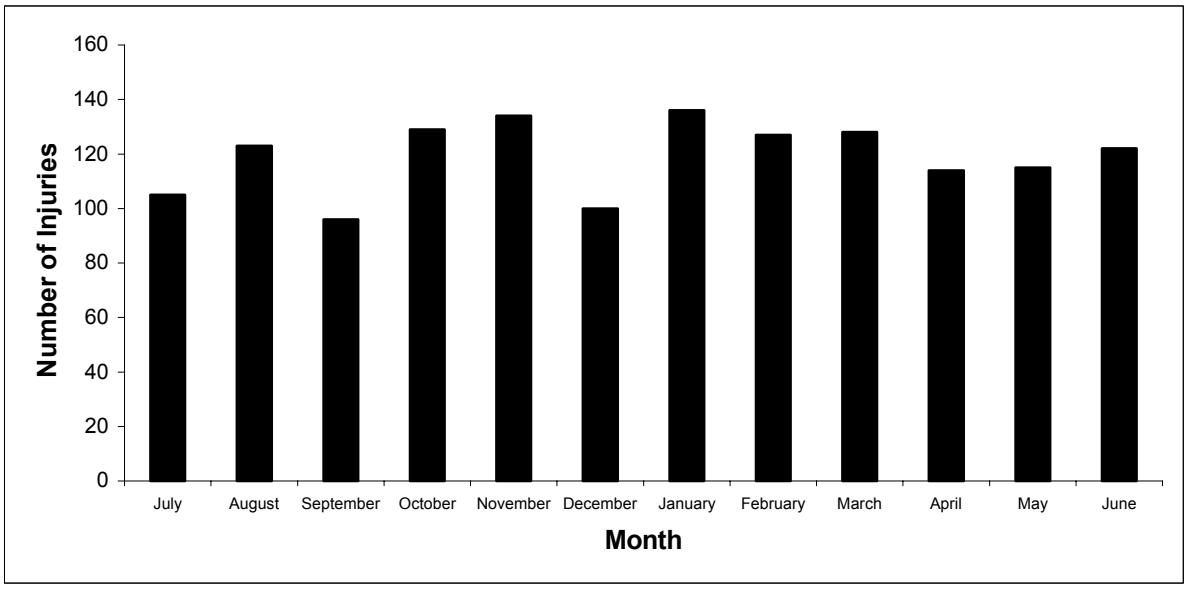
* Cell contains five or less cases

The number of compensation claims by month is displayed in Table 3.7 and figure 3.1. The number of compensated injuries per month varied from 10 to 32. The months with the largest number of claims were January (136, 9.5%) and November (134, 9.4%). The months with the smallest number of claims were September (96, 6.7%) and December (100, 7.0%).

Table 3.7 Month of Injury for Western Australian Workers' Compensation Claims in Horticulture and Fruit Growing Industries, 1994/95 – 1999/2000.

Month	94/95	95/96	96/97	97/98	98/99	99/00	Total	%
July	10	19	18	18	16	24	105	7.3
August	16	29	18	19	27	14	123	8.6
September	11	12	16	12	19	26	96	6.7
October	19	20	26	27	24	13	129	9.0
November	23	32	15	26	16	22	134	9.4
December	13	15	15	16	21	20	100	7.0
January	27	28	18	20	19	24	136	9.5
February	25	30	11	21	19	21	127	8.9
March	24	20	17	17	27	23	128	9.0
April	24	14	17	23	19	17	114	8.0
May	17	18	19	23	24	14	115	8.0
June	24	17	28	23	20	10	122	8.5
Total	**233**	**254**	**218**	**245**	**251**	**228**	**1429**	**100.0**

Figure 3.1 Number of Injuries by month for Western Australian Workers' Compensation Claims in Horticulture and Fruit Growing Industries, 1994/95 – 1999/2000.



The grouped occupations of people injured in the horticulture and fruit growing industries of Western Australia is displayed in Table 3.8. The majority of people who had a workers' compensation claim in Western Australia between 1 July 1994 and the 30 June 2000 were employed in the category "labourers and related workers".

Table 3.8 Major Occupation for Western Australian Workers' Compensation Claims in Horticulture and Fruit Growing Industries, 1994/95 – 1999/2000.

Occupation	94/95	95/96	96/97	97/98	98/99	99/00
Managers and Administrators	16	23	14	22	26	25
Professionals	*	*	*	-	-	-
Associate Professionals	*	*	*	-	*	-
Tradespersons and Related Workers	16	25	17	16	15	15
Advanced Clerical and Service workers	-	*	-	*	*	-
Intermediate Clerical, Sales and Service Workers	*	*	-	-	-	*
Intermediate Production and transport Workers	18	11	11	16	7	19
Elementary Clerical, Sales and Service Workers	*	-	-	-	-	
Labourers and Related workers	175	190	173	190	201	168
Total	**233**	**254**	**218**	**245**	**251**	**228**

* Cell contains five or less cases

People employed in the horticulture and fruit growing industries in Western Australia where a workers' compensation claim was made between 1 July 1994 and the 30 June 2000, were predominantly direct employees, with a small number of working directors (Table 3.9).

Table 3.9 Employment Status for Western Australian Workers' Compensation Claims in Horticulture and Fruit Growing Industries, 1994/95 – 1999/2000.

Employment Status	94/95	95/96	96/97	97/98	98/99	99/00
Not Reported						
Direct Employee	226	240	210	231	234	220
Working Director	*	11	*	11	10	*
Contractor		*			*	
Employee of Contractor	*		*		*	*
Sub-contractor	*	*		*	*	
Other			*	*		
Unknown					*	
Total	**233**	**254**	**218**	**245**	**251**	**228**

* Cell contains five or less cases

The grouped agencies of injury for Western Australian workers' compensation claims for the horticulture and fruit growing industries are displayed in Table 3.10. The three most common agency groups were 'non-powered hand tools', 'environmental', and 'mobile plant and transport'.

Table 3.10 Agency of Injury for Western Australian Workers' Compensation Claims in Horticulture and Fruit Growing Industries, 1994/95 – 1999/2000.

Agency	94/95	95/96	96/97	97/98	98/99	99/00
Machinery	10	13	9	17	14	17
Mobile Plant & Transport	35	45	31	38	40	42
Powered Equipment, Tools	*	11	9	6	6	*
Not-Powered Hand Tools, Appliances and Equipment	71	78	66	68	62	78
Chemicals/Chemical Products	6	*	*	8	6	6
Materials/Substances	31	30	28	25	35	15
Environmental	46	59	58	66	57	46
Animal, Human & Biological	9	10	*	8	9	11
Others & Unspecified	20	6	14	9	22	8
Total	**233**	**254**	**218**	**245**	**251**	**228**

* Cell contains five or less cases

The most common mechanism of injury for workers' compensation claims in Western Australia between 1 July 1994 and the 30 June 2000 for the horticulture and fruit growing industries were 'body stressing', 'being hit by moving objects', and 'falls, trips and slips' (Table 3.11).

Table 3.11 Mechanism of Injury for Western Australian Workers' Compensation Claims in Horticulture and Fruit Growing Industries, 1994/95 – 1999/2000.

Mechanism	94/95	95/96	96/97	97/98	98/99	99/00
Falls, Trips and Slips	52	33	38	43	56	39
Hitting Objects	25	39	30	37	29	32
Being Hit by Moving Objects	39	51	43	45	44	45
Body Stressing	90	104	85	94	97	81
Heat, Radiation & Electricity	*	*	*	*	*	*
Chemical Substances	10	14	11	14	9	14
Biological Factors	*	-	-	*	*	-
Mental Stress	*	-	-	-	-	*
Other and Unspecified	11	9	7	7	14	15
Total	**233**	**254**	**218**	**245**	**251**	**228**

* Cell contains five or less cases

The majority of injuries to workers in the Western Australian horticulture and fruit growing industries between 1 July 1994 and 30 June 2000, resulted in less than 60 days lost time (Table 3.12).

Table 3.12 Severity of Injury for Western Australian Workers' Compensation Claims in Horticulture and Fruit Growing Industries, 1994/95 – 1999/2000.

Severe Injury	94/95	95/96	96/97	97/98	98/99	99/00	Total	%
Long Duration Claims	33	29	28	36	48	64	238	16.7
Claims with <60 Days Lost-Time	200	225	190	209	203	164	1191	83.3
Total	**233**	**254**	**218**	**245**	**251**	**228**	**1429**	**100.0**

The most common bodily locations injured in the horticulture and fruit growing industries of Western Australia where a workers' compensation claim was made between 1 July 1994 and 30 June 2000 were upper limbs, lower limbs and trunk (Table 3.13).

Table 3.13 Bodily Location of Injury for Western Australian Workers' Compensation Claims in Horticulture and Fruit Growing Industries, 1994/95 – 1999/2000.

Bodily Location	94/95	95/96	96/97	97/98	98/99	99/00
Head	22	20	18	22	19	22
Neck	6	9	*	*	*	*
Trunk	59	62	67	56	56	61
Upper Limbs	70	98	77	103	102	80
Lower Limbs	63	53	42	46	48	41
Multiple	9	10	8	12	11	14
Systemic	*	*	*	*	*	*
Non-physical	*	-	-	-	-	*
Unspecific	-	-	-	-	11	*
Total	**233**	**254**	**218**	**245**	**251**	**228**

* Cell contains five or less cases

The most common nature of injury or disease for people in the horticulture and fruit growing industries of Western Australia and had a workers' compensation claim was made between 1 July 1994 and 30 June 2000 were sprain/strain, open wound and contusion / crushing (Table 3.14).

Table 3.14 Nature of injury for Western Australian Workers' Compensation Claims in Horticulture and Fruit Growing Industries, 1994/95 – 1999/2000.

Nature of Injury and Disease	9495	9596	9697	9798	9899	9900
Fractures	13	13	11	23	16	20
Sprain/Strain	111	119	113	111	109	113
Open Wound	34	46	32	40	33	36
Superficial Injury	14	6	8	7	7	*
Contusion & Crushing	21	25	20	18	30	21
Foreign Body	7	6	*	*	*	*
Burns	*	9	*	9	*	*
Multiple Injuries	*	*			*	
Other injuries NEC	8	13	13	13	18	17
Diseases of the Musculoskeletal System & Connective Tissue	9	12	8	15	19	6
Disease of the Skin & Subcutaneous Tissue	*	*	*	*	*	*
Hernia	*		*		*	*
Mental Disorders	*					*
Other Diseases	8	*	*	*	*	*
Total	**233**	**254**	**218**	**245**	**251**	**228**

* Cell contains five or less cases

Grain, Sheep and Beef Cattle Farming

In the grain, sheep and beef cattle farming industries of Western Australia there were 3,015 workers' compensation claims over the period 1 July 1994 to 30 June 2000, averaging 502 compensation claims per annum. Table 3.3 and 3.4 display the actual cost by industry per annum and the actual number of days lost respectively for the period 1 July 1994 to 30 June 1999. From these Tables the average cost and average number of days lost per claim has been calculated. For the grain, sheep and beef cattle farming industries (which includes; grain growing, grain-sheep and grain-beef cattle farming, sheep-beef cattle farming, sheep farming and beef cattle farming), the average cost per claim was $9,966 and the average number of days lost per claim was 51 days.

The number of claims by age group is displayed in Table 3.15. The number of injuries per age group increases until the 25-34 years age group and then decrease steadily until the 65+ age group where there are very few claims.

Table 3.15 Age group for Western Australian Workers' Compensation Claims in Grain, Sheep and Beef Cattle Farming Industries, 1994/95 – 1999/2000.

Age groups	94/95	95/96	96/97	97/98	98/99	99/00
15-19	58	65	64	55	38	46
20-24	98	124	111	94	87	58
25-34	176	184	146	169	142	108
35-44	90	110	102	104	94	72
45-54	61	64	59	72	62	57
55-59	21	19	23	20	25	18
60-64	16	14	17	10	17	17
65+	*	*	-	-	-	-
Unknown	-	*	-	-	-	-
Total	**522**	**585**	**527**	**528**	**469**	**384**

* Cell contains five or less cases

Of the 3,015 claims in the grain, sheep and beef cattle farming industries, 2,776 (92.1%) were males and 239 (7.9%) were females (Table 3.16).

Table 3.16 Gender for Western Australian Workers' Compensation Claims in Grain, Sheep and Beef Cattle Farming Industries, 1994/95 – 1999/2000.

Gender	94/95	95/96	96/97	97/98	98/99	99/00	Total	%
Female	48	46	33	44	42	26	239	7.9
Male	474	539	494	484	427	358	2776	92.1
Total	**522**	**585**	**527**	**528**	**469**	**384**	**3015**	**100.0**

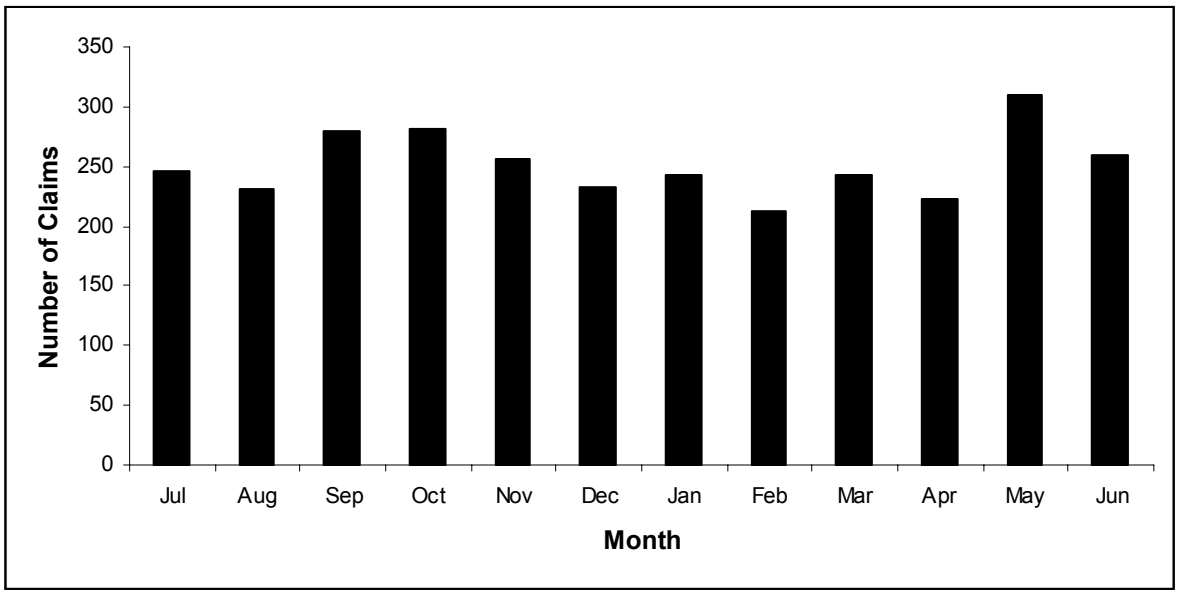
The number of compensation claims by month is displayed in Table 3.17 and Figure 3.2. The number of compensated injuries per month varied from 16 to 64. The months with the largest number of claims were May (309, 10.2%) October (282, 9.4%) and September (280, 9.3%).

The months with the smallest number of claims were February (212, 7.0%) and April (222, 7.4%).

Table 3.17 Month of Injury for Western Australian Workers' Compensation Claims in Grain, Sheep and Beef Cattle Farming Industries, 1994/95 – 1999/2000.

Month	94/95	95/96	96/97	97/98	98/99	99/00	Total	%
July	29	39	51	48	40	40	247	8.2
August	48	50	38	32	38	25	231	7.7
September	42	59	54	47	42	36	280	9.3
October	46	52	49	46	42	47	282	9.4
November	42	43	44	44	47	36	256	8.5
December	38	42	45	32	44	31	232	7.7
January	50	48	52	30	30	32	242	8.0
February	44	37	22	42	31	36	212	7.0
March	48	58	34	43	33	26	242	8.0
April	33	44	32	53	32	28	222	7.4
May	56	64	50	61	47	31	309	10.2
June	46	49	56	50	43	16	260	8.6
Total	**522**	**585**	**527**	**528**	**469**	**384**	**3015**	**100.0**

Figure 3.2 Number of Injuries by month for Western Australian Workers' Compensation Claims in Grain, Sheep and Beef Cattle Farming Industries, 1994/95 – 1999/2000.



The grouped occupations of people injured in the grain, sheep and beef cattle farming industries of Western Australia are displayed in Table 3.18. The majority of people who had a workers' compensation claim in Western Australia between 1 July 1994 and the 30 June 2000 were employed in the category "labourers and related workers".

Table 3.18 Major Occupation for Western Australian Workers' Compensation Claims in Grain, Sheep and Beef Cattle Farming Industries, 1994/95 – 1999/2000.

Occupation	9495	9596	9697	9798	9899	9900
Managers and Administrators	64	80	61	62	61	68
Professionals	*	-	*	-	*	*
Tradespersons and Related Workers	101	85	63	74	55	46
Advanced Clerical and Service workers	-	-	-	*	-	-
Intermediate Clerical, Sales and Service Workers	*	-	-	*	*	*
Intermediate Production and transport Workers	16	21	16	17	13	10
Elementary Clerical, Sales and Service Workers	*	*	-	*	*	*
Labourers and Related workers	336	397	385	367	327	249
Total	**522**	**585**	**527**	**528**	**469**	**384**

* Cell contains five or less cases

People employed in the grain, sheep and beef cattle farming industries in Western Australia where a workers' compensation claim was made between 1 July 1994 and the 30 June 2000, were predominantly direct employees, with a small number of working directors (Table 3.19).

Table 3.19 Employment Status for Western Australian Workers' Compensation Claims in Grain, Sheep and Beef Cattle Farming Industries, 1994/95 – 1999/2000.

Employment Status	94/95	95/96	96/97	97/98	98/99	99/00
Not Reported					*	
Direct Employee	481	551	496	488	436	364
Working Director	13	15	15	16	23	11
Contractor	*	*	*	6	*	*
Employee of Contractor	13	9	*	*	*	*
Sub-contractor	7	*	*	*	*	*
Other	*	*	6	6	*	*
Unknown						
Total	**522**	**585**	**527**	**528**	**469**	**384**

The grouped agencies of injury for Western Australian workers' compensation claims for the grain, sheep and beef cattle farming industries are displayed in Table 3.20. The three most common agency groups were 'mobile plant and transport', 'animal human and biological', and 'non-powered hand tools, appliances and equipment'.

Table 3.20 Agency of Injury for Western Australian Workers' Compensation Claims in Grain, Sheep and Beef Cattle Farming Industries, 1994/95 – 1999/2000.

Agency	94/95	95/96	96/97	97/98	98/99	99/00
Machinery	68	57	53	68	42	45
Mobile Plant & Transport	98	149	127	123	115	92
Powered Equipment, Tools	19	31	18	27	14	17
Not-Powered Hand Tools, Appliances and Equipment	88	104	60	76	80	54
Chemicals/Chemical Products	7	*	*	7	*	*
Materials/Substances	46	43	40	39	35	23
Environmental	48	73	87	64	65	48
Animal, Human & Biological	133	109	130	113	88	87
Others & Unspecified	15	14	7	11	26	15
Total	**522**	**585**	**527**	**528**	**469**	**384**

* Cell contains five or less cases

The most common mechanism of injury for workers' compensation claims in Western Australia between 1 July 1994 and 30 June 2000 for the grain, sheep and beef cattle farming industries were 'being hit by moving objects', 'body stressing', and 'falls, trips and slips' (Table 3.21).

Table 3.21 Mechanism of Injury for Western Australian Workers' Compensation Claims in Grain, Sheep and Beef Cattle Farming Industries, 1994/95 – 1999/2000.

Mechanism	94/95	95/96	96/97	97/98	98/99	99/00
Falls, Trips and Slips	88	117	99	105	95	73
Hitting Objects	74	87	66	54	61	47
Being Hit by Moving Objects	171	188	156	185	140	135
Body Stressing	126	105	103	103	86	70
Heat, Radiation & Electricity	16	16	7	10	7	8
Chemical Substances	6	6	9	*	7	*
Biological Factors		*	*	*	*	
Mental Stress		*	-	-	*	-
Other and Unspecified	41	64	84	64	70	46
Total	**522**	**585**	**527**	**528**	**469**	**384**

* Cell contains five or less cases

The majority of injuries to workers in the Western Australian grain, sheep and beef cattle farming industries between 1 July 1994 and 30 June 2000, resulted in less than 60 days lost time (Table 3.22).

Table 3.22 Severity of Injury for Western Australian Workers' Compensation Claims in Grain, Sheep and Beef Cattle Farming Industries, 1994/95 – 1999/2000.

Sever Injury	94/95	95/96	96/97	97/98	98/99	99/00	Total	%
Long Duration Claims	65	77	83	81	92	104	502	16.7
Claims with <60 Days Lost-Time	457	508	444	447	377	280	2513	83.3
Total	**522**	**585**	**527**	**528**	**469**	**384**	**3015**	**100.00**

The most common bodily locations injured in the grain, sheep and beef cattle farming industries of Western Australia where a workers' compensation claim was made between 1 July 1994 and 30 June 2000 were upper limbs, lower limbs and trunk (Table 3.23).

Table 3.23 Bodily Location of Injury for Western Australian Workers' Compensation Claims in Grain, Sheep and Beef Cattle Farming Industries, 1994/95 – 1999/2000.

Bodily Location	94/95	95/96	96/97	97/98	98/99	99/00
Head	42	54	39	48	40	28
Neck	10	10	6	*	*	6
Trunk	105	109	94	96	86	58
Upper Limbs	180	232	206	187	161	150
Lower Limbs	164	148	146	165	140	123
Multiple	21	28	34	25	16	16
Systemic	-	*	*	*	*	*
Non-physical	-	*	-	-	*	-
Unspecific	-	*	-	-	18	*
Total	**522**	**585**	**527**	**528**	**469**	**384**

* Cell contains five or less cases

The most common nature of injury or disease for people in grain, sheep and beef cattle farming industries of Western Australia who had a workers' compensation claim was made between 1 July 1994 and 30 June 2000 were sprain/strain, open wound and fractures (Table 3.24).

Table 3.24 Nature of injury for Western Australian Workers' Compensation Claims in Grain, Sheep and Beef Cattle Farming Industries, 1994/95 – 1999/2000.

Nature of Injury and Disease	94/95	95/96	96/97	97/98	98/99	99/00
Fractures	71	87	77	89	74	82
Sprain/Strain	193	187	194	186	166	116
Open Wound	109	128	112	106	87	85
Superficial Injury	10	18	18	11	*	13
Contusion & Crushing	54	59	51	62	46	37
Foreign Body	11	20	12	18	20	13
Burns	16	18	7	11	7	9
Multiple injuries	*	*	*	*	*	*
Other injuries NEC	21	23	27	21	35	19
Disease of the Musculoskeletal System & Connective Tissue	27	21	11	12	13	6
Disease of the Skin & Subcutaneous Tissue	*	*	*	*	*	-
Hernia	*	6	6	*	6	*
Mental disorders	-	*	-	-	*	-
Other diseases	*	10	7	*	*	-
Total	**522**	**585**	**527**	**528**	**469**	**384**

* Cell contains five or less cases

Dairy Cattle Farming

In the dairy cattle farming industry of Western Australia there were 194 workers' compensation claims over the period 1 July 1994 to 30 June 2000, averaging 32 compensation claims per annum. Table 3.3 and 3.4 display the actual cost by industry per annum and the actual number of days lost respectively for the period 1 July 1994 to 30 June 1999. From these Tables the average cost and average number of days lost per claim has been calculated. For the dairy cattle farming industry, the average cost per claim was $7,449 and the average number of days lost per claim was 39 days.

The number of claims by age group is displayed in Table 3.25. The number of injuries by age group increases until the 25-34 years age group and then decrease steadily until the 65+ age group, where there are very few claims.

Table 3.25 Age group for Western Australian Workers' Compensation Claims in Dairy Cattle Farming Industry, 1994/95 – 1999/2000.

Age groups	94/95	95/96	96/97	97/98	98/99	99/00
15-19	*	*	*	*	6	6
20-24	*	*	*	*	*	8
25-34	10	18	*	6	10	13
35-44	9	*	*	8	*	6
45-54	*	*	*	*	*	10
55-59		*	*	*	*	*
60-64	*	*	*	*	-	-
65+	*	-	-	-	-	-
Total	29	36	28	26	31	44

* Cell contains five or less cases

The information supplied from Workcover Western Australia was unable to be used to determine the percentages in each gender (Table 3.26).

Table 3.26 Gender for Western Australian Workers' Compensation Claims in Dairy Cattle Farming Industry, 1994/95 – 1999/2000.

Gender	94/95	95/96	96/97	97/98	98/99	99/00
Female	*	*	7	*	6	*
Male	*	*	21	*	25	*
Total	**29**	**36**	**28**	**26**	**31**	**44**

* Cell contains five or less cases

The information supplied from Workcover Western Australia was unable to be used to determine the number of claims by month.

The grouped occupations of people injured in the dairy cattle farming industry of Western Australia are displayed in Table 3.27. The majority of people who had a workers'

compensation claim in Western Australia between 1 July 1994 and the 30 June 2000 were employed in the category "labourers and related workers".

Table 3.27 Major Occupation for Western Australian Workers' Compensation Claims in Dairy Cattle Farming Industry, 1994/95 – 1999/2000.

Occupation	94/95	95/96	96/97	97/98	98/99	99/00
Managers and Administrators	7	9	*	*	*	10
Tradespersons and Related Workers	*	*	-	-	*	*
Intermediate Clerical, Sales and Service Workers	-	-	-	-	*	*
Intermediate Production and Transport Workers	-	-	-	-	*	*
Labourers and Related Workers	*	25	25	23	22	29
Total	**29**	**36**	**28**	**26**	**31**	**44**

* Cell contains five or less cases

People employed in the dairy cattle farming industry in Western Australia where a workers' compensation claim was made between 1 July 1994 and the 30 June 2000, were predominantly direct employees, with a small number of working directors and a contractor.

The grouped agencies of injury for Western Australian Workers' compensation claims for the dairy cattle farming industry are displayed in Table 3.30. The three most common agency groups were 'animal, human and biological', 'non-powered hand tools, appliances and equipment' and 'mobile plant and transport'.

Table 3.28 Agency of Injury for Western Australian Workers' Compensation Claims in Dairy Cattle Farming Industry, 1994/95 – 1999/2000.

Agency	94/95	95/96	96/97	97/98	98/99	99/00
Machinery		*			*	*
Mobile Plant & Transport	6	8	*	*	8	8
Powered Equipment, Tools			*	*		*
Not-Powered Hand Tools, Appliances and Equipment	*	7	*	*	*	*
Chemical Products			*			*
Materials/Substances	*	*	*	*	*	*
Environmental	*	9	*	*	6	9
Animal, Human & Biological	9	6	11	12	*	10
Others & Unspecified	*			*	*	*
Total	**29**	**36**	**28**	**26**	**31**	**44**

The most common mechanism of injury for workers' compensation claims in Western Australia between 1 July 1994 and 30 June 2000 for the dairy cattle farming industry were 'being hit by moving objects', 'body stressing', and 'falls, trips and slips' (Table 3.29).

Table 3.29 Mechanism of Injury for Western Australian Workers' Compensation Claims in Dairy Cattle Farming Industry, 1994/95 – 1999/2000.

Mechanism	94/95	95/96	96/97	97/98	98/99	99/00
Falls, Trips and Slips	*	15	*	*	8	8
Hitting Objects	*	*	7	*	*	*
Being Hit by Moving Objects	10	*	14	14	9	13
Body Stressing	12	8	*	*	7	12
Heat, Radiation & Electricity	*	*	*	-	*	*
Chemical Substances	*	-	-	-	-	-
Biological Factors	-	*	-	-	-	-
Mental Stress	-	-	-	-	-	-
Other and Unspecified	*	*	*	*	*	*
Total	**29**	**36**	**28**	**26**	**31**	**44**

* Cell contains five or less cases

The majority (168, 86.6%) of injuries to workers in the Western Australia dairy cattle farming industry between 1 July 1994 and 30 June 2000 resulted in less than 60 days lost time, there were 26 (13.4%) of injuries that resulted in long duration claims.

The most common bodily locations injured in the dairy cattle farming industry of Western Australia where a workers' compensation claim was made between 1 July 1994 and 30 June 2000 were upper limbs, lower limbs and trunk (Table 3.30).

Table 3.30 Bodily Location of Injury for Western Australian Workers' Compensation Claims in Dairy Cattle Farming Industry, 1994/95 – 1999/2000.

Bodily Location	94/95	95/96	96/97	97/98	98/99	99/00
Head	*	-	*	-	-	*
Neck	-	-	-	*	-	-
Trunk	11	11	*	7	7	9
Upper Limbs	9	*	13	12	*	21
Lower Limbs	8	18	*	*	11	10
Multiple	-	*	-	*	*	*
Systemic	-	*	-	-	-	-
Non-physical	-	-	-	-	*	-
Total	**29**	**36**	**28**	**26**	**31**	**44**

* Cell contains five or less cases

The most common nature of injury or disease for people in dairy cattle farming industry of Western Australia who had a workers' compensation claim was made between 1 July 1994 and 30 June 2000 were sprain/strain, open wound and contusion & crushing (Table 3.31).

Table 3.31 Nature of injury for Western Australian Workers' Compensation Claims in Dairy Cattle Farming Industry, 1994/95 – 1999/2000.

Nature of Injury and Disease	94/95	95/96	96/97	97/98	98/99	99/00
Fractures	-	*	*	*	6	6
Sprain/Strain	8	17	*	13	16	19
Open Wound	*	*	*	*	*	11
Superficial Injury	-	-	*	*	*	*
Contusion & Crushing	9	*	8	6	*	*
Foreign Body	-	-	*	-	-	-
Burns	*	*	*	-	*	*
Other injuries NEC	*	-	-	-	*	*
Disease of the Musculoskeletal System & Connective Tissue	*	*	-	-	-	*
Hernia	*	*	*	-	*	-
Other Diseases	-	*	-	-	-	-
Total	**29**	**36**	**28**	**26**	**31**	**44**

* Cell contains five or less cases

Poultry Farming

In the poultry farming industries of Western Australia there were 221 workers' compensation claims over the period 1 July 1994 to 30 June 2000, averaging 37 compensation claims per annum. Table 3.3 and 3.4 display the actual cost by industry per annum and the actual number of days lost respectively for the period 1 July 1994 to 30 June 1999. From these Tables the average cost and average number of days lost per claim has been calculated. For the poultry farming industries (which includes; poultry farming for eggs and poultry farming for meat), the average cost per claim was $13,169 and the average number of days lost per claim was 61 days.

The number of claims by age group is displayed in Table 3.32. The number of injuries increases until the 25-34 years age group and then decrease steadily until the 65+ age group, where there are very few claims.

Table 3.32 Age group for Western Australian Workers' Compensation Claims in Poultry Farming Industries, 1994/95 – 1999/2000.

Age groups	94/95	95/96	96/97	97/98	98/99	99/00
15-19	*	*	*	*	*	*
20-24	10	12	*	*	*	-
25-34	10	18	*	6	10	13
35-44	9	18	7	9	8	*
45-54	9	11	8	9	*	*
55-59	*	*	-	-	*	*
60-64	*	*	*	*	*	*
Total	**53**	**63**	**36**	**35**	**24**	**10**

* Cell contains five or less cases

The information supplied from Workcover Western Australia was unable to be used to determine the percentages in each gender (Table 3.33).

Table 3.33 Gender for Western Australian Workers' Compensation Claims in Poultry Farming Industries, 1994/95 – 1999/2000.

Gender	94/95	95/96	96/97	97/98	98/99	99/00
Female	15	21	10	15	7	*
Male	38	42	26	20	17	*
Total	**53**	**63**	**36**	**35**	**24**	**10**

* Cell contains five or less cases

The information supplied from Workcover Western Australia was unable to be used to determine the percentages in each month (Table 3.34).

Table 3.34 Month of Injury for Western Australian Workers' Compensation Claims in Poultry Farming Industries, 1994/95 – 1999/2000.

Month	94/95	95/96	96/97	97/98	98/99	99/00
July	*	*	*	*	6	-
August	*	7	*	*	*	*
September	*	*	*	*		*
October	*	*	*	*	*	-
November	*	7	*	6	*	*
December	*	6	*		*	-
January	*	7	*	7	*	*
February	6	8	*	*	*	*
March	*	*	*	*	*	*
April	*	*	*	-	*	*
May	6	*	*	*	*	-
June	*	7	*	*	*	-
Total	**53**	**63**	**36**	**35**	**24**	**10**

* Cell contains five or less cases

The grouped occupations of people injured in the poultry farming industries of Western Australia are displayed in Table 3.35. The majority of people who had a workers' compensation claim in Western Australia between 1 July 1994 and the 30 June 2000 were employed in the category "labourers and related workers".

Table 3.35 Major Occupation for Western Australian Workers' Compensation Claims in Poultry Farming Industries, 1994/95 – 1999/2000.

Occupation	94/95	95/96	96/97	97/98	98/99	99/00
Managers and Administrators	*	7	5	*	6	*
Professionals	*					
Tradespersons and Related Workers	*	*				
Intermediate Clerical, Sales and Service Workers		*			*	
Intermediate Production and Transport Workers	10	8		*	*	
Elementary Clerical, Sales and Service Workers		*				
Labourers and Related Workers	39	41	31	28	17	7
Total	**53**	**63**	**36**	**35**	**24**	**10**

* Cell contains five or less cases

People employed in the poultry farming industries in Western Australia where a workers' compensation claim was made between 1 July 1994 and the 30 June 2000, were predominantly direct employees (212, 95.9%), with a small number of working directors (9, 4.1%).

The grouped agencies of injury for Western Australian workers' compensation claims for the poultry farming industries are displayed in Table 3.36. The three most common agency groups were 'non-powered hand tools, appliances and equipment', 'animal, human & biological' and 'environmental'.

Table 3.36 Agency of Injury for Western Australian Workers' Compensation Claims in Poultry Farming Industries, 1994/95 – 1999/2000.

Agency	94/95	95/96	96/97	97/98	98/99	99/00
Machinery	*	6	*	*	*	*
Mobile Plant & Transport	*	-	*	*	6	*
Powered Equipment, Tools	-	*	*	-	*	-
Not-Powered Hand Tools, Appliances and Equipment	17	18	14	10	*	*
Chemicals/Chemical Products	-	*	-	-	-	-
Materials/Substances	11	8	*	*	*	*
Environmental	*	8	8	11	*	*
Animal, Human & Biological	11	17	*	7	*	*
Others & Unspecified	*	*	*	-	-	-
Total	**53**	**63**	**36**	**35**	**24**	**10**

* Cell contains five or less cases

The most common mechanism of injury for workers' compensation claims in Western Australia between 1 July 1994 and 30 June 2000 for the poultry farming industries were 'body stressing' and 'falls, trips and slips' (Table 3.37).

Table 3.37 Mechanism of Injury for Western Australian Workers' Compensation Claims in Poultry Farming Industries, 1994/95 – 1999/2000.

Mechanism	94/95	95/96	96/97	97/98	98/99	99/00
Falls, Trips and Slips	*	13	10	14	*	*
Hitting Objects	10	6	*	*	*	-
Being Hit by Moving Objects	*	9	*	*	*	*
Body Stressing	24	29	11	11	7	*
Heat, Radiation & Electricity	*	*	-	-	-	-
Chemical Substances	-	*	-	-	*	*
Biological Factors	-	*	-	-	-	*
Other and Unspecified	-	-	*	*	-	-
Total	**53**	**63**	**36**	**35**	**24**	**10**

* Cell contains five or less cases

The majority (184, 83.3%) of injuries to workers in the Western Australian poultry farming industries between 1 July 1994 and 30 June 2000 resulted in less than 60 days lost time. There were 37 (16.7%) injuries that resulted in long duration claims.

The most common bodily locations injured in the poultry farming industries of Western Australia where a workers' compensation claim was made between 1 July 1994 and 30 June 2000 were upper limbs, lower limbs and trunk (Table 3.38).

Table 3.38 Bodily Location of Injury for Western Australian Workers' Compensation Claims in Poultry Farming Industries, 1994/95 – 1999/2000.

Bodily Location	94/95	95/96	96/97	97/98	98/99	99/00
Head	*	*	*	*		
Neck					*	
Trunk	18	21	11	9	6	*
Upper limbs	17	24	*	13	12	*
Lower limbs	12	11	7	*	*	*
Multiple	*	*	*	6	*	
Systemic					*	
Non-physical		*				
Unspecific						
Total	**53**	**63**	**36**	**35**	**24**	**10**

* Cell contains five or less cases

The most common nature of injury or disease for people in the poultry farming industries of Western Australia who had a workers' compensation claim was made between 1 July 1994 and 30 June 2000, were sprain/strain, open wound and contusion & crushing (Table 3.39).

Table 3.39 Nature of injury for Western Australian Workers' Compensation Claims in Poultry Farming Industries, 1994/95 – 1999/2000.

Nature of Injury and Disease	94/95	95/96	96/97	97/98	98/99	99/00
Fractures	*	*	-	*	*	-
Sprain/Strain	28	34	14	22	*	6
Open Wound	*	6	13	*	*	-
Superficial Injury	*	*	-	-	*	-
Contusion & Crushing	*	9	*	*	*	*
Foreign Body	-	-	*	-	-	-
Burns	*	*	-	-	*	*
Other injuries NEC	*	*	-	-	*	*
Disease of the Musculoskeletal System & Connective Tissue	*	*	*	*	-	-
Disease of the Skin & Subcutaneous Tissue	-	*	-	-	-	-
Hernia	-	-	*	-	-	-
Mental Disorders	-	*	-	-	-	-
Other Diseases	*	*	*	*	*	*
Total	**53**	**63**	**36**	**35**	**24**	**10**

* Cell contains five or less cases

Other Livestock Farming

In the other livestock farming industries of Western Australia there were 385 workers' compensation claims over the period 1 July 1994 to 30 June 2000, averaging 64 compensation claims per annum. Table 3.3 and 3.4 display the actual cost by industry per annum and the actual number of days lost respectively for the period 1 July 1994 to 30 June 1999. From these Tables the average cost and average number of days lost per claim has been calculated. For the other livestock farming industries (which includes; pig farming, horse farming, deer farming and livestock farming NEC), the average cost per claim was $10,184 and the average number of days lost per claim was 48 days.

The number of claims by age group is displayed in Table 3.40. The number of injuries per age group increases until the 25-34 years age group and then decrease steadily until the 65+ age group, where there are very few claims.

Table 3.40 Age group for Western Australian Workers' Compensation Claims in Other Livestock Farming Industries, 1994/95 – 1999/2000.

Age groups	94/95	95/96	96/97	97/98	98/99	99/00
15-19	12	11	11	8	*	12
20-24	10	18	16	17	12	10
25-34	16	15	22	26	20	*
35-44	6	8	19	14	10	*
45-54	*	*	6	13	10	8
55-59	*	*	*	*	*	*
60-64	*	*	*	-	*	*
65+	-	*	-	-	-	-
Unknown	-	-	-	-	-	*
Total	**56**	**60**	**79**	**80**	**62**	**48**

* Cell contains five or less cases

Of the 385 claims in the other livestock farming industries, 287 (74.5%) were males and 98 (25.5%) were females (Table 3.41).

Table 3.41 Gender for Western Australian Workers' Compensation Claims in Other Livestock Farming Industries, 1994/95 – 1999/2000.

Gender	94/95	95/96	96/97	97/98	98/99	99/00	Total	%
Female	12	18	23	16	10	19	98	25.5
Male	44	42	56	64	52	29	287	74.5
Total	**56**	**60**	**79**	**80**	**62**	**48**	**385**	**100.0**

* Cell contains five or less cases

The number of compensation claims by month is displayed in Table 3.42. The months with the largest number of claims were October and June. The months with the smallest number of claims were March and April.

Table 3.42 Month of Injury for Western Australian Workers' Compensation Claims in Other Livestock Farming Industries, 1994/95 – 1999/2000.

Month	94/95	95/96	96/97	97/98	98/99	99/00
July	*	*	6	11	*	6
August	*	*	7	*	*	8
September	*	-	*	*	8	*
October	7	6	6	8	9	7
November	*	8	6	*	7	6
December	7	10	*	6	*	*
January	*	4	11	*	*	6
February	8	*	10	*	*	*
March	*	*	*	*	*	*
April	*	*	*	*	*	*
May	*	*	9	14	7	*
June	6	9	8	8	9	*
Total	**56**	**60**	**79**	**80**	**62**	**48**

* Cell contains five or less cases

The grouped occupations of people injured in the other livestock farming industries of Western Australia are displayed in Table 3.43. The majority of people who had a workers' compensation claim in Western Australia between 1 July 1994 and the 30 June 2000 were employed in the category "labourers and related workers".

Table 3.43 Major Occupation for Western Australian Workers' Compensation Claims in Other Livestock Farming Industries, 1994/95 – 1999/2000.

Occupation	94/95	95/96	96/97	97/98	98/99	99/00
Managers and Administrators	*	6	9	10	7	9
Professionals	-	-	*	-	-	-
Associate Professionals	*	-	*	*	-	*
Tradespersons and Related Workers	*	*	6	*	*	*
Intermediate Clerical, Sales and Service Workers	-	*	-	-	-	-
Intermediate Production and Transport Workers	5	*	*	*	*	*
Elementary Clerical, Sales and Service Workers	-	-	-	-	-	*
Labourers and Related Workers	41	49	61	64	51	33
Total	**56**	**60**	**79**	**80**	**62**	**48**

* Cell contains five or less cases

People employed in the other livestock farming industries in Western Australia where a workers' compensation claim was made between 1 July 1994 and the 30 June 2000, were predominately direct employees (380, 98.7%), with a small number of working directors and a contractor.

The grouped agencies of injury for Western Australian workers' compensation claims for the other livestock farming industries are displayed in Table 3.44. The most common agency groups were 'animal, human biological' and 'non-powered hand tools, appliances and equipment'.

Table 3.44 Agency of Injury for Western Australian Workers' Compensation Claims in Other Livestock Farming Industries, 1994/95 – 1999/2000.

Agency	94/95	95/96	96/97	97/98	98/99	99/00
Machinery	*	*	*	*	*	*
Mobile Plant & Transport	*	*	12	8	*	*
Powered Equipment, tools	*	*	*	*	*	*
Not-Powered hand tools, Appliances and Equipment	11	10	10	12	8	6
Chemicals/Chemical Products		*	*			
Materials/Substances	10	9	12	*	8	6
Environmental	*	10	12	16	*	8
Animal, Human & Biological	21	20	26	30	23	22
Others & Unspecified	*			*	10	
Total	56	60	79	80	62	48

* Cell contains five or less cases

The most common mechanism of injury for workers' compensation claims in Western Australia between 1 July 1994 and 30 June 2000 for the other livestock farming industries were 'being hit by moving objects', 'falls, trips & slips' and 'body stressing' (Table 3.45).

Table 3.45 Mechanism of Injury for Western Australian Workers' Compensation Claims in Other Livestock Farming Industries, 1994/95 – 1999/2000.

Mechanism	94/95	95/96	96/97	97/98	98/99	99/00
Falls, Trips and Slips	14	12	18	19	6	16
Hitting Objects	9	*	9	7	*	6
Being Hit by Moving Objects	22	29	30	29	28	12
Body Stressing	8	14	17	17	13	*
Heat, Radiation & Electricity	*	*	-	*	*	-
Chemical Substances	-	-	*	*	*	*
Other and Unspecified	*	-	*	*	9	*
Total	**56**	**60**	**79**	**80**	**62**	**48**

* Cell contains five or less cases

The majority (329, 85.5%) of injuries to workers in the Western Australian other livestock farming industries between 1 July 1994 and 30 June 2000, resulted in less than 60 days lost time. There were 56 (14.5%) injuries of where the duration of the claim was greater than 60 days.

The most common bodily locations injured in the other livestock farming industries of Western Australia where a workers' compensation claim was made between 1 July 1994 and 30 June 2000, were lower limbs, upper limbs and trunk (Table 3.46).

Table 3.46 Bodily Location of Injury for Western Australian Workers' Compensation Claims in Other Livestock Farming Industries, 1994/95 – 1999/2000.

Bodily Location	94/95	95/96	96/97	97/98	98/99	99/00
Head	*	8	7	9	*	*
Neck	*			*	*	*
Trunk	7	13	18	20	11	8
Upper limbs	25	20	19	17	15	16
Lower limbs	17	18	30	26	19	13
Multiple	*	*	*	6	*	6
Other and Unspecified	-	-	-	-	9	-
Total	**56**	**60**	**79**	**80**	**62**	**48**

* Cell contains five or less cases

The most common nature of injury or disease for people in other livestock farming industries of Western Australia who had a workers' compensation claim was made between 1 July 1994 and 30 June 2000, were sprain/strain, contusion & crushing and open wound (Table 3.47).

Table 3.47 Nature of injury for Western Australian Workers' Compensation Claims in Other Livestock Farming Industries, 1994/95 – 1999/2000.

Nature of Injury and Disease	94/95	95/96	96/97	97/98	98/99	99/00
Fractures	7	6	10	9	*	7
Sprain/Strain	16	21	29	42	25	20
Open Wound	15	6	15	*	7	*
Superficial Injury	*	*	*	*	-	*
Contusion & Crushing	10	11	14	16	11	9
Foreign Body	*	*	*	*	*	*
Burns	*	*	*	*	*	-
Other Injuries NEC	*	*	*	*	11	*
Disease of the Musculoskeletal System & Connective Tissue	-	*	*	-	-	*
Disease of the Skin & Subcutaneous Tissue	*	-	-	-	-	-
Hernia	-	*	-	-	-	-
Other Diseases	-	*	-	*	-	*
Total	**56**	**60**	**79**	**80**	**62**	**48**

* Cell contains five or less cases

Other Crop Farming

In the other crop farming industries of Western Australia there were 189 workers' compensation claims over the period 1 July 1994 to 30 June 2000, averaging 31 compensation claims per annum. Table 3.3 and 3.4 display the actual cost by industry per annum and the actual number of days lost respectively for the period 1 July 1994 to 30 June 1999. From these Tables the average cost and average number of days lost per claim has been calculated. For the other crop farming industries (which includes; sugar cane growing and crop and plant NEC), the average cost per claim was $7,305 and the average number of days lost per claim was 44 days.

The number of claims by age group is displayed in Table 3.48. The number of injuries per age group increases until the 25-34 years age group and then decrease steadily until the 65+ age group, where there are very few claims.

Table 3.48 Age group for Western Australian Workers' Compensation Claims in Other Crop Farming Industries, 1994/95 – 1999/2000.

Age groups	94/95	95/96	96/97	97/98	98/99	9900
15-19	*	*	*	*	*	*
20-24	17	*	*	*	*	*
25-34	29	6	*	11	*	12
35-44	14	*	*	8	*	17
45-54	16	6	-	*	-	*
55-59	*	*	-	-	*	-
60-64	-	*	-	-	-	-
65+	*	-	-	-	-	-
Total	**87**	**25**	**8**	**26**	**6**	**37**

* Cell contains five or less cases

The information supplied from Workcover Western Australia was unable to be used to determine the percentages in each gender (Table 3.49).

Table 3.49 Gender for Western Australian Workers' Compensation Claims in Other Crop Farming Industries, 1994/95 – 1999/2000.

Gender	94/95	95/96	96/97	97/98	98/99	99/00
Female	16	6	*	11	*	*
Male	71	19	6	15	*	*
Total	**87**	**25**	**8**	**26**	**6**	**37**

* Cell contains five or less cases

The information supplied from Workcover Western Australia was unable to be used to determine the percentages in each month (Table 3.50).

Table 3.50 Month of Injury for Western Australian Workers' Compensation Claims in Other Crop Farming Industries, 1994/95 – 1999/2000.

Month	94/95	95/96	96/97	97/98	98/99	99/00
July	15	*	*	*	-	-
August	14	*	-	-	*	9
September	9	*	-	-	-	6
October	15	*	-	7	-	*
November	10	-	*	*	*	*
December	*	*	-	*	*	*
January	10	*	*	*	-	*
February	*	*	*	*	-	*
March	6	*	*	*	-	*
April	*	*	-	*	-	*
May	*	*	-	*	-	*
June	-	*	*	*	*	*
Total	**87**	**25**	**8**	**26**	**6**	**37**

* Cell contains five or less cases

The grouped occupations of people injured in the other crop farming industries of Western Australia are displayed in Table 3.51. The majority of people, who had a workers' compensation claim in Western Australia between 1 July 1994 and the 30 June 2000, were employed in the category "labourers and related workers".

Table 3.51 Major Occupation for Western Australian Workers' Compensation Claims in Other Crop Farming Industries, 1994/95 – 1999/2000.

Occupation	94/95	95/96	96/97	97/98	98/99	99/00
Managers and Administrators	9	*	-	*	-	-
Associate Professionals	*	-	-	-	-	-
Tradespersons and Related Workers	11	*	-	*	*	*
Advanced Clerical and Service workers	*	-	-	-	-	-
Intermediate Clerical, Sales and Service Workers	*	-	-	-	-	-
Intermediate Production and transport Workers	6	*	*	*	*	*
Labourers and Related workers	57	16	*	17	*	32
Total	**87**	**25**	**8**	**26**	**6**	**37**

* Cell contains five or less cases

People employed in the other crop farming industries in Western Australia where a workers' compensation claim was made between 1 July 1994 and the 30 June 2000, were predominately direct employees, with some working directors, sub contractors and others.

The grouped agencies of injury for Western Australian workers' compensation claims for the other crop farming industries are displayed in Table 3.52. The three most common agency groups were 'environmental', 'non-powered hand tools, appliances and equipment' and 'mobile plant and transport'.

Table 3.52 Agency of Injury for Western Australian Workers' Compensation Claims in Other Crop Farming Industries, 1994/95 – 1999/2000.

Agency	94/95	95/96	96/97	97/98	98/99	99/00
Machinery	11	-	-	-	*	-
Mobile Plant & Transport	6	8	*	*	*	11
Powered Equipment, Tools	*	*	-	-	-	-
Not-Powered Hand Tools, Appliances and Equipment	23	*	*	*	-	8
Chemicals/Chemical Products	*	*	*	-	-	-
Materials/Substances	9	*	-	*	-	-
Environmental	15	7	*	9	-	14
Animal, Human & Biological	14	*	-	-	-	*
Others & Unspecified	*	*	-	*	*	*
Total	**87**	**25**	**8**	**26**	**6**	**37**

* Cell contains five or less cases

The most common mechanism of injury for workers' compensation claims in Western Australia between 1 July 1994 and 30 June 2000, for the other crop farming industries were 'body stressing', 'falls, trips and slips' and 'being hit by moving objects' (Table 3.53).

Table 3.53 Mechanism of Injury for Western Australian Workers' Compensation Claims in Other Crop Farming Industries, 1994/95 – 1999/2000.

Mechanism	94/95	95/96	96/97	97/98	98/99	99/00
Falls, Trips and Slips	15	7	*	*	*	7
Hitting Objects	14	*	*	*	*	*
Being Hit by Moving Objects	25	*	*	*	*	*
Body Stressing	27	5	*	*	-	18
Heat, Radiation & Electricity	*	-	-	*	-	*
Chemical Substances	*	*	*	-	-	-
Other and Unspecified	*	*	-	*	*	*
Total	**87**	**25**	**8**	**26**	**6**	**37**

* Cell contains five or less cases

The majority (163, 86.2%) of injuries to workers in the Western Australian other crop farming industries between 1 July 1994 and 30 June 2000, resulted in less than 60 days lost time. There were 26 (13.8%) claims that were long duration claims.

The most common bodily locations injured in the other crop farming industries of Western Australia where a workers' compensation claim was made between 1 July 1994 and 30 June 2000, were upper limbs, lower limbs and trunk (Table 3.54).

Table 3.54 Bodily Location of Injury for Western Australian Workers' Compensation Claims in Other Crop Farming Industries, 1994/95 – 1999/2000.

Bodily Location	94/95	95/96	96/97	97/98	98/99	99/00
Head	10	*	*	*	-	-
Neck	*	-	-	*	*	*
Trunk	23	5	*	7	-	*
Upper limbs	30	11	*	10	*	21
Lower limbs	18	7	*	7	*	*
Multiple	*	*	-	-	-	*
Unspecific	-	-	-	-	*	-
Total	**87**	**25**	**8**	**26**	**6**	**37**

* Cell contains five or less cases

The most common nature of injury or disease for people in other crop farming industries of Western Australia who had a workers' compensation claim was made between 1 July 1994 and 30 June 2000, were sprain/strain, contusion & crushing and open wound (Table 3.55).

Table 3.55 Nature of injury for Western Australian Workers' Compensation Claims in Other Crop Farming Industries, 1994/95 – 1999/2000.

Nature of Injury and Disease	94/95	95/96	96/97	97/98	98/99	99/00
Fractures	*	*	-	-	-	-
Sprain/Strain	37	11	*	13	*	19
Open Wound	18	*	*	*	*	-
Superficial Injury	-	-	-	*	-	*
Contusion & Crushing	15	*	*	*	*	10
Foreign Body	*	*	-	*	-	-
Burns	*	*	*	*	-	-
Multiple Injuries	-	-	-	-	-	-
Other injuries NEC	*	-	-	*	*	*
Disease of the Musculoskeletal System & Connective Tissue	*	*	-	*	-	*
Disease of the Skin & Subcutaneous Tissue	-	-	-	*	-	-
Other Diseases	*	-	-	*	-	*
Total	**87**	**25**	**8**	**26**	**6**	**37**

* Cell contains five or less cases

Services to Agriculture

In the services to agricultural industries of Western Australia there were 1,857 workers' compensation claims over the period 1 July 1994 to 30 June 2000, averaging 309 compensation claims per annum. Table 3.3 and 3.4 display the actual cost by industry per annum and the actual number of days lost respectively for the period 1 July 1994 to 30 June 1999. From these Tables the average cost and average number of days lost per claim has been calculated. For the services to agricultural industries (which includes; cotton ginning, sheep shearing, aerial agricultural services and service to agriculture NEC), the average cost per claim was $9,668 and the average number of days lost per claim was 45 days.

The number of claims by age group is displayed in Table 3.56. The number of injuries per age group increases until the 25-34 years age group and then decrease steadily until the 65+ age group, where there are very few claims.

Table 3.56 Age group for Western Australian Workers' Compensation Claims, Services to Agricultural Industries, 1994/95 – 1999/2000.

Age groups	94/95	95/96	96/97	97/98	98/99	99/00
15-19	18	16	13	23	21	13
20-24	45	57	57	52	38	44
25-34	112	120	104	130	121	110
35-44	48	84	81	96	74	51
45-54	25	49	44	54	38	39
55-59	6	8	10	10	10	7
60-64	*	*	*	*	*	*
65+	-	*	-	-	-	-
Unknown	*	-	-	-	-	*
Total	**259**	**337**	**315**	**369**	**304**	**273**

* Cell contains five or less cases

Of the 1,857 claims in the other crop farming industries, 1,676 (90.3%) were males and 181 (9.7%) were females (Table 3.57).

Table 3.57 Gender for Western Australian Workers' Compensation Claims, Services to Agricultural Industries, 1994/95 – 1999/2000.

Gender	94/95	95/96	96/97	97/98	98/99	99/00	Total	%
Female	22	24	35	35	45	20	181	9.7
Male	237	313	280	334	259	253	1676	90.3
Total	**259**	**337**	**315**	**369**	**304**	**273**	**1857**	**100.0**

The number of compensation claims by month is displayed in Table 3.58. The number of injuries per month varied from 10 to 32 claims. The months with the largest number of claims were October, September, and August. The months with the smallest number of claims were December, May, and June.

Table 3.58 Month of Injury for Western Australia Workers' Compensation, Claims Services to Agricultural Industries, 1994/95 – 1999/2000.

Month	94/95	95/96	96/97	97/98	98/99	99/00
July	23	18	28	38	24	27
August	33	39	35	39	33	27
September	29	54	34	40	34	28
October	29	38	30	50	43	37
November	17	23	30	35	21	26
December	11	11	13	14	13	13
January	22	26	29	37	31	28
February	17	34	31	38	25	22
March	26	29	29	31	30	33
April	19	26	28	22	29	17
May	15	27	12	8	*	*
June	18	12	16	17	*	*
Total	**259**	**337**	**315**	**369**	**304**	**273**

* Cell contains five or less cases

The grouped occupations of people injured in the services to agricultural industries of Western Australia are displayed in Table 3.59. The majority of people, who had a workers' compensation claim in Western Australia between 1 July 1994 and the 30 June 2000, were employed in the category "tradespersons and related workers" or "labourers and related workers".

Table 3.59 Major Occupation for Western Australia Workers' Compensation, Claims Services to Agricultural Industries, 1994/95 – 1999/2000.

Occupation	94/95	95/96	96/97	97/98	98/99	99/00
Managers and Administrators	*	*	*	*	*	7
Professionals	*	*	7	-	6	*
Associate Professionals	8	23	23	25	15	8
Tradespersons and Related Workers	149	207	173	221	164	157
Advanced Clerical and Service Workers	-	-	*	*	-	-
Intermediate Clerical, Sales and Service Workers	*	*	*	*	*	*
Intermediate Production and transport Workers	16	14	19	14	16	13
Elementary Clerical, Sales and Service Workers	*	-	-	*	*	*
Labourers and Related Workers	77	82	78	101	95	81
Total	**259**	**337**	**315**	**369**	**304**	**273**

* Cell contains five or less cases

People employed in services to agricultural industries in Western Australia where a workers' compensation claim was made between 1 July 1994 and the 30 June 2000, were predominately direct employees or employees of contractors (Table 3.60).

Table 3.60 Employment Status for Western Australian Workers' Compensation Claims, Services to Agricultural Industries, 1994/95 – 1999/2000.

Employment Status	94/95	95/96	96/97	97/98	98/99	99/00
Direct Employee	193	225	224	272	246	235
Working Director	*	6	*	7	*	*
Contractor	*	9	7	10	*	*
Employee of Contractor	56	93	76	76	48	29
Sub-contractor	*	*	*	*	*	*
Other	-	*	-	-	-	*
Total	**259**	**337**	**315**	**369**	**304**	**273**

* Cell contains five or less cases

The grouped agencies of injury for Western Australian workers' compensation claims for the services to agricultural industries are displayed in Table 3.61. The most common agency groups were 'machinery' and 'animal, human and biological'.

Table 3.61 Agency of Injury for Western Australian Workers' Compensation Claims, Services to Agricultural Industries, 1994/95 – 1999/2000.

Agency	94/95	95/96	96/97	97/98	98/99	99/00
Machinery	85	124	109	136	89	89
Mobile Plant & Transport	13	*	18	15	15	15
Powered Equipment, Tools	*	*	8	*	6	*
Not-Powered Hand Tools, Appliances and Equipment	21	30	25	30	29	25
Chemicals/Chemical Products	*	*	*	*	*	*
Materials/Substances	12	11	14	9	11	10
Environmental	16	28	29	42	17	29
Animal, Human & Biological	92	129	101	115	92	89
Others & Unspecified	13	*	8	16	43	11
Total	**259**	**337**	**315**	**369**	**304**	**273**

* Cell contains five or less cases

The most common mechanism of injury for Workers' Compensation Claims in Western Australia between 1 July 1994 and 30 June 2000, for the services to agricultural industries, were 'body stressing', 'being hit by moving objects' and 'hitting objects' (Table 3.62).

Table 3.62 Mechanism of Injury for Western Australian Workers' Compensation Claims, Services to Agricultural Industries, 1994/95 – 1999/2000.

Mechanism	94/95	95/96	96/97	97/98	98/99	99/00
Falls, Trips and Slips	23	21	28	35	17	26
Hitting Objects	48	70	46	75	56	56
Being Hit by Moving Objects	77	92	82	105	72	61
Body Stressing	103	143	137	128	107	115
Heat, Radiation & Electricity	*	*	6	*	*	*
Chemical Substances	*	*	*	7	*	*
Biological Factors	-	*	*	*	*	*
Mental Stress	-	-	*	*	-	-
Other and Unspecified	*	*	8	12	41	9
Total	**259**	**337**	**315**	**369**	**304**	**273**

* Cell contains five or less cases

The majority of injuries to workers in the Western Australia services to agricultural industries between 1 July 1994 and 30 June 2000 resulted in less than 60 days lost time (Table 3.63).

Table 3.63 Severity of Injury for Western Australian Workers' Compensation Claims, Services to Agricultural Industries, 1994/95 – 1999/2000.

Sever Injury	94/95	95/96	96/97	97/98	98/99	99/00	Total	%
Long Duration Claims	24	36	41	41	44	62	248	13.4
Claims with <60 Days Lost-Time	235	301	274	328	260	211	1609	86.6
Total	**259**	**337**	**315**	**369**	**304**	**273**	**1857**	**100.0**

* Cell contains five or less cases

The most common bodily locations injured in the services to agricultural industries of Western Australia where a workers' compensation claim was made between 1 July 1994 and 30 June 2000, were upper limbs, trunk and lower limbs (Table 3.64).

Table 3.64 Bodily Location of Injury for Western Australian Workers' Compensation Claims, Services to Agricultural Industries, 1994/95 – 1999/2000.

Bodily Location	94/95	95/96	96/97	97/98	98/99	99/00
Head	17	10	14	8	15	9
Neck	*	*	*	*	*	*
Trunk	53	82	72	76	57	63
Upper Limbs	139	184	149	193	135	129
Lower Limbs	44	49	61	69	47	59
Multiple	*	8	13	16	10	6
Systemic	-	*	*	*	*	-
Total	**259**	**337**	**315**	**369**	**304**	**273**

* Cell contains five or less cases

The most common nature of injury or disease for people in the services to agricultural industries of Western Australia who had a workers' compensation claim was made between 1 July 1994 and 30 June 2000, were sprain/strain, open wound and disease of the musculoskeletal system and connective tissue (Table 3.65).

Table 3.65 Nature of injury for Western Australian Workers' Compensation Claims, Services to Agricultural Industries, 1994/95 – 1999/2000.

Nature of Injury and Disease	94/95	95/96	96/97	97/98	98/99	99/00
Fractures	16	13	19	17	9	11
Sprain/Strain	101	138	156	156	114	122
Open Wound	65	98	72	87	62	66
Superficial Injury	*	*	10	14	6	*
Contusion & Crushing	21	23	12	34	20	22
Foreign Body	*	*	*	*	7	*
Burns	*	*	*	*	*	*
Multiple injuries	-	-	*	*	*	*
Other injuries NEC	*	13	12	11	44	9
Disease of the Musculoskeletal System & Connective Tissue	31	30	17	25	22	24
Disease of the Skin & Subcutaneous Tissue	*	*	*	10	*	*
Hernia	*	*	-	5	*	*
Mental disorders	-	-	*	*	-	-
Other diseases	6	*	6	*	7	*
Total	**259**	**337**	**315**	**369**	**304**	**273**

* Cell contains five or less cases

Summary

- There were 7,358 workers' compensation claims between 1 July 1994 and 30 June 1999. Of these, 6,271 claims had actual cost, which was associated with $63 million being paid in compensation in the agricultural industries. The total actual days lost for the same period was 309,467 days.

Horticulture and Fruit Growing

- There were on average 238 injuries resulting in a workers' compensation claim in the horticulture and fruit growing industries of Western Australia per year. The average cost per claim was $10,750 and the average number of days lost per claim was 51 days.
- The most common agency group of injury for horticulture and fruit growing industries was non-powered hand tools.
- The most common mechanism of injury for horticulture and fruit growing industries was body stressing.
- The most common nature of injury for horticulture and fruit growing industries was sprain/strain.

Grain, Sheep and Beef Cattle Farming

- There were on average 502 injuries resulting in a workers' compensation claim in the grain, sheep and beef cattle industries of Western Australia per year. The average cost per claim was $9,966 and the average number of days lost per claim was 51 days.
- The most common agency group of injury for grain, sheep and beef cattle industries was mobile plant and transport.
- The most common mechanism of injury for grain, sheep and beef cattle industries was being hit by moving objects.
- The most common nature of injury for grain, sheep and beef cattle industries was sprain/strain.

Dairy Cattle Farming

- There were on average 32 injuries resulting in a workers' compensation claim in the dairy cattle farming industry of Western Australia per year. The average cost per claim was $7,448 and the average number of days lost per claim was 39 days.
- The most common agency group of injury for dairy cattle farming industry was animal, human biological.
- The most common mechanism of injury for the dairy cattle farming industry was being hit by moving objects.
- The most common nature of injury for the dairy cattle farming industry was sprain/strain.

Poultry Farming

- There were on average 37 injuries resulting in a workers' compensation claim in the poultry farming industry of Western Australia per year. The average cost per claim was $13,169 and the average number of days lost per claim was 61 days.
- The most common agency group of injury for the poultry farming industry was non-powered hand tools, appliances, and equipment.
- The most common mechanism of injury for the poultry farming industry was body stressing.
- The most common nature of injury for the poultry farming industry was sprain/strain.

Other Livestock Farming

- There were on average 64 injuries resulting in a workers' compensation claim in other livestock farming industries of Western Australia per year. The average cost per claim was $10,184 and the average number of days lost per claim was 48 days.
- The most common agency group of injury for other livestock farming industries was animal, human biological.
- The most common mechanism of injury for other livestock farming industries was being hit by moving objects.
- The most common nature of injury for other livestock farming industries was sprain/strain.

Other Crop Farming

- There were on average 31 injuries resulting in a workers' compensation claim in the other crop farming industries of Western Australia per year. The average cost per claim was $7,305 and the average number of days lost per claim was 44 days.
- The most common agency group of injury for other crop farming industries was environmental agents.
- The most common mechanism of injury for other crop farming industries was body stressing.

- The most common nature of injury for other crop farming industries was sprain/strain.

Services to Agriculture

- There were on average 309 injuries resulting in a workers' compensation claim in the services to agriculture industries of Western Australia per year. The average cost per claim was $9,668 and the average number of days lost per claim was 45 days.
- The most common agency group of injury for services to agriculture industries was machinery.
- The most common mechanism of injury for services to agriculture industries was body stressing.
- The most common nature of injury for services to agriculture industries was sprain/strain.

Recommendations

1. Further investigation of the workers' compensation information, needs to be undertaken to determine the agents and mechanism involved in causing injuries that result in a workers' compensation claim.
2. Workers' compensation information should be made available on a yearly basis in an electronic format to allow annual agricultural statistics to be published, in a form that allows for adjustment to data as claims are finalised.
3. Prevention programs aimed at reducing workers' compensation claims should include:
   - Specific agricultural industries;
   - Animal handling, especially sheep and cattle; and
   - Machinery.
4. Farmers should be encouraged to undertake the Managing Farm Safety Course to manage the whole range of hazards associated with injury and illness that occur on farms.

Section 4. Farm injury cases admitted to Western Australian Hospitals

The Western Australian Health Department provided the data for this section. No data cleaning or validation of the information has been undertaken. An injury was determined to be farm-related if the incident had the location incident coded as 'farm'.

There were 3,420 people who sustained an injury on a farm and were admitted to hospitals in Western Australia between 1 July 1991 and 30 June 1999. Of the 3,420 people injured on farms in Western Australia who were hospitalised, 2,726 (79.7%) were males and 694 (20.3%) were females.

Farmsafe Australia (FSA) has used a selection of E-coded injuries to monitor programs that have been undertaken to reduce injuries on farms (Fragar, 1996). These FSA E-codes are presented in the top part of the Table followed by the other e-codes in the bottom part of the Table. Of the 3,420 injuries on farms that were hospitalised, 2,026 (59.2%) injuries on farms were classified under the FSA selection of E-codes (Table 4.1).

Table 4.1 E-code groups by gender for people injured on farms in Western Australia, who were discharged from hospital between 1 July 1991 and 30 June 1999.

E-Code	Description	Female	Male	Total	%
E820-829	Motor Vehicle Non Traffic Accident & Other Road Vehicle Accidents				
	Motorcycles	45	308	353	10.3
	Other Vehicles	53	196	249	7.3
	Animal Ridden	106	128	234	6.8
E862	Poisoning by Petroleum Products	1	-	1	0.0
E863	Poisoning by Agricultural Chemicals	10	31	41	1.2
E864	Poisoning by Corrosive & Caustics	-	-	-	-
E866-869	Poisoning by Other Solids, Gases & Liquids	-	8	8	0.2
E891-899*	Fire and Flames	10	62	72	2.1
E905	Venomous Animal Plants	13	57	70	2.0
E906.0	Dog Bite	5	6	11	0.3
E906.8	Injury by Other Animal	60	208	268	7.8
E919.0	Agricultural Machinery	38	401	439	12.8
E919.1-.9	Other Machinery	6	75	81	2.4
E920	Cutting and Piercing	16	167	183	5.4
E922	Firearms	1	15	16	0.5
	Subtotal	***364***	***1,662***	***2,026***	***59.2***
E810-819	Motor Vehicle Accidents	43	89	132	3.9
E850-865**	Poisoning	2	7	9	0.3
E880-E888	Falls	124	252	376	11.0
E900-909[#]	Natural & Environmental Factors	11	50	61	1.8
E910	Drowning	1	5	6	0.2
	Other E-codes [##]	149	661	810	23.7
	Group Total	**694**	**2726**	**3,420**	**100.0**

** Excluding E893.0, E895 and E898.0 (If included are in Other E-codes). **Excluding E863, E863, E864.*
[#] Excluding E905, E906.0 & E906.8. [##] Includes all E-codes not represented elsewhere.

The most common external cause of injuries for the FSA E-codes was agricultural machinery (439, 12.8%), motorcycles (353, 10.3%), injury by other animal (268, 7.8), vehicles (249, 7.3%) and animals ridden (234, 6.8%). Falls on farms (376, 11.0%) also represent a significant problem (Table 4.1).

Children (less than 15 years of age) represent twelve percent of all farm injuries in Western Australia between 1 July 1991 and 30 June 1999 (Figure 4.1). Children are placed at risk of injury on farms due to the hazardous nature of farms and the ease of access to dangerous areas on the farm. The most common types of injuries for children involved motorcycles (89, 21.3%), other vehicles (55, 13.2), falls (50, 12.0) and animal ridden (40, 9.6%) injuries. The number of injuries for each age group increased as age increased (Table 4.2).

Table 4.2 E-code groups by age for children injured on farms in Western Australia, who were discharged from hospital between 1 July 1991 and 30 June 1999.

E-Code	Description	0-4	5-9	10-14	Total	%
E820-829	Motor Vehicle Non Traffic Accident & Other Road Vehicle Accidents					
	Motorcycles	2	16	71	89	21.3
	Other Vehicles	12	16	27	55	13.2
	Animal Ridden	8	9	23	40	9.6
E862	Poisoning by Petroleum Products	1	-	-	1	0.2
E863	Poisoning by Agricultural Chemicals	3	1	-	4	1.0
E864	Poisoning by Corrosive & Caustics	-	-	-	-	-
E866-869	Poisoning by Other Solids, Gases & Liquids					
E891-899*	Fire and Flames	2	1	4	7	1.7
E905	Venomous Animal Plants	1	1	3	5	1.2
E906.0	Dog Bite	3	1	1	5	1.2
E906.8	Injury by Other Animal	2	8	6	16	3.8
E919.0	Agricultural Machinery	10	11	6	27	6.5
E919.1-.9	Other Machinery	5	-	1	6	1.4
E920	Cutting and Piercing	1	5	3	9	2.2
E922	Firearms	-	-	1	1	0.2
	Subtotal	***50***	***69***	***146***	***265***	***63.5***
E810-819	Motor Vehicle Accidents	4	6	25	35	8.4
E850-865**	Poisoning	3	2	-	5	1.2
E880-E888	Falls	13	21	16	50	12.0
E900-909[#]	Natural & Environmental Factors	2	1	-	3	0.7
E910	Drowning	6	-	-	6	1.4
	Other E-codes [##]	15	18	20	53	12.7
	Group Total	**93**	**117**	**207**	**417**	**100.0**

** Excluding E893.0, E895 and E898.0 (If included are in Other E-codes). **Excluding E863, E863, E864.*
[#] Excluding E905, E906.0 & E906.8. [##] Includes all E-codes not represented elsewhere.

Over the eight years of hospital data analysed, the number of farm injuries ranged from 281 in the 1991/92 financial year to 510 in the 1996/97 financial year, with an average of 427 hospitalised injuries per annum. The number of injuries steadily climbed to a peak in the 1996/97 financial year and slowly declined for the next two years.

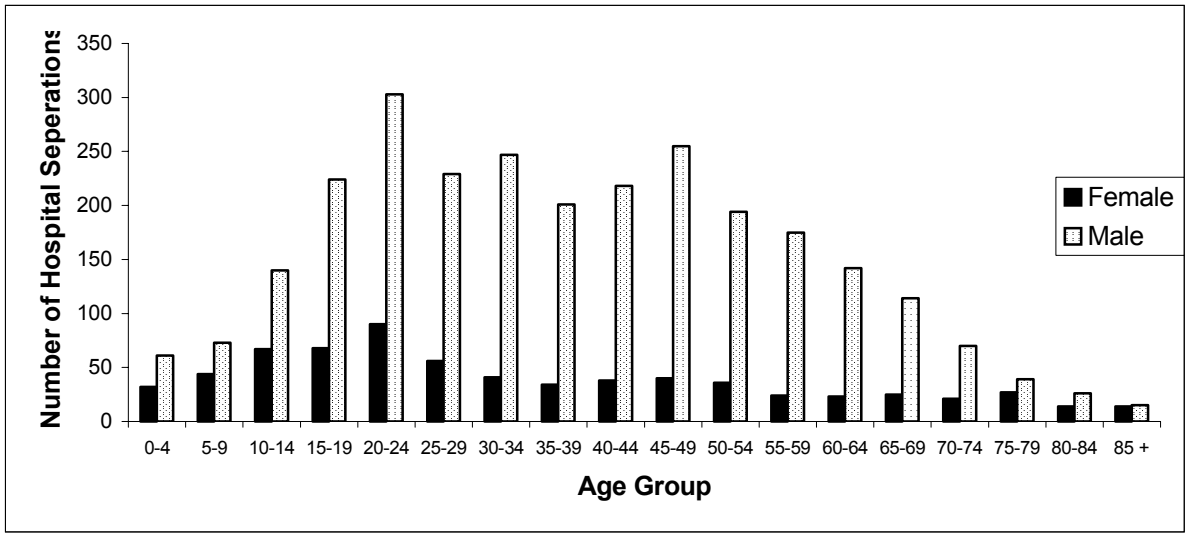
Table 4.3 E-code groups by year for people injured on farms in Western Australia, who were discharged from hospital between 1 July 1991 and 30 June 1999.

E-Code	Description	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	Total	%
E820-829	Motor Vehicle Non Traffic Accident & Other Road Vehicle Accidents										
	Motorcycles	32	38	43	37	46	63	45	49	353	10.3
	Other Vehicles	19	34	30	31	27	33	34	41	249	7.3
	Animal Ridden	30	28	43	38	36	19	21	19	234	6.8
E862	Poisoning by Petroleum Products	1	-	-	-	-	-	-	-	1	0.0
E863	Poisoning by Agricultural Chemicals	-	4	8	6	7	7	5	4	41	1.2
E864	Poisoning by Corrosive & Caustics	-	-	-	-	-	-	-	-	-	-
E866-869	Poisoning by Other Solids, Gases & Liquids	-	1	3	-	1	1	1	1	8	0.2
E891-899*	Fire and Flames	6	8	13	10	5	5	20	5	72	2.1
E905	Venomous Animal Plants	2	7	9	6	5	16	7	18	70	2.0
E906.0	Dog Bite	1	3	-	1	2	-	1	3	11	0.3
E906.8	Injury by Other Animal	18	33	46	32	37	40	35	27	268	7.8
E919.0	Agricultural Machinery	46	50	40	58	57	81	52	55	439	12.8
E919.1-.9	Other Machinery	6	7	16	12	12	10	9	9	81	2.4
E920	Cutting and Piercing	9	17	20	26	30	27	21	33	183	5.4
E922	Firearms	3	1	2	2	1	4	3	-	16	0.5
	Subtotal	***173***	***231***	***273***	***259***	***266***	***306***	***254***	***264***	***2,026***	***59.2***
E810-819	Motor Vehicle Accidents	4	5	21	24	32	16	19	11	132	3.9
E850-865**	Poisoning	-	2	2	1	-	3	-	1	9	0.3
E880-E888	Falls	28	39	37	57	56	58	49	52	376	11.0
E900-909#	Natural & Environmental Factors	3	4	8	3	4	14	10	15	61	1.8
E910	Drowning	-	1	-	-	-	1	3	1	6	0.2
	Other E-codes ##	73	75	110	140	106	112	103	91	810	23.7
	Group Total	**281**	**357**	**451**	**484**	**464**	**510**	**438**	**435**	**3,420**	**100.0**

** Excluding E893.0, E895 and E898.0 (If included are in Other E-codes). **Excluding E863, E863, E864.*
 # Excluding E905, E906.0 & E906.8. ## Includes all E-codes not represented elsewhere.

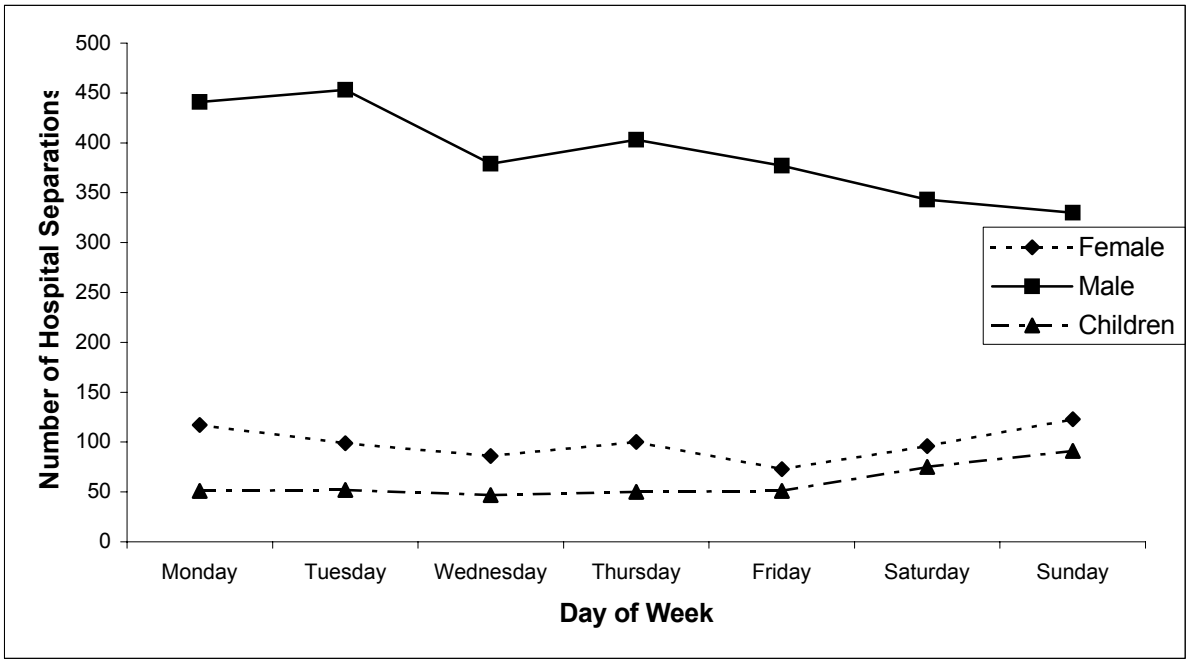
The age groups for males with the most number of injuries were 20-24 years (303, 11.1%), 45-49 years (255, 9.4%) and 30-34 years (247, 9.1%). The age groups for females with the largest number of injuries were 20-24 years (90, 13.0%), 15-19 years (68, 9.8%) and 10-14 years (67, 9.7%) (Figure 4.1).

Figure 4.1 Age groups by gender for people injured on farms in Western Australia, who were discharged from hospital between 1 July 1991 and 30 June 1999.



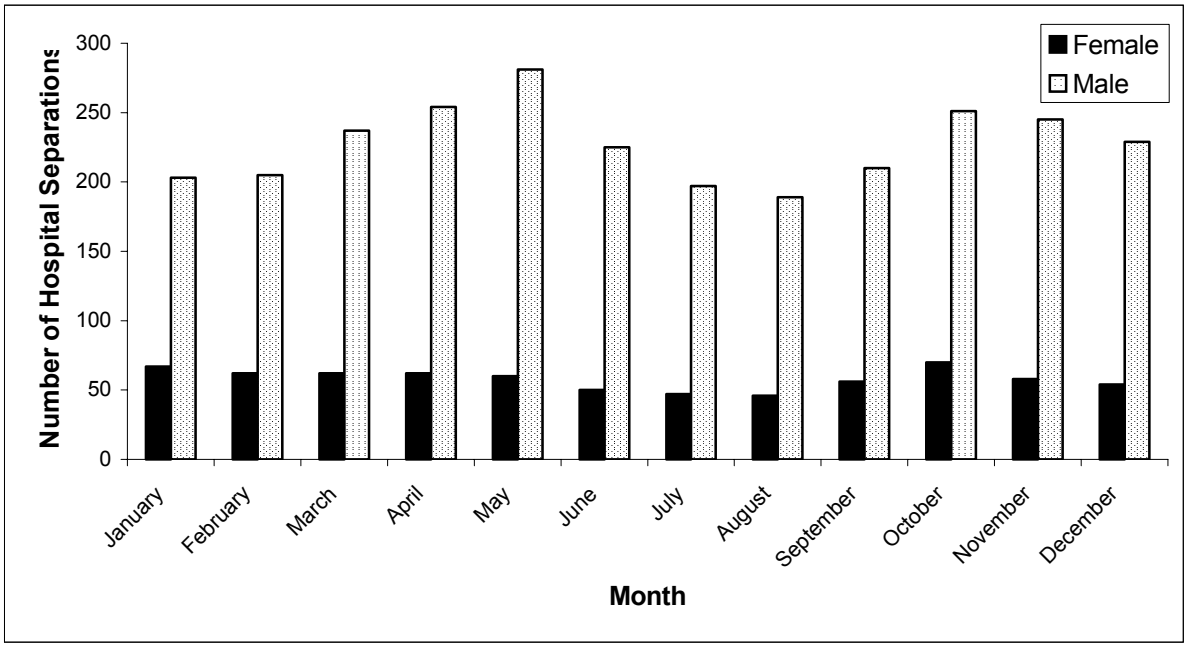
The number of injuries by day for males slowly decreased as the week moves from Monday to Sunday. However, for females the number of injuries per day remains relatively consistent. The number of injuries for children remained constant through the weekdays and rose during the weekends (Figure 4.2).

Figure 4.2 Day of the week by gender, for children and people injured on farms in Western Australia, who were discharged from hospital between 1 July 1991 and 30 June 1999.



The number of injuries of males on Western Australian farms slowly increases from January to May, then decreased in August and increased in October and remaining stable for the rest of the year. For females there was a consistent number of injuries throughout the year (Figure 4.3).

Figure 4.3 Month of hospital admission by gender for people injured on farms in Western Australia, who were discharged from hospital between 1 July 1991 and 30 June 1999.



Of the injuries that occurred on farms and were admitted to Western Australian hospitals between 1 July 1991 and 30 June 1999, half (1,700, 49.7%) spent one or less than one day in the hospital, just over one quarter (945, 274.6%) spent between 2 and 4 days in hospital. The average length of stay was four and a half days and the range was one to 685 days (Table 4.4)

Table 4.4 Number of days in hospital for people injured on farms in Western Australia, who were discharged from hospital between 1 July 1991 and 30 June 1999.

Number of Days in Hospital	Number of Hospital Separations	%
1	1700	49.7
2-4	945	27.6
5-9	447	13.1
10-20	211	6.2
21+	117	3.4
Total	**3420**	**100.0**

The average length of stay and maximum length is displayed for E-code groups in Table 4.5. The E-code grouping with the largest average length of stay was E891-899 fire and flames, followed by E922 firearms. The longest hospital stay was for an injury in the other category, other injuries that required a long stay included injury by other animal and injury by fire and flames.

Table 4.5 E-code groups by average length and maximum length of stay for people injured on farms in Western Australia, who were discharged from hospital between 1 July 1991 and 30 June 1999.

E-Code	Description	Number of Injuries	Average Length of Stay (Days)	Maximum length of stay (Days)
E820-829	Motor Vehicle Non Traffic Accident & Other Road Vehicle Accidents			
	Motorcycles	353	3.7	88
	Other Vehicles	249	4.0	61
	Animal Ridden	234	3.2	49
E862	Poisoning by Petroleum Products	1	1.0	1
E863	Poisoning by Agricultural Chemicals	41	1.8	7
E864	Poisoning by Corrosive & Caustics	-	-	-
E866-869	Poisoning by Other Solids, Gases & Liquids	8	1.5	5
E891-899*	Fire and Flames	72	9.2	153
E905	Venomous Animal Plants	70	2.1	26
E906.0	Dog Bite	11	1.3	3
E906.8	Injury by Other Animal	268	4.8	186
E919.0	Agricultural Machinery	439	4.0	90
E919.1-.9	Other Machinery	81	3.3	40
E920	Cutting and Piercing	183	2.8	45
E922	Firearms	16	5.8	21
	Subtotal			
E810-819	Motor Vehicle Accidents	132	4.8	72
E850-865**	Poisoning	9	3.8	14
E880-E888	Falls	376	5.5	95
E900-909[#]	Natural & Environmental Factors	61	1.5	7
E910	Drowning	6	1.2	2
	Other E-codes [##]	810	5.9	685
	Group Total	**3420**	**4.5**	**685**

** Excluding E893.0, E895 and E898.0 (If included are in Other E-codes). **Excluding E863, E863, E864.*
[#] Excluding E905, E906.0 & E906.8. [##] Includes all E-codes not represented elsewhere.

For people who were admitted to Western Australian hospitals due to a farm injury between 1 July 1991 and 30 June 1999, the majority were referred from Emergency Departments (2001, 58.5%). Other major sources of referral include private medical practice (542, 15.8%), outpatient departments (406, 11.9%) and inter-hospital transfers (136, 4.0%) (Table 4.6)

Table 4.6 Source of referral for people injured on farms in Western Australia, who were discharged from hospital between 1 July 1991 and 30 June 1999.

Source of Referral	Frequency	Percent
Community Health Service	36	1.1
Emergency	2001	58.5
Inter-Hospital Transfer	136	4.0
Nursing Home	3	.1
Other/Unknown	47	1.4
Outpatient Department	406	11.9
Private Medical Practice	542	15.8
Statistical Admission/Type Change	2	.1
Waiting List	70	2.0
Unknown	177	5.2
Total	**3420**	**100.0**

For people who sustained a farm injury and were hospitalised in Western Australia between 1 July 1991 and 30 June, the majority presented to Rural District Hospitals (1647, 48.2%), followed by Rural Regional Hospitals (749, 21.9%) and Metro Public Hospitals (687, 20.1%) (Table 4.7).

Table 4.7 E-code groups by gender for people injured on farms in Western Australia, who were discharged from hospital between 1 July 1991 and 30 June 1999.

E-Code	Description	Metro Private	Metro Public	Rural District	Rural Private	Rural Regional	Total	%
E820-829	Motor Vehicle Non Traffic Accident & Other Road Vehicle Accidents							
	Motorcycles	13	65	159	9	107	353	10.3
	Other Vehicles	11	47	129	5	57	249	7.3
	Animal Ridden	4	23	136	6	65	234	6.8
E862	Poisoning by Petroleum Products			1			1	0.0
E863	Poisoning by Agricultural Chemicals		4	24	1	12	41	1.2
E864	Poisoning by Corrosive & Caustics							0.0
E866-869	Poisoning by Other Solids, Gases & Liquids		1	6		1	8	0.2
E891-899*	Fire and Flames		18	45		9	72	2.1
E905	Venomous Animal Plants	1	11	42	2	14	70	2.0
E906.0	Dog Bite	1	5	1		4	11	0.3
E906.8	Injury by Other Animal	15	30	139	22	62	268	7.8
E919.0	Agricultural Machinery	24	150	176	19	70	439	12.8
E919.1-.9	Other Machinery	9	14	29	6	23	81	2.4
E920	Cutting and Piercing	18	28	88	3	46	183	5.4
E922	Firearms	2	3	5		6	16	0.5
	Subtotal	98	399	980	73	476	2026	59.2
E810-819	Motor Vehicle Accidents	5	39	55	1	32	132	3.9
E850-865**	Poisoning			5		4	9	0.3
E880-E888	Falls	28	64	176	16	92	376	11.0
E900-909[#]	Natural & Environmental Factors	2	8	39		12	61	1.8
E910	Drowning		1			5	6	0.2
	Other E-codes [##]	97	176	392	17	128	810	23.7
	Group Total	**230**	**687**	**1647**	**107**	**749**	**3420**	**100.0**

** Excluding E893.0, E895 and E898.0 (If included are in Other E-codes). **Excluding E863, E863, E864.*
[#] Excluding E905, E906.0 & E906.8. [##] Includes all E-codes not represented elsewhere.

The major mode of separations from hospital for people who sustained a farm injury in Western Australia between 1 July 1991 and 30 June 1999, were other/home (2924, 85.5%) and other acute hospital (462, 13.5%) (Table 4.8).

Table 4.8 Mode of Separation for people injured on farms in Western Australia, who were discharged from hospital between 1 July 1991 and 30 June 1999.

Mode of Separation	Frequency	%
Against Medical Advice/at own risk	14	.4
Deceased	13	.4
Other Acute Hospital	462	13.5
Other Health Care Accommodation	3	.1
Other/Home	2924	85.5
Statistical Discharge	1	.0
Statistical Discharge from Leave	1	.0
To a Nursing Home	2	.1
Total	**3420**	**100.0**

Summary

- There were a total of 3,420 people admitted to Western Australian hospitals between 1 July 1991 and 30 June 1999, who had an injury where the location where the injury occurred was identified as farm. This was on average 427 hospitalisations per annum.
- Of people injured on farms and admitted to hospital 80% were males.
- The most common external cause of injuries on Western Australian farms where the person was admitted to hospital was farm machinery.
- Children represented 12% of all farm injuries in Western Australia. Motorcycles, other vehicles and falls were the three most common external causes of injury for children.
- The age group with the most number of injuries for both males and females was the 20-24 years age group.
- The number of injuries by day decreased from Monday to Sunday for males and remained constant for females and children during the weekdays but rose rising on weekends for children.
- The number of injuries for each month for males' peaked in May, with a minor peak in October. For females the frequency of injuries for each month is consistent throughout the year.
- Half of all hospital admission spent one or less days in hospital.
- The E-code grouping with the largest average length of stay was E891-899 fire and flames.
- Of all hospital admissions for farm injuries in Western Australia 58.5% are referred from the Emergency Department.
- Of all farm related injuries that are hospitalised 48.2% are at Rural District Hospitals in Western Australia.
- Of all farm injury hospitalisations in Western Australia 85.5% are sent home from the hospital following medical treatment.

Recommendations

1. Farm injury prevention programs in Western Australia should concentrate on farm machinery safety, motorcycle safety, safe horse riding/handling, safe animal handling and child safety on farms.
2. Further work needs to be undertaken to examine the circumstances surrounding falls on farms.
3. Regular collection of hospital information should be obtained and reported each year to Farmsafe Western Australia, Farmsafe Australia and The National Farm Injury Data Centre.
4. Rural Medical Programs should include information about farm injuries, especially for General Practitioners and nurses who are going to work or who are working in rural district hospitals. The information should be aimed at improving skills and information about how to prevent the injuries.

Section 5. Other health issues

Pesticide and Human Health

Pesticides are defined as substances used to destroy, prevent, control, attract or repel pests or to regulate plant growth. They include insecticides, herbicides, fungicides, bactericides, plant growth regulators, defoliants, rodenticides and biological control agents.

Pesticides, by definition, exert adverse effects on living organisms, including humans.

The properties that determine the nature and degree of toxicity include:

- Chemical properties
- Physical properties
- Interaction with other chemicals
- Environmental transformation
- Specificity of the pesticide

Pesticides are usually grouped according to purpose and chemical characteristics.

The dose-response relationship is a fundamental principle in toxicology. It is the relationship between the degree of response of a biological system and the amount of a substance received by the system, and implies that a change in the dose results in a concurrent change in the response of the organism.

The **LD_{50}** (lethal dose 50) is the dose at which half the given test population (mostly rodents) would be killed.

LD_{50} data are used to provide a comparison of relative acute toxicities of pesticides.

The **NOEL** (no-observable-effect-level) is the exposure level at which no adverse health effects occur, and is often used to establish acceptable contaminant or exposure levels of substances in the environment. These levels are determined by applying a safety factor to account for possible differences between test animals and humans, and to provide protection for sensitive human subgroups.

This relationship is used extensively to quantify the toxicity of substances and to determine the **ADI** (Acceptable Daily Intake) and the **MRL** (Maximum Residue Level).

Toxic effects of pesticides may be:

- Acute effects, having a rapid onset and relatively rapid recovery. These include skin and respiratory tract irritation, gastrointestinal effects, neurological symptoms and death.
- Chronic and delayed effects may occur after a lapse of time or following multiple exposures. They may include:

Behavioural changes
Peripheral neuropathy
Cancer
Reproductive effects

- Subclinical effects which may not be revealed as signs or symptoms, but may be detected by biological tests - eg cholinesterase inhibition due to chronic exposure to organophosphate exposure. Other effects may only be defined by behavioural and psychomotor testing.

Health effects that may not be so clearly dose-related are those where allergic type responses cause symptoms. In some cases symptoms become so severe that workers must avoid handling particular products.

Routes of human exposure are:

- Dermal - the common route associated with work related toxicity
- Inhalation - where pesticides are applied as mists, sprays or gases, and especially important in confined spaces
- Ingestion - through either contamination of hands, food, drinking water and more commonly, through accidental or intentional poisoning.

Exposure to the odours associated with pesticides application may be a significant problem to some hypersensitive people. Some pesticides release a range of volatile mercaptans with strong and sometimes offensive odours.

While all those who handle pesticides are at risk of exposure, Western Australian agricultural industries that have been identified as exposing significant numbers of workers or others in the community to risk of pesticide exposure include (Faulkner, 1993):

Tree fruit production – insecticides, fungicides, herbicides
Viticulture – insecticides, fungicides, herbicides
Vegetable production - insecticides
Sheep – insecticides in ectoparasite control
Greenhouse crop production – fungicides, insecticides

In addition to these industries, operators in the broadacre cropping industries are using herbicides in increasing amounts as part of the conservation farming process.

The people at risk of exposure, in general decreasing order of degree of risk, include:

- Mixers, loaders and handlers of concentrated forms of pesticides
- Pesticide applicators
- In-field markers, for directing application (less commonly used)
- Workers who enter sprayed crops - eg bug checkers, cotton chippers
- Family of workers who handle pesticides - by pesticides residues on surfaces and clothes
- Families whose homes are adjacent to paddocks or crops being sprayed - by pesticides residues on outdoor surfaces, and spray drift
- Other bystanders who may be exposed by spray drift
- Communities may be exposed by occasional spray drift or drift of odours.
- Consumers of agricultural products may be exposed to pesticide residues in food or fibre.

The risk level of any pesticide will depend on the pesticide's toxicity, the concentration of the chemical, the duration of exposure and the route of entry or absorption into the body. The human toxicity of a chemical is generally extrapolated from test animal experiments and can be expressed dermally or orally. Toxicity tests evaluate the following health effects:

1. Acute effects - the immediate effects of single, short term exposure
2. Chronic effects - multiple or long-term exposure effects
3. Reproductive effects - potential impairment of reproductive function
4. Teratogenic effects - effects on foetal development
5. Mutagenic effects - structural or functional impairment to genetic material
6. Carcinogenic effects - potential to cause tumours and cancer

Acute Poisoning from Pesticides Exposure in Western Australia

During the period 1 July 1994 til 30 June 2000, there were over 107 workers' compensation claims due to chemical substances in Western Australia. The majority of the claims were in the horticulture and fruit growing industries and the grain, sheep and beef cattle farming industries (Table 5.1). There were also 41 cases where a person required hospitalisation in a Western Australian hospital due to poisoning by an agricultural chemical between 1 July 1991 and 30 June 1999. Of these hospitalisations, 31 (75.6%) were of females; five (12.2%) were of children aged less than 15 years, with the average length of stay being 1.8 days.

Table 5.1 Western Australian Workers' Compensation Claims, chemical substances, 1994/95 – 1999/00

Industry	9495	9596	9697	9798	9899	9900
Horticulture and Fruit Growing	10	14	11	14	9	14
Grain, Sheep and Beef Cattle Farming	6	6	9	*	7	*
Dairy Cattle Farming	*	-	-	-	-	-
Poultry Farming	-	*	-	-	*	*
Other Livestock Farming	-	-	*	*	*	*
Other Crop Farming	*	*	*	-	-	-
Services to Agriculture	*	*	*	7	*	*

* Indicates a number less than or equal to three

A more comprehensive discussion of the health issues for pesticides and human health in Australia is found in Fragar and Franklin (2000).

Summary

- Workers in most agricultural industries in Western Australia are potentially exposed to pesticides in the process of mixing, handling, storing and cleaning down pesticides.
- There were over 107 workers who made a workers' compensation claim due to a chemical exposure between 1 July 1994 and 30 June 2000.
- There were 41 people admitted to hospital due to poisoning from an agricultural chemical in Western Australia between 1 July 1991 and 30 June 1999.

Recommendations

1. It is recommended that increased attention be given to defining the nature and extent of pesticide exposure to agricultural operators in Western Australia
2. Priority attention should be given to:
    - Workers in vineyards
    - Workers in tree crop industries
    - Workers in the grain produce industries
    - Sheep industry workers during sheep jetting and dipping
    - Workers in vegetable crop industries
    - Greenhouse workers

Organic Dusts and Respiratory Disease

In the years 1988 to 1997, there were 3,227 deaths to people working in agricultural industries as identified by the ABS. It should be noted that this is an under estimation of the number of deaths, as the occupation coding changed after 1989 and only those people whose usual area of residence was not capital city or other metropolitan areas, are included (Table 5.2).

Table 5.2 Occupation of rural workers for deaths from diseases of the respiratory system whose usual area of residence was not capital city or metropolitan, Western Australia, 1988-1997

Occupation	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Total
Farmers & Graziers, farm managers	30	21									51
Shearers	4	1									5
Farmers and Farm Managers		16	242	249	315	274	290	306	278	285	2255
Farmers and Farm Managers - Retired		6	63	58	34	29	18	26	62	137	433
Agricultural labourers & related workers		3	47	46	47	49	63	48	58	48	409
Agricultural labourers & related workers - Retired		2	13	11	3	4	5	2	24	10	74
Total	**34**	**49**	**365**	**364**	**399**	**356**	**376**	**382**	**422**	**480**	**3227**

Of the 3,227 deaths to farmers and farm workers from diseases of the respiratory system in Western Australia between 1988 and 1997, the most common groupings were chronic airway obstruction NEC (1,511; 46.8%), pneumonia (573; 17.8%) and bronchitis, emphysema (514; 15.9%).

Table 5.3 Type of deaths from diseases of the respiratory system whose usual area of residence was not capital city or metropolitan, Western Australia, 1988-1997

Respiratory Disease ICD9 460-466	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Total
Acute Respiratory Infections (460-466)			1	1			1	3	2	1	9
Pneumonia (480-486)	5	4	53	64	62	51	65	60	58	151	573
Influenza (487)			1	3	6	6	4	6	9	7	42
Bronchitis, Emphysema (490-492)	9	6	76	66	57	70	61	64	55	50	514
Asthma (493)	10	7	26	21	28	17	24	20	25	30	208
Bronchiectasis, Extrinsic allergic alveolitis (494-495)	1		5	7	4	5		3	6	4	35
Chronic airway obstruction, NEC (496)	7	27	163	170	204	171	179	180	221	189	1511
Other Disease Respiratory System	2	5	40	32	38	36	42	46	46	48	335
Total	**34**	**49**	**365**	**364**	**399**	**356**	**376**	**382**	**422**	**480**	**3227**

Exposure to dusts associated with agricultural production can cause both short and long term respiratory problems.

The following agricultural processes undertaken in Western Australia are associated with respiratory problems caused by agricultural dusts:

- Grain harvesting, storage, crushing and handling;
- Hay and silage handling; and
- Animal handling in confined spaces - piggeries, poultry, dairies.

Dusts, which are associated with respiratory problems, include:

- Particles of hair;
- Feathers;
- Dander;
- Pollens;
- Grains dust;
- Bacteria; and
- Fungi spores.

These dusts originate in the soil, animals and their breakdown products, animal feeds, plant materials and fungi, insects and decaying stored plant material.

Other substances on farms, including fumes and gases, can also cause respiratory problems.

Grain Dusts

Grain dusts are generated during sowing, harvesting, storing and handling of grains in Western Australia. Dusts from grain consist of a complex mixture of organic and inorganic particles from sources as diverse as leaves, soil and insect parts. The mixture varies with the type of grain, where it is grown, growing conditions and methods of harvest, storage and processing.

Most grain dust particles are biologically active vegetable dusts and significant amounts can be breathed into the lungs. Dusts of certain grains such as durum wheat and barley are reported to be more irritating than others. Adverse health effects also increase as moisture content and spoilage increase.

Most particles are from fruits of grasses such as wheat, legumes (such as soybeans), or oil seeds (such as rape seed). Bits of leaves and stems may also be present. There are many non-plant contaminants. Animal material (bits of insects, rodents, or birds or their excreta), mites, chemical residues (pesticides used to grow or later treat the grain), and inorganic matter (soil including silica particles) all may be intermixed in small quantities. A variety of fungi and bacteria, their spores and their by-products also pose a respiratory hazard. Species of micro-organisms vary with regional climate and change from harvest through storage. Many of the components of grain dust are capable of affecting the respiratory tract individually, together, they produce a wide variety of biological effects.

Anyone involved in production, storage, transportation, or processing of grain can suffer the effects of regular inhalation of grain dusts. Exposure starts with farmers and farm workers, who grow, harvest, sometimes store, and then transport grain to local storage facilities. These farmers are exposed to grain dust on occasion. Exposure extends far beyond the farm to workers in feed mills, grain elevators and grain transportation industries. These workers, who are routinely exposed to grain dust, suffer from respiratory responses more commonly and more severely than do farmers. Exposure to grain can occur at any stage of the production process. Clouds of grain dusts are most evident whenever grain is moved, and especially heavy exposures can occur among any grain handlers during dumping and loading grain.

As with grain dusts, hay dusts and other organic dusts are a complex mixture of plant, fungi, bacteria and insect material.

Mouldy or spoiled hay and silage are known to increase the risk of all the different types of respiratory responses, including hypersensitivity pneumonitis.

Silos

The atmosphere in confined spaces on farms such as grain silos can be dangerous. Ventilated silos allow enough airflow through to prevent build up of toxic gases. Even after fumigating, toxic concentrations are generally reduced to a safe level after a week.

However, grain dusts in silos can result in all the conditions associated with grain dusts mentioned above. In particular, persons whose asthma is triggered by grain dusts have a high risk of suffering an attack in an enclosed silo. A number of life threatening asthma attacks have been associated with entry to grain silos.

Fully sealed silos present quite a different situation and are becoming more common because they allow efficient fumigation for the destruction of insects. These silos not only retain toxic concentrations of fumigants longer, but may also allow a build up of carbon dioxide generated by the natural respiration of grain.

In a silo with a dusty atmosphere for example, one being filled from a feed mill, the atmosphere might become explosive, particularly if the humidity is low. A spark from metal striking metal, an electric switch or a match could cause a dust explosion.

Less common in Australia are silage silos that can contain a highly toxic gas, nitrogen dioxide. If sludges are present in old, disused silos, flammable methane might also be present.

Farm workers who smoke cigarettes are at an increased risk of respiratory disease. Those people who work with organic material, which is damp and subsequently contaminated by fungi, are at increased risk of respiratory disease.

In medical terms, respiratory responses to exposure to organic dusts are:

1. Airway inflammatory response to organic dust exposure
- Rhinitis (inflammation of the lining of the nose);
- Pharyngitis, laryngitis (inflammation of the throat);
- Tracheitis, bronchitis (inflammation of the upper airways);
- Asthma/ hyperactive airways;
- Bronchiolitis (inflammation of the lower airways); and
- Toxic organic dust syndrome (TODS).

2. Airway immunological responses to organic dust exposures
- Allergic rhinitis (runny nose and eyes, itchy eyes, nose and throat); and
- Extrinsic asthma (asthma triggered by the environment).

3. Interstitial (tissue) immunological responses to certain fungi (moulds) and bacteria
- Hypersensitivity pneumonitis (extrinsic allergic alveolitis; Farmer's Lung).

In Western Australia, the dust-induced asthma assumes a higher relative importance, although there is probably a widespread lack of recognition of other conditions such as toxic organic dust syndrome (TODS) and hypersensitivity pneumonitis.

Asthma is a problem to many farmers because:

- Many farmers have asthma which is triggered by farm dusts (organic dusts) and pollens - grain dusts, especially wheat dust, hay, grasses and many other farm dusts;
- Many farmers with severe asthma caused by farm dusts may not wish, or be able, to leave the industry;
- Farm families are usually a long distance from medical help when a severe asthma attack occurs;
- There is no one easy way of reducing exposure to organic dusts. Face masks may be of limited use; and
- Some farmers may have a cough or chest tightness and may not be aware they have asthma.

Summary

- Respiratory disease associated with organic dusts in agriculture is probably under reported in death data in Western Australia, given the importance of grain production and grain handling in the state.
- There were 322 deaths per annum in Western Australia to farmers, farm managers and farm workers due to respiratory disease. This does not take into account deaths of grain handlers at grain handling and transport facilities in rural Western Australia, and at ports. Females who may have contracted a farm-related respiratory disease are also under-reported in the data. These are not directly work related deaths.

Recommendations

1. It is recommended that farm health and safety promotions and education programs address the issues of respiratory disease due to farm dusts. Target groups should include rural doctors and farm workers, particularly those handling grain, hay and silage.

Hearing

Farmers work in an environment where there is significant noise on a continuing basis. Table 5.4 displays the typical noise levels at operating distance and the maximum exposure time before damage occurs. Noise injury includes noise induced hearing loss and tinnitus (ringing or noises in the ears). The true incidence of noise injury is not reflected in compensation claims made through various state compensation bodies. Unfortunately in Western Australia, there is no way of knowing the true extent of noise injury in the farming population.

Table 5.4 Noise levels dB (A) at operating distance and maximum exposure time before damage occurs

Typical noise levels	dB (A) at operating distances	Maximum exposure time before damage occurs
Quite countryside	30-35	No limit
Conversation	60-70	No limit
Tractor - Idling	75-80	No limit
Working (with cab) (no radio)	75-85	No limit
Chainsaw – Idling	80-90	8 hours
Header	85-95	2.5 hours
Grain Auger	85-95	2.5 hours
Angle Grinder	85-95	2.5 hours
Motorcycle	85-95	2.5 hours
Tractor – Working (no cab)	95-100	2 hours
Pig Shed at Feeding Time	95-105	48 minutes
Chainsaw – Cutting	105-120	30 seconds
Shotgun	140+	Instantaneous

Farmsafe Australia has identified hearing conservation on farms as a high priority and has set a goal of reducing the number of young people on farms (aged 15-24 years) with noise induced hearing loss by 15% (Fragar, 1996).

Further information about hearing loss in farmers can be found in the report by Fragar and Franklin (2000). NSW has run a program of hearing screening at field days since the late 1980's, information about this program can be obtained from the Australian Centre for Agricultural Health and Safety (see front of report for contact details).

Recommendations

1. Data collected in association with hearing screening / testing services should be collated and made available to Farmsafe Western Australia and the National Farm Injury Data Centre, so that baseline measures can be set and state programs developed.
2. Farmsafe Western Australia should examine the hearing conservation program in NSW, to determine whether it could be adopted in Western Australia.

Zoonosis

There are four major zoonotic diseases that farmers, farm workers and farm families are at risk of contracting, and information regarding these four diseases are collected in Australia through the Communicable Diseases Network Australia.

The National Notifiable Diseases Surveillance System (NNDSS) was established in 1990 under the auspices of the Communicable Diseases Network Australia New Zealand (CDNANZ). The System coordinates the national surveillance of more than 40 communicable diseases or disease groups, endorsed by the National Health and Medical Research Council (NHMRC). Under this scheme, notifications are made to the State or Territory health authority under the provisions of public health legislation in their jurisdiction. Computerised, de-identified unit records of notifications are supplied to the Network secretariat at the Commonwealth Department of Health and Aged Care for collation, analysis and publication in *CDI* (Communicable Disease – Australia, 2001).

The quality and completeness of data compiled in the NNDSS are influenced by various factors. Each State or Territory health authority determines which diseases will be notifiable within its jurisdiction, and which notifications are accepted as satisfying criteria which in some cases may differ from NHMRC cases definitions. In addition, the mechanism of notification varies between the States and Territories. Notifications may be required from treating clinicians, diagnostic laboratories, or hospitals. In some cases different diseases are notifiable by different mechanisms. The proportion of cases seen by health care providers, which are the subject of notification to health authorities, is not known with certainty for any disease, and may vary among diseases, between jurisdictions and over time (Communicable Disease – Australia, 2001).

Q Fever

Q Fever or Query Fever is caused by Coxiella burnetii, an organism with stability in nature and is highly resistant to drying. Most human infection arises from direct or indirect association with cattle, sheep and goats, but can also be contracted from bandicoots, kangaroos and wallabies. Transmission of the disease to humans can be via dust, contaminated placental tissue, birth fluids, unpasteurised milk, and excreta of infected animals. (Benenson, 1985; Parmeggiani, 1983).

People at risk from infection from Q Fever include: abattoir workers, farmers, farm families, veterinarians, meat inspectors, biological researchers working with pregnant animals, shearers and those living in the vicinity of abattoirs and feedlots.

Table 5.5 Notifications of Q Fever received by State and Territory health authorities in the period of 1991 to 2000 and year-to-date notifications for 2001 by year – month

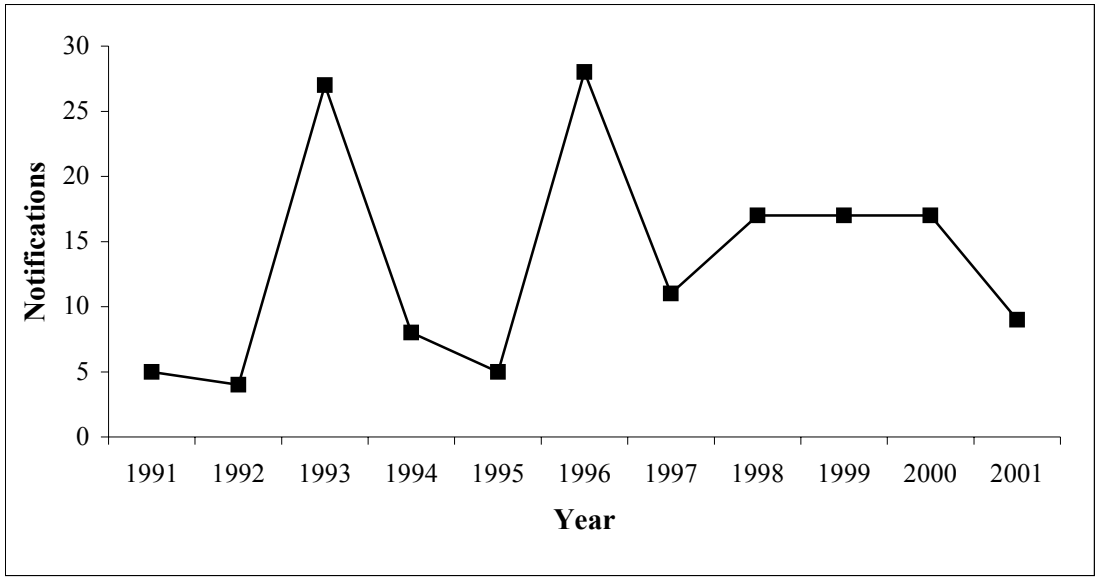
YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1991	18	95	66	47	79	38	66	53	37	37	25	34	595
1992	16	44	55	37	33	47	58	38	52	54	61	48	543
1993	50	60	82	65	90	70	87	89	81	89	63	63	889
1994	47	68	60	38	68	69	64	61	31	47	66	44	663
1995	40	34	42	21	36	45	40	57	35	39	52	32	473
1996	40	40	41	31	47	54	60	77	22	41	48	54	555
1997	60	43	36	46	65	60	61	39	39	55	47	42	593
1998	44	39	39	50	42	48	47	44	69	56	49	44	571
1999	28	33	52	31	42	101	38	32	43	62	49	35	546
2000	33	46	54	39	39	25	35	63	44	52	45	32	507
2001	48	64	52	50	68	100	4	0	0	0	0	0	386

- This Table was updated on 11 July 2001 for the reporting period to 3 July 2001.
- Please note that 2000 and 2001 data are provisional and may be revised.

Source: http://www.health.gov.au/pubhlth/cdi/nndss/year027.htm, 17/07/2001

There have been 148 cases of Q Fever in Western Australia since 1991, this represents 14 cases per annum. As of the 11 July 2001 there were nine cases in Western Australia for 2001. This represents half of Western Australia's cases based on the three previous years (Figure 5.1).

Figure 5.1 Notifications of Q Fever received by the Western Australia health authority in the period of 1991 to 2000 and year-to-date notifications for 2001



- This figure was updated on 11 July 2001 for the reporting period to 3 July 2001.
- Please note that 2000 and 2001 data are provisional and may be revised.

Source: http://www.health.gov.au/pubhlth/cdi/nndss/year027.htm, 17/07/2001

Western Australia appears to have a small number of Q Fever cases compared to New South Wales and Queensland. However, without information about the occupation of the infected person it is difficult to propose prevention strategies.

Leptospirosis

Leptospirosis is a zoonotic disease produced by numerous antigenically distinct and morphologically identical bacteria called leptospires. People can contact the disease through contaminated water, contact via the skin, eyes or nose, and from contact with urine from infected animals. Leptospirosis can be found in pigs, cattle, sheep, dogs and rats (Benenson, 1985; Parmeggiani, 1983).

People at risk from leptospirosis include; abattoir workers, dairy farmers, cattle farmers, veterinarians, piggery workers, cane farmers, rice growers, banana growers and bush walkers.

Table 5.6 Notifications of Leptospirosis received by State and Territory health authorities in the period of 1991 to 2000 and year-to-date notifications for 2001 by year – month

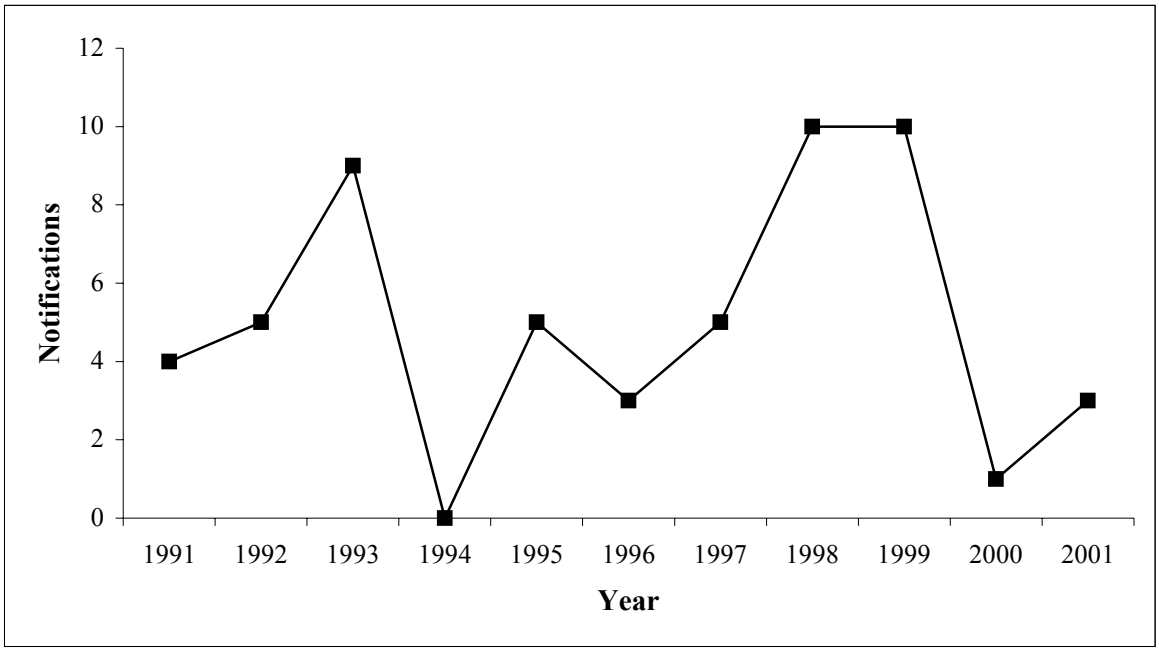
YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1991	2	22	10	11	20	9	12	8	16	23	22	14	169
1992	8	11	11	8	7	9	11	14	7	18	35	20	159
1993	21	16	15	20	8	8	14	10	13	16	27	10	178
1994	15	17	18	11	11	5	8	4	2	17	5	10	123
1995	8	17	3	9	10	6	13	18	8	19	18	19	148
1996	25	19	19	21	21	23	25	10	8	28	16	12	227
1997	14	12	4	14	11	15	8	5	9	11	12	11	126
1998	15	11	14	15	18	8	20	11	12	17	30	26	197
1999	15	28	38	62	61	34	13	17	7	13	17	17	322
2000	16	12	27	25	38	20	3	15	15	12	31	17	231
2001	15	22	39	19	33	15	3	0	0	0	0	0	146

- This Table was updated on 11 July 2001 for the reporting period to 3 July 2001.
- Please note that 2000 and 2001 data are provisional and may be revised.

Source: http://www.health.gov.au/pubhlth/cdi/nndss/year017.htm 17/07/2001

There have been 55 cases of leptospirosis in Western Australia since 1991, this represents on average five cases per annum. The numbers of cases per annum fluctuate greatly from zero to ten cases (Figure 5.2)

Figure 5.2 Notifications of Leptospirosis received by Western Australia health authority in the period of 1991 to 2000 and year-to-date notifications for 2001



- This figure was updated on 11 July 2001 for the reporting period to 3 July 2001.
- Please note that 2000 and 2001 data are provisional and may be revised.

Source: http://www.health.gov.au/pubhlth/cdi/nndss/year017.htm 17/07/2001

Western Australia appears to have a small number of leptospirosis cases compared to New South Wales, Queensland and Victoria. However, without information about the occupation of the infected person it is difficult to propose prevention strategies.

Hydatid Infection

Hydatid infection is passed to humans from handling an animal that has the disease (especially dogs) or ingestion. Infection is prevented with good personal hygiene, satisfactory disposal of carcases, meat inspection and worming dogs (Hungerfords, 1990).

Hydatid notification is no longer a nationally notifiable disease and New South Wales has not been collecting information since 1996.

Table 5.7 Notifications of Hydatid infection received by State and Territory health authorities in the period of 1991 to 2000 and year-to-date notifications for 2001 by year – month

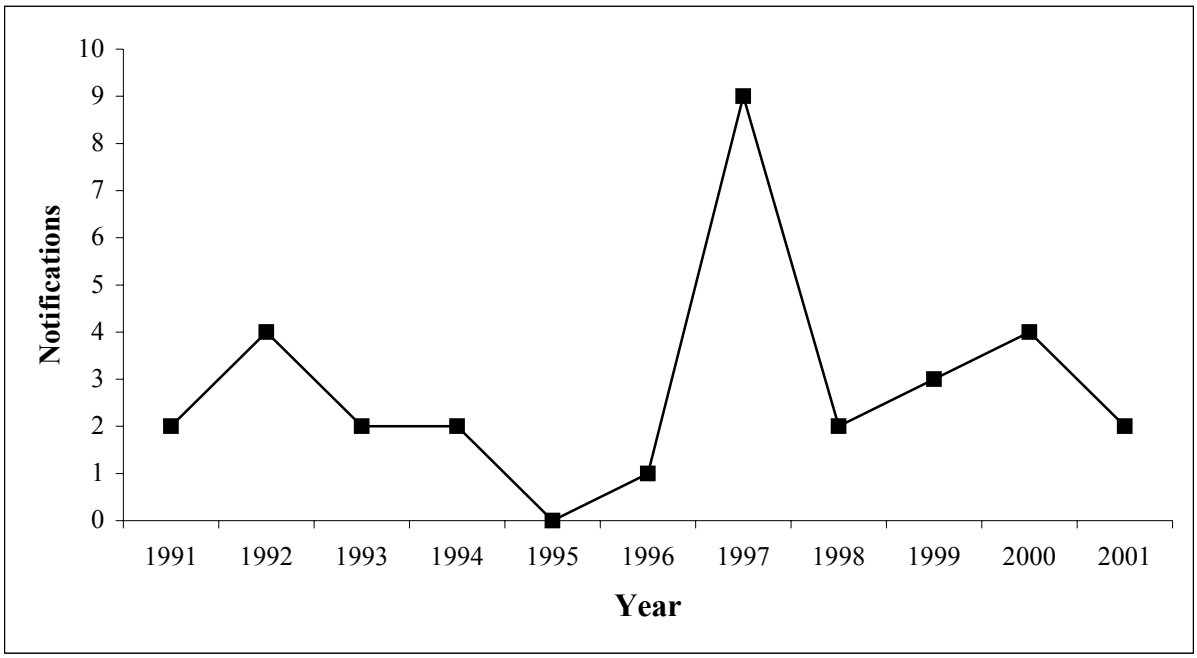
YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1991	0	8	1	2	6	7	2	1	8	2	5	2	44
1992	0	2	8	1	3	5	4	4	1	7	3	0	38
1993	2	1	6	2	2	2	1	3	2	4	5	2	32
1994	2	5	7	4	1	4	7	4	2	4	13	3	56
1995	1	3	3	1	3	6	7	1	9	2	5	5	46
1996	5	1	4	6	4	2	1	4	3	4	9	2	45
1997	2	1	3	4	6	5	3	8	11	5	7	6	61
1998	6	1	1	2	5	1	7	3	6	5	3	6	46
1999	2	1	2	3	3	4	4	2	1	2	1	4	29
2000	2	3	5	1	1	1	0	1	5	2	3	1	25
2001	0	0	3	0	2	3	0	0	0	0	0	0	8

- This Table was updated on 11 July 2001 for the reporting period to 3 July 2001.
- Please note that 2000 and 2001 data are provisional and may be revised.
- No longer notifiable in New South Wales from late 1996

Source: http://www.health.gov.au/pubhlth/cdi/nndss/year014.htm 17/07/2001

There have been 31 notifications of hydatid infection since 1991 (excluding NSW from 1996), this represents 3 cases per annum. However, the number of cases can fluctuate greatly from zero to nine (Figure 5.3).

Figure 5.3 Notifications of Hydatid infection received by Western Australia health authorities in the period of 1991 to 2000 and year-to-date notifications for 2001



This Table was updated on 11 July 2001 for the reporting period to 3 July 2001.

- Please note that 2000 and 2001 data are provisional and may be revised.
- No longer notifiable in New South Wales from late 1996

Source: http://www.health.gov.au/pubhlth/cdi/nndss/year014.htm 17/07/2001

Western Australia appears to have a small number of hydatid infection cases compared to New South Wales, Queensland and Victoria. However, without information about the occupation of the infected person it is difficult to propose prevention strategies.

Brucellosis

Brucellosis also known as Undulant fever, Malta fever, Mediterranean fever, Bang's fever and Abortus fever. Infection is spread by cattle, pigs, goats and sheep via ingestion of raw milk, contact with tissues, blood, urine, vaginal discharges, aborted foetuses and placentas, and through the respiratory tract by airborne infection (Benenson, 1985, Hungerfords, 1990).

People at risk of infection include: veterinarians, meat workers, people working in infected premises, dairy farmers, and sheep farmers.

Table 5.8 Notifications of Brucellosis received by State and Territory health authorities in the period of 1991 to 2000 and year-to-date notifications for 2001 by year – month

YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1991	0	4	3	1	1	2	2	3	4	2	3	3	28
1992	0	2	1	2	0	2	6	3	0	5	5	3	29
1993	4	1	4	1	1	2	0	2	2	2	1	0	20
1994	2	0	0	1	2	2	1	3	4	6	4	9	34
1995	7	2	0	2	3	3	1	1	3	3	2	2	29
1996	2	2	4	0	4	5	3	2	3	6	3	4	38
1997	6	3	2	2	3	0	3	2	7	3	6	4	41
1998	10	2	2	2	3	2	5	3	2	6	6	2	45
1999	1	1	1	3	1	5	1	10	10	4	10	5	52
2000	2	0	1	2	1	1	0	4	3	5	1	4	24
2001	4	2	1	0	1	1	0	0	0	0	0	0	9

- This Table was updated on 11 July 2001 for the reporting period to 3 July 2001.
- Please note that 2000 and 2001 data are provisional and may be revised.

Source: http://www.health.gov.au/pubhlth/cdi/nndss/year004.htm 17/07/2001

There has only been one case of brucellosis reported in Western Australia since 1991 and no cases reported since 1997.

Summary

- Zoonotic diseases remain a significant biological hazard for Western Australia.
- There were 148 notification of Q Fever in Western Australia since 1991.
- There were 55 notifications of leptospirosis in Western Australia since 1991.
- There were 31 notification of Hydatid infection in Western Australia since 1991.
- There was one notification of brucellosis since 1991 and no notifications since 1997.

Recommendations

- Information on occupation and industries employing the person infected by a zoonotic disease should be collected as part of the information collected by the Communicable Diseases Network.
- Zoonotic prevention programs should be maintained to protect Western Australians from infection by zoonotic diseases.

Conclusion

This report contains information about the health and safety of Western Australian farmers, farm workers and farm families. It specifically reports on deaths on farms, compensated work-related injuries, injuries on farms that required hospitalisation, pesticide exposure, deaths due to respiratory disease and notifications of zoonotic diseases. The following are the summaries from the end of each section.

Deaths

1989-1992

- There were ten farm-related fatalities per year during 1989-1992 for workers and bystanders in Western Australia
- The most common farm enterprises where the fatal incident occurred were cereal grains, sheep, cattle and pigs; meat cattle; and sheep and cereal grains.
- The most common locations of the fatal incident were dams, water reservoirs and irrigation channels; and paddocks under crop.
- Common agents involved in the fatal incident for working fatalities were aircraft and tractors. Dams were the most common agent of the fatal incident for bystanders.
- Common mechanisms of the fatal incident for workers were vehicle accidents and being hit by moving objects. The most common mechanisms of the fatal incident for bystanders was drowning.
- The most common activities undertaken by workers at the time of the fatal incident were transport for work purposes; working with animals; and monitoring, observing or inspecting. Bystanders were commonly involved in recreation or playing activities.

1994-1999

- There were nine and half farm-related fatalities per year during 1994 to 1999 for workers and bystanders in Western Australia.
- There were twelve fatalities to child less than five years of age.
- The most common farm enterprises where the fatal incident occurred were sheep; and cereal grains, sheep, cattle and pigs.
- The most common locations of the fatal incident were paddock clear for grazing, dams / water reservoir / irrigation channel, and roads and lanes.
- Common agents involved in the fatal incident for working fatalities were aircrafts, tractors, and trees being felled. Dams and aircraft were common agents of the fatal incident for bystanders. Aircrafts were common agents of the fatal incident for other farm-related fatalities.
- Common mechanisms for people working at the time of the fatal incident were hit by moving objects. The most common mechanism of the fatal incident for bystanders and other farm related fatalities was hitting object with part of the body.
- The most common activity undertaken by workers at the time of the fatal incident was working for income. Bystanders and other farm related fatalities were commonly involved in leisure activities.
- The most common nature of injury for people working at the time of the fatal incident was crushing injury. For bystanders the most common nature of injuries were asphyxiation or respiratory difficulty and crushing injury.

- Half of farm-related fatalities in Western Australia were of resident of the farm.

Workers' Compensation

- There were over 6,200 workers' compensation claims between 1 July 1994 and 30 June 1999. This resulted in over $62 million dollars of compensation and over 306,000 days off work.

Horticulture and Fruit Growing

- There are on average 238 injuries resulting in a workers' compensation claim in the horticulture and fruit growing industries of Western Australia per year. The average cost per claim was $10,780 and the average number of days lost per claim was 51 days.
- The most common agency group of injury for horticulture and fruit growing industries was non-powered hand tool.
- The most common mechanism of injury for horticulture and fruit growing industries was body stressing.
- The most common nature of injury for horticulture and fruit growing industries was sprain/strain.

Grain, Sheep and Beef Cattle Farming

- There are on average 502 injuries resulting in a workers' compensation claim in the grain, sheep and beef cattle industries of Western Australia per year. The average cost per claim was $10,810 and the average number of days lost per claim was 51 days.
- The most common agency group of injury for grain, sheep and beef cattle industries was mobile plant and transport.
- The most common mechanism of injury for grain, sheep and beef cattle industries was being hit by moving objects.
- The most common nature of injury for grain, sheep and beef cattle industries was sprain/strain.

Dairy Cattle Farming

- There are on average 32 injuries resulting in a workers' compensation claim in the dairy cattle farming industry of Western Australia per year. The average cost per claim was $6,835 and the average number of days lost per claim was 39 days.
- The most common agency group of injury for dairy cattle farming industry was animal, human biological.
- The most common mechanism of injury for dairy cattle farming industry was being hit by moving objects.
- The most common nature of injury for dairy cattle farming industry was sprain/strain.

Poultry Farming

- There are on average 37 injuries resulting in a workers' compensation claim in the poultry farming industry of Western Australia per year. The average cost per claim was $9,032 and the average number of days lost per claim was 60 days.
- The most common agency group of injury for poultry farming industry was non-powered hand tools, appliances and equipment.
- The most common mechanism of injury for poultry farming industry was body stressing.
- The most common nature of injury for poultry farming industry was sprain/strain.

Other Livestock Farming

- There are on average 64 injuries resulting in a workers' compensation claim in other livestock farming industries of Western Australia per year. The average cost per claim was $3,605 and the average number of days lost per claim was 48 days.
- The most common agency group of injury for other livestock farming industries was animal, human biological.
- The most common mechanism of injury for other livestock farming industries was being hit by moving objects.
- The most common nature of injury for other livestock farming industries was sprain/strain.

Other Crop Farming

- There are on average 31 injuries resulting in a workers' compensation claim in the other crop farming industries of Western Australia per year. The average cost per claim was $4,138 and the average number of days lost per claim was 46 days.
- The most common agency group of injury for other crop farming industries was environmental.
- The most common mechanism of injury for other crop farming industries was body stressing.
- The most common nature of injury for other crop farming industries was sprain/strain.

Services to Agriculture

- There are on average 309 injuries resulting in a workers' compensation claim in the services to agriculture industries of Western Australia per year. The average cost per claim was $8,387 and the average number of days lost per claim was 44 days.
- The most common agency group of injury for services to agriculture industries was machinery.
- The most common mechanism of injury for services to agriculture industries was body stressing.
- The most common nature of injury for services to agriculture industries was sprain/strain.

Hospital

- There were a total of 3,420 people admitted to Western Australian Hospitals between 1 July 1991 and 30 June 1999 who had an injury where the location was identified as farm. This was on average 427 hospitalisations per annum.
- 80% of people injured on farm and admitted to hospital were males.
- The most common external cause of injuries on Western Australian Farms who were admitted to hospital was farm machinery.
- Children represented 12% of all farm injuries in Western Australia. Motorcycles, other vehicles and falls were the three most common external causes for children.
- The age group with the most number of injuries for both males and females was the 20-24 years age group.
- The number of injuries by day decrease from Monday to Sunday for males remains constant for females and remains constant during the weekdays and rising on weekends for children.
- The number of injuries for each month for males' peaks in May, with a minor peak in October, for females it is consistent throughout the year.
- Half of all hospital admission spent 1 or less days in hospital.

- The E-code grouping the largest average length of stay was E891-899 fire and flames.
- 58.5% of all hospital admissions for farm injuries in Western Australia are referred from the Emergency Department.
- 48.2% of all farm related injuries that are hospitalised are at Rural District Hospital in Western Australia.
- 85.5% of all farm injury hospitalisations in Western Australia are sent home from the hospital.

Pesticides

- Workers in most agricultural industries in Western Australia are potentially exposed to pesticides in the process of mixing, handling, storing and cleaning down pesticides.
- There were over 107 workers who made a workers' compensation claim due to a chemical exposure between 1 July 1994 and 30 June 2000.
- There were 41 people admitted to hospital due to poisoning from an agricultural chemical in Western Australia between 1 July 1991 and 30 June 1999.

Organic Dusts and Respiratory Disease

- Respiratory disease associated with organic dusts in agriculture is probably under reported in Western Australia, given the importance of grain production and grain handling in the state.
- There were 322 deaths per annum in Western Australia to farmers, farm managers and farm workers due to respiratory disease. This does not take into account deaths of grain handlers at grain handling and transport facilities in rural Western Australia, and at ports. Females are also under-reported.

Zoonotic Diseases

- Zoonotic disease remains a significant biological hazard for Western Australia.
- There were 148 notification of Q Fever in Western Australia since 1991.
- There were 55 notifications of leptospirosis in Western Australia since 1991.
- There were 31 notification of Hydatid infection in Western Australia since 1991.
- There was one notification of brucellosis since 1991 and no notification since 1997.

Recommendations

The following recommendations have been taken from the end of each section and broken into two categories, recommendations regarding farm injury/illness data collection, surveillance and management and recommendations regarding farm injury prevention programs.

Recommendations Regarding Farm Injury/Illness Data Collection and Management

1. Regular reporting of farm-related deaths to Farmsafe Western Australia
2. The development of a mechanism for Western Australia to contribute to the National Tractor Death Register and the National Child Deaths on Farm Register should be established.
3. Further investigation of the workers' compensation information needs to be undertaken to find out the agents and mechanism involved in causing injuries that result in a workers' compensation claim.
4. Workers' compensation information should be made available on a yearly basis in an electronic format to allow annual agricultural statistics to be published, in a form that allows for adjustment to data as claims are finalised.
5. Further work needs to be undertaken to examine the circumstances surrounding falls on farms.
6. Regular collection of hospital information should be obtained and reported each year to Farmsafe Western Australia, Farmsafe Australia and The National Farm Injury Data Centre.
7. Rural Medical Programs should include information about farm injuries, especially for General Practitioners and nurses who are going to work or are working in rural district hospitals. The information should be aimed at improving skills and information about how to prevent the injuries.
8. It is recommended that increased attention be given to defining the nature and extent of pesticide exposure to agricultural operators in Western Australia
9. Data collected in association with hearing screening / testing services should be collated and made available to Farmsafe Western Australia and the National Farm Injury Data Centre, so that baseline measures can be set and state programs developed.
10. Information on occupation and industry of the person infected by a zoonotic disease needs to be collected as part of the information collected by the Communicable Diseases Network.

Recommendations Regarding Farm Injury Prevention Programs

1. Programs aimed at preventing farm-related deaths in Western Australia should focus on:
   - Vehicles
   - Tractors
   - Trees being felled
   - Children drowning (Especially drowning in dams)
2. Farmers should be encouraged to put into place an occupational health and safety plan for their farm that includes people who visit the farm.
3. Prevention programs aimed at reducing workers' compensation claims should include:
   - Specific agricultural industries
   - Animal handling, especially sheep and cattle
   - Machinery
4. Farmers should be encouraged to undertake the Managing Farm Safety Course to manage the whole range of hazards associated with injury and illness that occur on farms.
5. Farm Injury Prevention Programs in Western Australia should include farm machinery safety, motorcycle safety, safe horse riding/handling, safe animal handling and child safety on farms.
6. Priority attention should be given to handling pesticides in the following industries
   - Workers in vineyards
   - Workers in tree crop industries
   - Sheep industry workers during sheep jetting and dipping
   - Workers in vegetable crop industries
   - Greenhouse workers
7. It is recommended that farm health and safety promotions and education programs address the issues of respiratory disease due to farm dusts. Target groups should include rural doctors and farm workers, particularly those handling grain, hay and silage.
8. As a key organization with an interest in rural health and an extensive network, the Health Department of Western Australia should take a more systematic and active role in preventive activities. This should involve collaboration with existing farmer networks, Farmsafe WA, Worksafe WA, Kidsafe, Injury Control Council of WA, researchers and the GP Division of WA.
9. Farmsafe Western Australia should examine the hearing conservation program in NSW, to determine whether it could be used in Western Australia.
10. Zoonotic programs should be maintained to protect West Australians from infection by zoonotic diseases

Glossary

AAHU	Australian Agricultural Health Unit
ABS	Australian Bureau of Statistics
ACAHS	Australian Centre for Agricultural Health and Safety
ACT	Australian Capital Territory
ADI	Advisable Daily Intake
CDNANZ	Communicable Disease Network Australian and New Zealand
Chem	Chemical
dB	Decibels
Dis	Disease
excl	Excluding
FSA	Farmsafe Australia
GP	General Practitioner
ha	hectare
incl	Including
LD_{50}	Lethal Dose 50
NEC	Not Elsewhere Classified
NOEL	No Observed Effect Level
NOHSC	National Occupational Health & Safety Commission
Other rural areas	Are the remaining SLA's in the rural zone that are not 'Large Rural Centres' (ie population resides in urban centre of population of 25,000 or more) or 'Small Rural Centres' (ie rural zones containing urban centre population of 10,000 to 24,999
MRL	Maximum Residue Level
NHMRC	National Health and Medical Research Council
NNDSS	National Notifiable Disease Surveillance System
NSW	New South Wales
NT	Northern Territory
Qld	Queensland
RIRDC	Rural Industries Research & Development Corporation
SA	South Australia
SLA	Statistical Local Area
Tas	Tasmania
Vic	Victoria
WA	Western Australia
*****	In Tables, unless otherwise stated the star indicates number less than 3, to protect individuals from identification.

References

ABS (1998) CDATA

ABS, Agstats, 1994.

ABS (2001). Labour Force (EJ) Employed – Industry – Australia – Quarterly. ABS Cat No. 6291.0.40.001. ABS: Canberra

Benenson, Abram Ed (1985). *Control of Communicable Diseases in Man.* 14th Edition. American Public Health Association: Washington

Communicable Diseases – Australia (2001). http://www.health.gov.au/pubhlth/cdi/nndss/nndss1.htm 17/01/2001.

Faulkner L (1993). *Human Health & Pesticides in Agriculture in NSW – Issues, Programs & Future Directions for Health Workers.* Australian Agricultural Health Unit: Moree.

Franklin R, Mitchell R, Driscoll T, Fragar L (2000). *Farm-Related Fatalities in Australia, 1989-1992.* ACAHS, NOHSC & RIRDC: Moree

Fragar L (1996). *Farmsafe Australia: Goals, Targets & Strategies 1996-2001*. Farmsafe Australia: Moree

Fragar LJ, Franklin RC (2000). *The health and safety of Australia's farming community*. ACAHS & RIRDC: Moree

Hungerford, TG Ed (1990). *Hungerford's Diseases of Livestock, 9th Edition.* McGraw Hill Book Company: Sydney.

Parmeggiani, Luigi Ed (1983). *Encyclopaedia of Occupational Health and Safety.* International Labour Office: Geneva

Workcover Western Australia (2001) http://www.workcover.wa.gov.au/SchemeInfo/faq.htm#Employer 24/08/01