

# A Survey of Health and Safety Practice in the Agricultural Sector of New Zealand

Joanna Cullinane and Michael Pye  
The University of Waikato

In 1992, the legislation governing occupational health and safety in New Zealand was radically altered. The nature of legislation shifted from a prescriptive, reactive model to a permissive, educative and (supposedly) proactive model. At the time when these changes were initiated, there was a degree of confidence that they would result in a general improvement in health and safety in New Zealand workplaces. However, statistical and anecdotal evidence to date has not indicated that the legislative changes have contributed to any real improvement in occupational health and safety. This paper is a report of an investigation conducted in the agricultural sector to determine the extent of knowledge, understanding and compliance with key principles of the Health and Safety in Employment Act 1992.

## Health and Safety in New Zealand

The Health and Safety in Employment Act (1992) came into force on 1 April 1993. This Act was a radical change in the scope, nature and intent of occupational health and safety legislation from that which had existed previously. In October 1995, the Minister of Labour, Hon Douglas Kidd said that:

Since its introduction on 1 April 1993 the new law has proven to be innovative and effective. It has not only been successfully enforced through the courts, but – more importantly – has improved attitudes throughout all industries (OSH, 1995: i).

However, reports in the popular media about a growing number of farm-related incidents that had resulted in injury and death, including the much publicised prosecution of a farmer relating to a death on his farm in the southern part of the Waikato/King Country, appear to contradict the assertions of the (then) Minister of Labour. The accuracy of the Minister's statement is further harmed by anecdotal reports, from people actively working in the occupational health and safety field, of the apparent lack of knowledge and understanding of health and safety legislation amongst employers and workers.

The surveys reported in this paper were developed as the result of questions about the actual success of the Act since it came into force on April Fools' Day 1993. This investigation reports on the nature of health and safety in the agricultural sector – this industry group providing the first stage in an ongoing research project on health and safety in New Zealand workplaces.

## Historical background

Since the enactment of the Employment of Females Act in 1873, various New Zealand governments have treated occupational safety and health as a matter for legal intervention (Lamm, 1992). Disasters resulting in significant loss of life<sup>1</sup>, bouts of work related injuries<sup>2</sup>,

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1 For example, the Brunner Mine Disaster.

2 For example, the massive increase in injuries and fatalities in factories and mines during the 1870s.

concern about specific threats to health and safety<sup>3</sup>, and developing international trends<sup>4</sup> had, over the years, given governments the occasion to introduce new legislation relating to occupational health and safety on an ad hoc and often reactive basis.

By the late-1980s, occupational health and safety in New Zealand was governed by (at least) 31 Acts and more than 100 pieces of regulation and codes of practice. As a result of this contingent response to legislating on matters of health and safety, the laws governing this area prior to 1992 have been described as ‘piecemeal, complex and unwieldy’ (Lamm, 1992: 157) and ‘uncoordinated, unwieldy and haphazard’ (Deeks, Parker and Ryan, 1994). Laws that had been enacted to address various threats to health and safety tended to be written by specialists and to deal only with specific risks. Most sectors of the economy (and, in some cases, specific industries) had their own separate legislation, regulation, inspectorate and enforcement procedures related to health and safety. As a result, these laws tended towards both complexity and specificity; were often reactive, invariably prescriptive; and tended to become quickly outdated as technology and work methods changed. However, the problems identified in the administration and practice of occupational health and safety were not limited just to the multiplicity of legislation and regulations. By the late 1980s, five government departments played a part in health and safety administration<sup>5</sup>, not to mention the involvement of the Accident Compensation Corporation (ACC), the Area Health Boards and the local authorities (Lamm, 1992).

The uncoordinated approach to legislation and ill-defined roles and responsibilities were major factors identified as inhibiting the development and enforcement of best practice occupational health and safety standards and systems in New Zealand workplaces. Correcting these perceived statutory and administrative failings and their consequences were major motives in the establishment of the Advisory Council for Occupational Safety and Health (ACOSH) in 1985. The ACOSH report, released in 1988, made a number of recommendations including a major overhaul and consolidation of the occupational health and safety legislation (Deeks, Parker and Ryan, 1994). The changes to the legislation underwent a long and difficult gestation which involved a change in government during the second trimester. This resulted in a major shift in the underpinning ideological and theoretical basis of policy relating to the regulation of the employment relationship, including the role of health and safety processes and procedures in the workplace (Wren, 1997). The Health and Safety in Employment Act was finally passed into law in 1992.

### **The Health and Safety in Employment Act 1992**

The principal object of the Health and Safety in Employment Act (H&SE Act) is to provide for the prevention of harm to employees at work. This was to be achieved by placing the onus for health and safety on the employer and requiring the employer to set up systems that would:

- provide and maintain a safe working environment for employees;
- provide and maintain amenities and facilities for the safety and health of employees;
- ensure that machinery and equipment in the place of work is set up, designed, made and maintained to be safe for the employee;

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3 For example the Royal Commission of Inquiry into sweated labour in 1890 and the awareness of silicosis in the 1938.

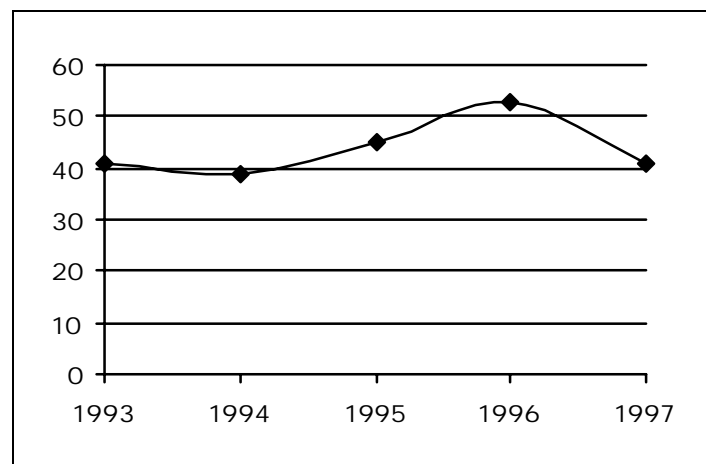
4 New Zealand has had a tendency to adopt legislation from Britain and Australia without significant changes for example, the Factories Act of 1885 was adopted from Victoria (Australia).

5 These were: Labour, Health, Energy, Transport and Environment.

- ensure that employees are not exposed to hazards in the course of their work; and
  - develop procedures for dealing with workplace emergencies.
- (from the long title of the Health and Safety in Employment Act 1992)

In line with the New Right political and economic reforms in New Zealand since the mid-1980s, this Act is a significant step away from specific-reactive intervention by the government in occupational health and safety. It is an attempt to encourage employers to comply with minimum standards<sup>6</sup> rather than the government having to police minimum standards. Compliance is encouraged through the joint application of incentives<sup>7</sup> and deterrents<sup>8</sup>. The extent to which these changes have succeeded is somewhat obscure. Statistics that are available on this topic tend to indicate no improvement in overall health and safety in employment or by occupation.

*Graph 1: Fatal accidents investigated by OSH*



Source: Statistics New Zealand, 1998

Fatal accident rates (investigated by OSH) have not dropped appreciably since the Act has come into force<sup>9</sup> (see Graph 1 above<sup>10</sup>). Likewise, there has been no drop in the number of accidents in workplaces recorded by the Accident Compensation Corporation (see Graph 2).

These statistics of the trends in the level of fatal and other accidents in New Zealand workplaces do not seem to be improving as a result of the Health and Safety in Employment Act.

In terms of the specific impact of the Act on workplaces related to the agricultural industry, ACC statistics compiled by industry groups indicate that agriculture has the highest incidence of fatalities caused by accidents in any industry group (ACC, 1997: 114).

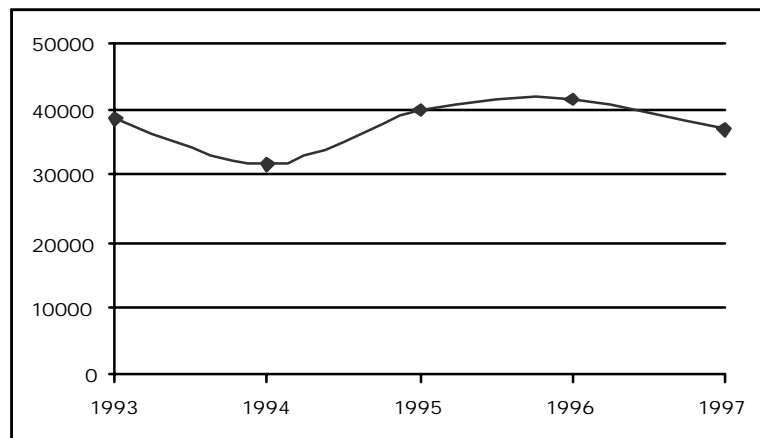
6 Developed through industry cooperation.

7 Created by the use of accident compensation histories (experience rating) to determine levies payable to ACC.

8 Through the penalties for non-compliance allowed under the Health and Safety in Employment Act.

9 Rates for non-fatal accidents or investigations are not available and ACC data does not provide a useful indicator.

10 As the intention of this paper was to investigate the impact of the H&SE Act rather than compare the current regime with the past, the introduction of the Act in 1993 is used as the starting point for analysis.

*Graph 2: Claims to ACC*

Source: ACC, 1997

These statistics reveal that approximately 17 per cent (12 out of 69 in 1996) of all fatalities and 11 per cent (4209 out of 36 894) of accidents<sup>11</sup> in New Zealand workplaces occur in the agriculture industry (ACC, 1997) while less than 7 per cent of the national workforce is employed in this industry (Statistics New Zealand, 1998). On the other hand, with the exception of specific zoonoses, little information is available on the rate of occupational ill-health among farmers and farm workers and no statistics are generated to determine whether the new Act has improved the nature of occupational health on New Zealand farms.

### **Studying Health and Safety in the Agriculture Sector**

Due to the paucity of statistical evidence of improvements in occupational health and safety since the Health and Safety in Employment Act came into force, this investigation seeks to establish the level of understanding and compliance by farmers and farm workers of the key principles established in the Health and Safety in Employment Act. To determine the level of understanding and compliance with the Act, two interview-based surveys<sup>12</sup> were conducted in the Waikato region<sup>13</sup> between February 1998 and April 1998.

The interviews were conducted at a number of stockyards on sale days and outside the retail store of a large stock and station agent. Survey One was conducted with farmers who owned or leased a property and who clearly identified themselves as owners/managers of farms. Survey Two was carried out with farm workers who worked for someone else and who clearly identified themselves as employees. In total, 67 interviews were undertaken; 35 for Survey One and 32 for Survey Two. The majority of respondents to the surveys were male who worked on or owned dairy farms. The majority of the respondents to Survey One employed just one farm worker, usually on a full time basis; the balance of employers employed up to five workers to assist on their farms.

11 Or more specifically, accidents for which compensation is claimed.

12 Interviews were used because mailed questionnaires were deemed inappropriate due to the heightened potential for respondents to 'fake' good (or bad) responses and because the likelihood of receiving mail survey replies from respondents who were fundamentally ignorant of the Act seemed small.

13 The Waikato Region is south of Auckland in the North Island of New Zealand. Farming in this region is most often dairy, with some wine, sheep and beef, horses and horticultural.

*Table 1: Summary of Key Findings from Survey One and Survey Two*

H&SE Act	Employers	Workers
<b>Section 25: Recording and notification of accidents and serious harm</b>	<b>Awareness of employer responsibility to record and report incidences of serious harm and to record all accidents and near misses.</b>	
Respondents were asked if they were aware that employers were required by law to report all accidents which resulted in serious harm occurring.	The majority (57%) of employers replied that they were aware of this legal responsibility.	Just 6% of workers were aware of the requirement that employers report all serious harm
Respondents were asked if a register of all accidents and near misses was kept in the workplace.	Accident registers were reportedly kept by 30% of employers.	Just 9% of workers reported that there was an accident register in their place of work. A further 60% of workers did not know, whereas 31% of workers were certain their employer did not keep a register.
In a follow up question, the respondents were asked if they were aware that they must record incidents or accidents which could have resulted in serious harm occurring.	Only 35% of employers were aware of their responsibilities to record near misses that might have resulted in serious harm.	As above, just 6% of workers were aware of the legal requirement for employers to record all near misses that could have caused serious harm.
Respondents were asked whether employers actually notified OSH of incidences relating to serious harm.	The employers' group reported 51% actual compliance with the requirement to report serious harm.	Of the workers, 84% indicated that they were aware of incidents of serious harm that had not been notified to OSH.

The results of the surveys are presented below in two formats. Table 1 presents the responses from the comparable questions in the two surveys and highlights the contrasting views of the two groups on questions of compliance with some of the key principles of the H&SE Act. The second format presents the results of the non-comparable questions in Survey One which elicited responses on matters that are specific to the status of the respondent.

In addition to the common questions asked in both surveys, a number of specific questions were addressed to the farmer/employer group. These group-specific questions were designed to elicit responses on matters that it was felt should be of interest to this group given their legal responsibilities under the Health and Safety in Employment Act 1992.

### **The Farmer/Employer Group-specific Questions**

Respondents to Survey One fit the definition of 'principals' as set out in the interpretation section of the H&SE Act. Therefore, respondents to Survey One are deemed to be responsible (under Section 18 of the Act) for the safety of visitors to the farm. In relation to this responsibility, respondents to Survey One were asked if they made contractors aware of hazards on their farm: 78 per cent acknowledged that they did not. When the same question was asked with regards to informing other visitors to the farm of the hazards, 61 per cent of respondents reported that they did not make visitors aware of hazards on the farm, with one respondent saying that all visitors to the farm had been banned instead.

*Table 1 (cont): Summary of Key Findings from Survey One and Survey Two*

H&SE Act	Employers	Workers
<b>Sections 6: employers to ensure the safety of employees, s.7 identification of hazards, s.8/s.9/s.10 Hierarchy of hazard control<sup>1</sup></b>	<b>Reported compliance with the requirement that employers ensure the safety of employees, identify hazards and manage those hazards appropriately (as indicated through the development and nature of a hazard identification and control plan)</b>	
Respondents were asked if there was a health and safety plan in the workplace.	34% of employers reported having a health and safety plan in their workplace.	13% of workers thought that their employer had a health and safety plan in the place of work, whereas 81% of workers did not believe that their employers had a health and safety plan in place. A further 6% of the respondents did not know whether their employer had a health and safety plan.
To determine the nature of reported compliance, with the requirements that employers ensure the safety of employees, identify hazards and manage those hazards appropriately, respondents who reported the presence of a health and safety plan in the workplace were asked what form the plan was in (written or other)	Of the 34% of employers who reported having a health and safety plan, the majority (56%) reported that the plan was written. Over the whole group of employers, less than 18% had a written health and safety plan.	Of the 13% of employees who responded that they believed their employer had a health and safety plan, all (100%) stated that it was in a written / formal format.
Section 7 of the act requires employers to set up systems to ensure that workplace hazards are assessed and reassessed periodically.	Employers who reported having a health and safety plan were asked when they had last reviewed the plan. Half (50%) of respondents reported that they had reviewed their plan in the last two years.	
Section 14 of the Act requires the involvement of employees in the identification of workplace hazards and s.12 requires employers to provide information to employees about workplace hazards. Employers were asked if they went over their health and safety plans with employees	The majority of employers (59%) who reported having health and safety plans indicated that they did not discuss that plan with their employees.	

As 'employers' under the H&SE Act, many of the respondents to Survey One are required to provide training (or sufficient supervision to make training unnecessary) for employees (see Section 13 of the Act). In order to gauge whether sufficient training is provided to employees in the farming sector, respondents to Survey One were questioned about training needs analysis and the provision of health and safety training to employees. Of the respondents to Survey One who employed workers, 57 per cent reported that they assessed their employees' prior health and safety knowledge, and 41 per cent reported that they actually conducted training.

1 This hierarchy is similar to the Think Safe 'SAM' steps of Spot the hazard, Assess the risk and Make changes as outlined in Western Australia's Occupational Safety and Health Regulations 1996 (WorkSafe, 1997).

### ***The Nature of Non-Compliance***

The 49 per cent of respondents (cited in Table 1, above) who admitted not reporting incidents of serious harm or near misses that might have caused serious harm were then asked what kind of incidents were not reported. Their responses have been categorised in Table 2.

*Table 2: Types of Serious Harm Incidences Not Reported to OSH*

26%	Animal-related incidents
26%	Machinery
22%	Farm vehicle incidents
15%	Chemical related incidents
11%	Other: slips, burns and a non-identified crush injury

The 66 per cent of respondents to Survey One who did not have health and safety plans were asked ‘If you don’t have a plan, why not?’ In response, they gave various reasons for not having plans (see Table 3 for a summary). The majority of respondents to this question (53%) believed that they were not required to have a health and safety plan. However, a review of the background information on the respondents who gave this rationale indicated that most of these respondents were in error; they were required to have some form of health and safety plan under the Act.

*Table 3: Rationales for Not Developing a Health and Safety Plan*

53%	Indicated that they were not required to have a plan for one reason or another
32%	Explained that they would need assistance to develop a plan
14%	Reported that they had just never ‘got around’ to producing a plan

In an effort to determine why respondents to Survey One were not complying with the requirements of the Act, respondents who had reported that they did not have health and safety plan were asked what help they would require to prepare a plan. There were three main responses to this question (outlined in Table 4). The most notable response to this question was that respondents to Survey One generally want direct intervention or help to develop a plan that will allow them to comply with the principles of the Act.

In a related question, respondents to Survey One who acknowledged not keeping accident registers were asked why they did not comply with this requirement of the Act. Their responses were categorised into three groups (outlined in Table 5).

*Table 4: Type of Assistance Desired in order to Develop Plans*

11%	Reported that they wanted or needed no help to develop a plan
72%	Wanted direct intervention and help from somebody
17%	Reported that they needed / desired to be compelled to comply

As with the responses outlined in Table 2, the majority of respondents seemed to believe that they were not legally required to maintain an accident register. Once again, a review of the background information supplied by the respondents who placed themselves in this category indicated that most of these respondents were in error: they were required under the Act to maintain a register of this type.

*Table 5: Rationale for Non-compliance*

58%	Believed that they were not required to keep a register for various reasons
35%	Were not aware of their responsibilities
8%	Were opposed to a register on philosophical grounds

In the last question of Survey One, participants were given an opportunity to comment generally on the current health and safety law. These comments are listed in Table 6.

*Table 6: General Comments*

<b>The Act is not necessary:</b>	<b>Others are perceived to be at fault:</b>
<ul style="list-style-type: none"> <li>• A lot of fuss about nothing</li> <li>• Occupational Safety and Health is a lot of work when common sense is all that is needed</li> <li>• Occupational Safety and Health regulations are a lot of paperwork for nothing</li> </ul>	<ul style="list-style-type: none"> <li>• Health and Safety is necessary but OSH are too quick to prosecute</li> <li>• More help is needed from the government</li> <li>• It is lots of paperwork that is really the Government's responsibility</li> <li>• Penalties are high and sometimes it is not the employers' fault</li> </ul>
<b>It is too difficult to comply:</b>	<b>Additionally:</b>
<ul style="list-style-type: none"> <li>• Health and Safety is important but the cost of a plan is too high</li> <li>• Health and Safety is complicated and hard to understand</li> <li>• Needs simplifying</li> </ul>	<ul style="list-style-type: none"> <li>• I only report accidents if they receive treatment from someone else</li> <li>• IRD could help with distributing information (x 2)</li> </ul>



## The Implications of this Study

The sparse statistics that do exist and the large amount of anecdotal evidence and opinion suggest that there is a significant deficiency in occupational health and safety practice in the agricultural sector. This deficiency appears to exist on a number of fronts. In particular, there are low rates of compliance with the Health and Safety in Employment Act and there is an apparent limited uptake of safe working practices.

In Stock Take 1995 the Occupational Safety and Health Unit of the Department of Labour (OSH) estimated that the general uptake of new work practices in compliance with the Health and Safety in Employment Act 1992 was approximately 50 per cent. OSH described this level of compliance as an encouraging if not acceptable level.

The results confirm that in all of the areas covered by the key indicators of compliance, the farming industry is performing poorly (even in the self-reported level of compliance) with the principles of the Health and Safety in Employment Act 1992. Whilst the majority of employers in Survey One said they were aware of the Act, only 34 per cent had transferred that awareness into practical application. The majority of respondents with employees did not cover or review their health and safety plan with those employees and 78 per cent of the respondents did not make sub contractors aware of hazards on the farm. While the rate of compliance with the Act in informing other visitors of the hazards present on farms was slightly better (61 per cent of respondents did not inform other visitors of hazards), the rate of compliance is still less than the 50 per cent 'acceptable/encouraging' rate as identified by OSH.

The majority of employers (57%) were aware of their legal requirement to report all accidents which resulted in serious harm occurring whereas only a minority of employers (30%) actually complied with the obligation to keep accident registers. Very few employers (35%) were aware of the requirement to record near misses when serious harm has or could have been caused.

The final marker is the conduction of safety training: 41 per cent of employers conducted training with 57 per cent assessing their employees' prior knowledge. This indicates either a high level of prior knowledge of employees or that farm employers are leaving health and safety knowledge to chance.

The results garnered from Survey Two (the workers' survey) were even less encouraging. Workers' rates of awareness of the legal obligations on employers were around 6 per cent. Indications were that just 13 per cent of employers were actually complying fully with the Act (to a level where employees actually noticed). The most notable result from the workers' survey was the low level of understanding of the Act coupled with lower levels of actual compliance amongst farmers being reported by employees. Such findings must call into question any assertion that the Health and Safety in Employment Act is actually working, at least in the agricultural sector.

When these factors are added together it becomes clear that the compliance rate with these key principles is well below even Occupational Safety and Health's 'encouraging level of response' - never mind any notion of acceptability. The results would also appear to support the anecdotal evidence that provided some of the original impetus for this project.

Overall, the results of this study tend to indicate that there is a large discrepancy between the intended and the actual outcomes of occupational health and safety associated with the Health and Safety in Employment Act. While the surveys conducted in this study were relatively small, and limited by sector and geography, there is no evidence of an 'innovative and effective' response to the new law and no apparent evidence that the Act 'has improved attitudes throughout all industries' as claimed by the Minister of Labour, Douglas Kidd, in 1995. These surveys do clearly indicate that voluntarist, non-prescriptive approaches to compliance are not resulting in sets of behaviours associated with compliance in this sector. Employers in the New Zealand farming sector are generally not complying with the Health and Safety in Employment Act, and employees in this sector do not seem to know enough about the requirements of the Act to protect their own rights.

## Bibliography

- ACC (1993) *Injury statistics 1992*. Wellington, ACC.
- ACC (1997) *Injury Statistics: a guide to ACC injury statistics for the year 1 July 1996 to 30 June 1997*. Wellington, ACC.
- Advisory Council for Occupational Safety and Health (1988) *Occupational safety and health reform: a public discussion paper*. Wellington, ACOSH.
- Agius, R (1998). *Health and Safety in Farming* [online]. Available, <http://www.med.ed.ac.uk/hew/work/farm.html> [29 November 1998].
- Campbell, I (1986) Occupational safety and health legislation: possibilities for future development. *New Zealand Journal of Industrial Relations*, 11, 3: 177-189.
- Clarke, J, Marshall, S, Langley, J and Cryer, C (1995) Epidemiology of injuries on New Zealand farms: a report to the Accident Compensation Insurance Corporation, March 1995. Dunedin: the University of Otago, Injury Prevention Research Unit.
- Farlow, D (1989) Occupational safety and health: the employers' perspective. *New Zealand Journal of Industrial Relations*, 14, 2: 189-194.
- Hampton, C (1989) Occupational safety and health: the policy issues. *New Zealand Journal of Industrial Relations*, 14, 2: 181-187.
- Hiscock-Corney, L (1989). Health and safety issues for Victorian farmworkers. *Australian Journal of Advanced Nursing*, 6, 4: 25-28.
- Houghton, R and Wilson, A (1992) *Technical paper 92/6: Farmer and farm worker health and safety survey report, June 1992*. Wellington, the Ministry of Agriculture and Fisheries.
- Lamm, F (1992) Persuasion or Coercion: enforcement strategies in occupational health and safety (Chapter 9, 156-176) in Deeks, J and Perry, N (eds) *Controlling interests: business, the state and society in New Zealand*. Auckland, Auckland University Press
- Langley, J and Marshall, S (1996) *Fact Sheet Number 8, injuries on farms*. Dunedin, the University of Otago, Injury Prevention Research Unit.
- Mullen, E (1989) Voluntarism in occupational safety and health: a New Zealand response. *New Zealand Journal of Industrial Relations*, 15, 2: 129-143.
- NZCTU (1993) *Building a better workplace. A strategy for health and safety at work*. Policy paper No 5 presented to a special meeting of NZCTU affiliates, Wellington, 25 May 1993. Wellington, NZCTU.
- NZCTU (1994) *The Dupes of Hazard. A critical review of the Health and Safety in Employment Act 1992*. Wellington, NZCTU.
- NZCTU (1995) *Submission of the NZCTU to the Inquiry into the Administration of Occupational Safety and Health Policy*, July 1995. Wellington, NZCTU
- Slappendel, C (ed) (1995) *Health and safety in New Zealand workplaces*. Palmerston North, Dunmore Press.
- Statistics New Zealand (1992 - 1998) *The New Zealand Official Yearbook* (various years).
- The Occupational Safety and Health Service of the Department of Labour (undated). *A guide to the Health and Safety in Employment Act 1992*. Outlining the law affecting people at work from 1 April 1993. Wellington, The Department of Labour.
- The Occupational Safety and Health Service of the Department of Labour (1995) *Regulations of the agricultural industry*. Wellington, The Department of Labour.
- The Occupational Safety and Health Service of the Department of Labour (1992) *Workplace health and safety survey*. Wellington, The Department of Labour.

- The University of Otago Commercial Consulting Group (1995) *The prevention of injury among farmers, farm workers, and their families: a programme for development of interventions for rural communities. Summary Report*. February 1995. Dunedin, The University of Otago Commercial Consulting Group.
- Walsh, P (1989) Occupational safety and health: prospects and plans for New Zealand. *New Zealand Journal of Industrial Relations*, 14, 2: 179.
- Wilson, R (1989) Occupational safety and health: the union perspective. *New Zealand Journal of Industrial Relations*, 14, 2: 195-206.
- WorkSafe Western Australia (1997). Safety on the Farm. *WorkSafe Western Australia* [online] Available, [http://www.wt.com.au/safetyline/d\\_pubs/farmsafe/farm\\_ind.htm](http://www.wt.com.au/safetyline/d_pubs/farmsafe/farm_ind.htm) [29 November 1998].
- Wren, J (1997) The transformation of New Zealand's occupational safety and health legislation and administration from 1981 - 1992: a case of reactionary politics. A paper presented to the Labour Employment and Work in New Zealand Conference 28 - 29 November 1996. Wellington, Victoria University.

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