

PROJECT REPORT

NEW ZEALAND

NEW ZEALAND FOREST OWNERS' ASSOCIATION FORESTRY WORKFORCE CENSUS 1994 JANELLE BYERS



PROPERTY OF
**NATIONAL FORESTRY
LIBRARY**

Project Report

P.R.57

New Zealand Logging Industry
Research Organisation,
P.O. Box 147,
Rotorua,
NEW ZEALAND

**NEW ZEALAND FOREST OWNERS'
ASSOCIATION**

FORESTRY WORKFORCE CENSUS 1994

P. R. 57

1995

Prepared by :

Janelle Byers

New Zealand Logging Industry
Research Organisation

June, 1995



**Copyright © 1995 by New Zealand Logging Industry
Research Organisation**

The form and content of this Report are copyright. No material information or inclusions appearing in this Report may be used for advertising or other sales promotion purposes. Nor may this Report be reproduced in part or in whole without prior written permission.

This Report is confidential to members and may not be communicated to non-members except with written permission of the Director of the New Zealand Logging Industry Research Organisation.

For information address the New Zealand Logging Industry Research Organisation, P.O. Box 147, Rotorua, New Zealand.

TABLE OF CONTENTS

| | Page |
|---|--------|
| List of Tables | (i) |
| List of Figures | (ii) |
| Executive Summary | 1 |
| 1. INTRODUCTION | 2 |
| <i>ACKNOWLEDGEMENTS</i> | 2 |
| 2. CENSUS DETAILS | 3 |
| 2.1 Census Administration | 3 |
| 2.2 Census Coverage | 3 |
| 3. FINDINGS | 5 |
| 3.1 General Characteristics | 5 |
| Age | 5 |
| Ethnicity | 5 |
| 3.2 Training and Forest Industry Record of Skills | 7 |
| Forest Industry Record of Skills | 7 |
| Who is carrying out training? | 10 |
| 3.3 Experience | 10 |
| Time In Industry | 12 |
| Time in Current Crew | 12 |
| 3.4 General Comments | 14 |
| DISCUSSION AND CONCLUSIONS | 16 |
| REFERENCES | 18 |
| APPENDIX 1 - Questionnaire Used in Census | 19 |

LIST OF TABLES

| Table | | Page |
|--------------|---|-------------|
| 1 | Return by Wood Supply Region | 4 |
| 2 | Ethnic Group | 6 |
| 3 | FIRS modules held | 7 |
| 4 | Ethnic Group and FIRS modules | 7 |
| 5 | Number and Type of FIRS module held | 8 |
| 6 | Number of Workers who have not transferred qualifications to FIRS | 10 |
| 7 | Who trains? | 11 |
| 8 | Time in Industry | 12 |
| 9 | Time in Industry by Region | 13 |
| 10 | Time in Current Crew | 13 |
| 11 | Time in Crew by Region | 13 |
| 12 | Comments | 14 |

LIST OF FIGURES

| Figure | | Page |
|---------------|---|-------------|
| 1 | Wood Supply Regions in New Zealand | 3 |
| 2 | Age of Silviculture and Logging Workers | 5 |
| 3 | Ethnic Group by Wood Supply Region | 6 |
| 4 | FIRS by Wood Supply Region | 9 |
| 5 | Time in Industry | 12 |

1. INTRODUCTION

While there has been previous research into the detailed demographics of the logging, and more latterly, silviculture workforce (Gaskin, Smith and Wilson, 1989), and Byers and Adams (In press) most research has been conducted at a regional level as opposed to nationally. In the above studies loggers from Northland, Bay of Plenty and Otago/Southland were interviewed. The silviculture workforce was only investigated in the Otago/Southland region. Considerable inter-regional variation was found to exist.

A recent study (Gibson, 1994) which was undertaken over a wider geographical range than the studies mentioned above, supported the inter-regional variation. Additionally, Gibson's (1994) study noted that 50% of those working in the forest had a Forest Industry Recognition of Skills (FIRS) module, and also that 50% of those surveyed were currently working towards a FIRS module.

During 1993, in response to the new forest owner responsibilities under the recently introduced Health and Safety in Employment Act, the New Zealand Forest Owners Association (NZFOA) adopted a Health and Safety Strategy, the basis of which was to:

".....ensure that 100% of people working in the forest are qualified or in training for the work they are undertaking by 1 January, 1996."

To enable the NZFOA to measure how they were performing against this strategy it was necessary to establish how much of the current workforce was either trained or under training. In

1993, the NZFOA estimated that 30% of the workforce were appropriately trained (NZFOA, 1993). The 1993 Forestry Facts and Figures state that as of February, 1993 there were 4,552 people working in silviculture and 2,842 working in logging (Statistics New Zealand, 1994).

To establish a measure of the actual number of workers in the total industry that were either trained for the job in which they were currently engaged or under training, the NZFOA embarked on a census of the industry workforce.

ACKNOWLEDGEMENTS

LIRO acknowledges the New Zealand Forest Owners' Association for making available this information and the individuals who participated in the census questionnaire.

2. CENSUS METHODOLOGY

A questionnaire (Appendix One) was designed and circulated to all members of the NZFOA. To ensure rapid completion, the questionnaire was restricted to one sheet and asked 16 questions including:

Demographic information:

age, gender and ethnicity

Training:

FIRS modules gained, FIRS intentions, training status and who is carrying out the training and when they expected to be assessed.

Labour Stability:

Length of time in logging/silviculture, length of time in current crew, name of employer and current job with crew.

In addition, there was one question asking the workers which forest they were currently working in and an opportunity given to note any 'General Comments'.

2.1 Census Administration

The questionnaire was distributed by the various forest owners to contractors working in their forests on 1 July, 1994. The individual contractors then passed the questionnaire on to their workers. The forest owners collected the completed questionnaires and forwarded them to the NZFOA Chief Executive. The questionnaires were then forwarded to LIRO for analysis.

There was no compulsion placed upon the contractors or their employees to complete the questionnaire, and typically each questionnaire was filled out by the individual worker.

The total number of questionnaires included in this analysis was 2,768 (received on or before 12 October, 1994). Some companies had included questionnaires from the supervisors and trainers in their workforce. These questionnaires were excluded as not all companies had provided this information. Of the valid questionnaires, 1,719 were from the logging workforce and 1,049 were from the silviculture workforce.

2.2 Census Coverage

Given the discrepancy between the total number of responses to the census and the number employed as stated in the "Forestry Facts and Figures 1994" (NZFOA, 1994) the first analysis was to investigate census returns against wood supply region (Table 1). The wood supply regions were based on information from the National Exotic Forest Description (Neumann, 1992) (Figure 1).

Table 1 shows the dominance of the Central North Island region in the forest industry, with 60% of all replies coming from this region (50% of all loggers and 65% of all silviculture workers).

Given the stated limitation of the data in terms of its completeness, no attempt has been made to conduct analyses against production or area planted by region.

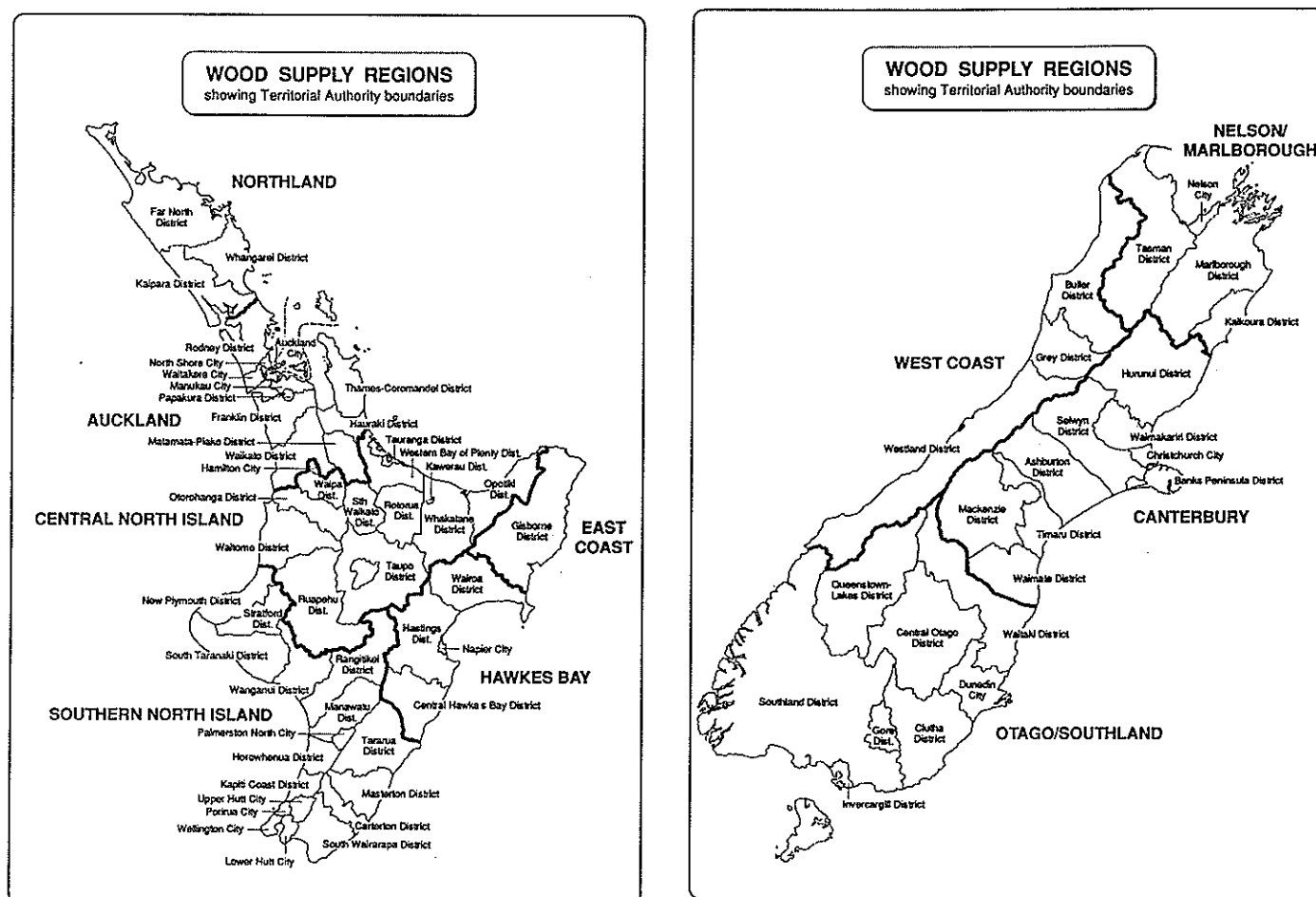


Figure 1 - Wood supply regions in New Zealand

Table 1 - Return by wood supply region

| Wood Supply Region | Total | % | Silviculture | % | Logging | % |
|-----------------------|-------|------|--------------|------|---------|------|
| Northland | 180 | 6.5 | 104 | 9.9 | 76 | 4.4 |
| Auckland | 188 | 6.8 | 79 | 7.5 | 109 | 6.3 |
| Central North Island | 1646 | 59.5 | 523 | 49.9 | 1123 | 65.3 |
| East Coast | 84 | 3.0 | 75 | 7.1 | 9 | 0.5 |
| Hawkes Bay | 120 | 4.3 | 22 | 2.1 | 98 | 5.7 |
| Southern North Island | 55 | 2.0 | 7 | 0.7 | 48 | 2.8 |
| Nelson/Marlborough | 201 | 7.3 | 90 | 8.6 | 111 | 6.5 |
| Canterbury | 58 | 2.1 | 28 | 2.7 | 30 | 1.8 |
| West Coast | 18 | 0.6 | 18 | 1.7 | 0 | 0.0 |
| Otago/Southland | 218 | 7.9 | 103 | 9.8 | 115 | 6.7 |

3. FINDINGS

3.1 General Characteristics

Age

In this survey the mean (\pm SD) age for silviculture workers was 25.8 ± 7.7 years, while the mean age for loggers was 31.4 ± 8.9 years. The difference between the two groups was statistically significant ($p < 0.05$). A histogram of the data is presented in Figure 2. The average age of loggers was similar to that found by the 1989 logging workforce survey (Gaskin *et al.*, 1989), suggesting that while there were some regional variations the national trend has remained constant. The average age of both groups falls well below the mean age of 34 years for the total New Zealand population (Statistics New Zealand, 1994).

Ethnicity

Little was known about the ethnic composition of either the silviculture or the logging workforce. The census was taken as an opportunity to establish accurately the proportion of European, Maori, Pacific Islander and 'others' employed in silviculture and logging (Table 2).

Just over half of the total workforce were European. The silviculture workforce was dominated by Maori (52%), then Europeans (38%). The logging workforce was dominated by European (57%) then Maori (41%). Pacific Islanders accounted for 9% of the silviculture workforce but only 1.5% of the logging workforce. Given that Maori comprised approximately 10% of the New Zealand population (Statistics New Zealand, 1994), the high proportion of Maori employed in silviculture and logging indicates the importance of the sector to this group.

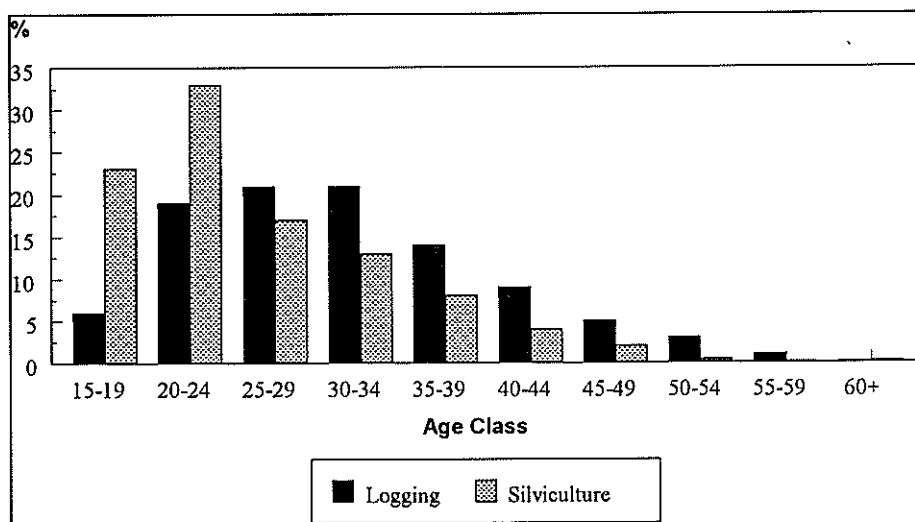


Figure 2 - Age of workers

Figure 3 illustrates the ethnic composition of the workforce by wood supply region. There was considerable regional variation, with substantially fewer Maori and Pacific Islanders working in South Island forests.

Maori workers dominated the East Coast (76%), Central North Island (55%) and Northland (53%) workforce. Pacific Islanders were mainly working in the Northland (13%), Auckland (7%) and Central North Island (5%) regions.

Table 2 - Ethnic group

| | Silviculture (%) | Logging (%) | Total (%) |
|------------------|------------------|-------------|-----------|
| European | 38.4 | 57.4 | 50.3 |
| Maori | 52.0 | 40.8 | 44.9 |
| Pacific Islander | 9.0 | 1.5 | 4.4 |
| Other | 0.6 | 0.3 | 0.4 |

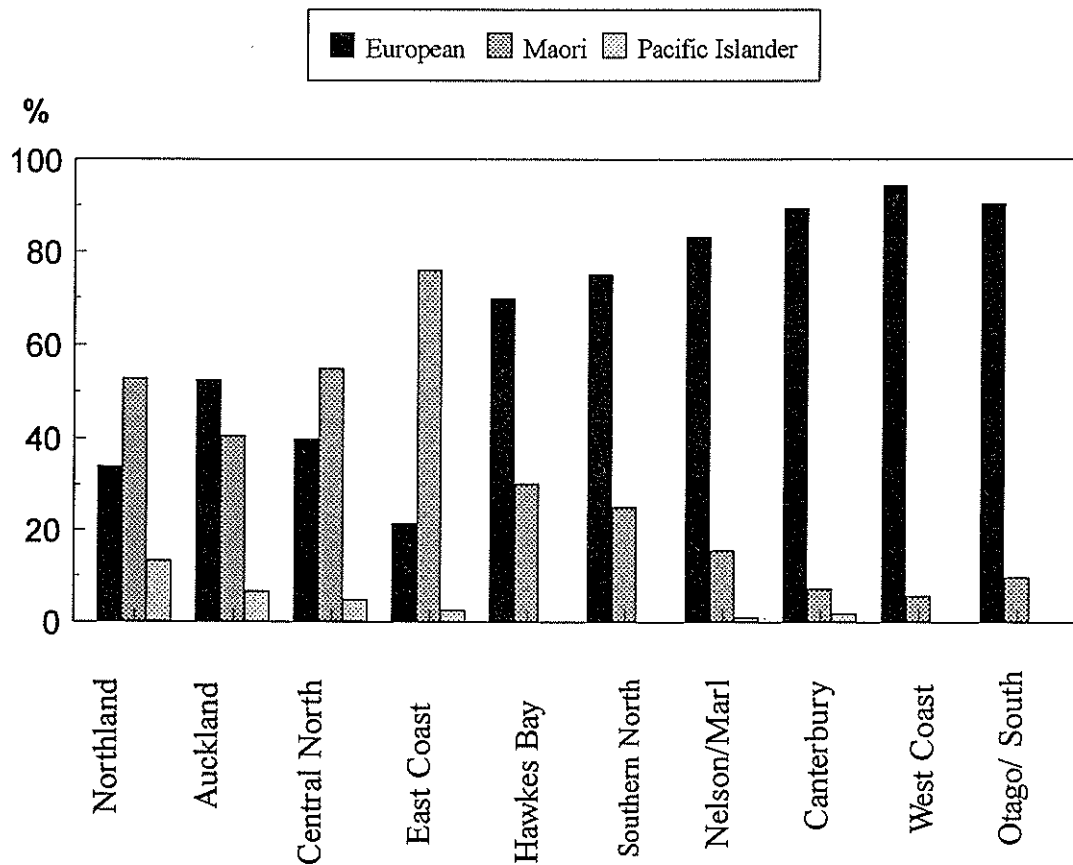


Figure 3 - Ethnic group by wood supply region

3.2 TRAINING

One of the key objectives in undertaking this census was to determine the current state of training amongst the silviculture and logging workforce. The analysis has been split into the number of workers who currently have FIRS modules and how they have been, or, are being trained.

Forest Industry Record of Skills (FIRS)

The FIRS system was introduced in December, 1990, replacing the system of Logging Certification. The scheme is administered by the Logging and Forest Industry Training Board (LFITB). There are a total of 32 different FIRS modules available to forestry workers (Table 5) which can be credited towards a national certificate.

The workers were asked if they held any FIRS modules and if so, which modules they held. The FIRS modules

given by the workers were not checked with any official records of either forestry companies or LFITB. The results are presented in Tables 3 and 5.

A greater proportion of the logging workforce had FIRS modules than the silviculture workforce. Only 58% of the silviculture workers had at least one FIRS module, while 76% of loggers had at least one FIRS module.

Table 4 shows the proportions of each ethnic group who held at least one FIRS module. In all ethnic groups a similar proportion of the workforce held FIRS modules.

Silviculture workers had on average 1.7 modules each, and loggers had 3.1 modules each. This further illustrates the gap between logging and silviculture in terms of attainment of FIRS modules.

Table 3 - FIRS modules held

| | FIRS Modules | |
|--------------|--------------|------|
| | One or more | None |
| Silviculture | 58% | 42% |
| Logging | 76% | 24% |

Table 4 - Ethnic group and FIRS modules

| | One or more FIRS module | No FIRS modules |
|------------------|-------------------------|-----------------|
| European | 70.8% | 29.2% |
| Maori | 67.8% | 32.2% |
| Pacific Islander | 64.8% | 35.2% |
| Other | 72.7% | 27.3% |

Table 5 illustrates the various modules available and the number of workers who stated that they had obtained the modules.

The most commonly held modules for logging were: General Requirements (72%), Chainsaw maintenance and operation (57%) Processing on the

Landing (42%), Advanced First Aid (26%), and Breaking out: Ground Based Extraction (20%). The most common modules for silviculture workers were: General Requirements (55%), Silvicultural Pruning (30%), Advanced First Aid (22%), Tree Selection (19%) and Forest Planting (18%).

Table 5 - Number and type of FIRS module held

| Module | Type | Total | Silviculture | Logging |
|--------|--|-------|--------------|---------|
| 1.1 | General Requirements | 1853 | 594 | 1259 |
| 1.2 | Forestry Knowledge | 11 | 2 | 9 |
| 1.3 | Tree Selection | 256 | 214 | 42 |
| 1.4 | Plotting For Forest Operations | 19 | 18 | 1 |
| 1.5 | Forest Mensuration | 5 | 0 | 5 |
| 1.6 | Chainsaw Maintenance and Operation | 1099 | 99 | 1000 |
| 1.7 | Tree Felling: Stage One | 459 | 17 | 442 |
| 1.8 | Wire Rope and Accessories | 82 | 2 | 80 |
| 1.9 | On Job Training | 2 | 0 | 2 |
| 1.10 | Advanced First Aid | 701 | 239 | 462 |
| 1.11 | Contract Management | 2 | 0 | 2 |
| 1.12 | Fire Control | 115 | 51 | 64 |
| 1.13 | Machine Operating: Other Machines | 38 | 2 | 36 |
| 1.14 | Fire Control: Stage Two | 3 | 3 | 0 |
| 2.1 | Planting Site Preparation | 5 | 3 | 2 |
| 2.2 | Forest Planting | 222 | 203 | 19 |
| 2.3 | Tree Releasing | 65 | 55 | 10 |
| 2.4 | Silvicultural Pruning | 318 | 291 | 27 |
| 2.5 | Silvicultural Thinning | 49 | 36 | 13 |
| 2.6 | Handling Chemicals | 6 | 3 | 3 |
| 3.1 | Tree Processing on the Landing | 751 | 5 | 746 |
| 3.2 | Log Making | 223 | 2 | 221 |
| 3.3 | Tree Felling: Stage Two | 162 | 3 | 159 |
| 3.4 | Tree Felling: Machine Assisted | 61 | 0 | 61 |
| 3.5 | Breaking out : Ground Based Extraction | 361 | 1 | 360 |
| 3.6 | Breaking out: Hauler Based Extraction | 76 | 0 | 76 |
| 3.7 | Machine Operating: Ground Based | 214 | 2 | 212 |
| 3.8 | Machine Operating: Hauler Based | 29 | 0 | 29 |
| 3.9 | Machine Operating: Loader | 125 | 1 | 124 |
| 3.10 | Machine Operating: Mechanical Processors | 5 | 0 | 5 |
| 3.11 | Hauler Systems | 3 | 0 | 3 |
| 3.12 | Salvaging Windthrown Trees | 16 | 0 | 16 |
| | | 7336 | 1846 | 5490 |

Figure 4 shows the percentages of all workers in each wood supply region with FIRS modules, and illustrates the variation between regions. Three regions have a high proportion of their workers 'non-certified' - Southern North Island (60% non-certified), Northland (54%) and East Coast

(48%). The regions which have the best record of workers with FIRS modules, are Hawkes Bay (77% certified), Central North Island (75%), West Coast (72%) and Nelson/Marlborough (71%).

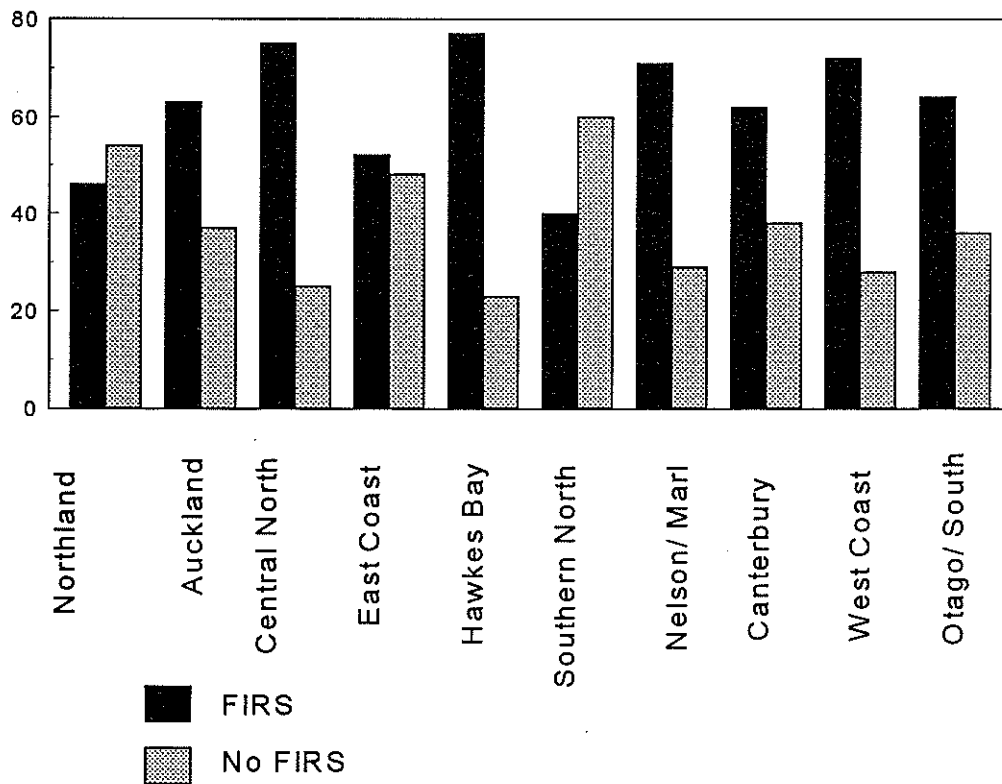


Figure 4 - FIRS by wood supply region

Comments made by the logging and silviculture workers indicated some confusion still exists about FIRS. Twenty-eight of those who commented, stated that they wanted to gain Logger I or II which ceased to exist when the FIRS system was introduced in December, 1990. In some regions, there were a high number of workers who had not changed their Loggers or Forest Skills Certificates to FIRS (Table 6). The 285 workers who had not transferred their qualifications to the FIRS system represent 10% of the census returns.

Who is carrying out the training?

The questionnaire asked the workers who was training them (Table 7). The most noticeable difference between logging and silviculture was the increased use of the forest owner's trainer and independent trainers by logging workers.

Sixty percent of silviculture workers were trained by either the contractor on his own or in combination with someone else. Logging workers, by

contrast only relied on the contractor or the contractor in combination for 32%. At 8% (silviculture) and 13% (logging) the continued reliance on 'self training' should be of concern to the sector.

3.3 EXPERIENCE

Considerable data on turnover amongst forest management (Smith and Wilson 1983, Wilson 1986) and the logging workforce (Bomford and Gaskin 1988, Gaskin *et al.*, 1989, Adams 1993) have been published in the past. Typically the studies have related to one company's experience, have not included silviculture workers and, in general, have been regionally restrictive. This census was an opportunity to investigate some labour stability questions on a national level. Two questions were used to form the basis of this analysis: the length of time workers had been in the industry and the length of time they had worked in their current crew. Analysis also included the impact of time in industry (experience) and attainment of FIRS modules.

Table 6 - Number of workers who have not transferred qualifications to FIRS

| Wood Supply Region | Number who have not changed to FIRS | Percentage in Region (%) |
|-----------------------|-------------------------------------|--------------------------|
| Northland | 15 | 8 |
| Auckland | 13 | 7 |
| Central North Island | 192 | 12 |
| East Coast | 9 | 11 |
| Hawkes Bay | 16 | 13 |
| Southern North Island | 4 | 7 |
| Nelson / Marlborough | 18 | 9 |
| Canterbury | 6 | 10 |
| West Coast | 0 | 0 |
| Otago/Southland | 12 | 6 |
| TOTAL | 285 | |

Table 7 - Who trains?

| Silviculture | | Logging | |
|--|------|--|------|
| Trained by | % | Trained by | % |
| Contractor | 29.5 | Contractor | 10.3 |
| Forest Owner Trainer | 11.5 | Forest Owner Trainer | 30.0 |
| Independent Trainer | 5.5 | Independent Trainer | 10.7 |
| Self | 8.0 | Self | 13.0 |
| Contractor and Self | 12.5 | Contractor and Self | 4.0 |
| Contractor and Forest Owner Trainer | 12.0 | Contractor and Forest Owner Trainer | 8.1 |
| Contractor and Independent Trainer | 2.4 | Contractor and Independent Trainer | 1.5 |
| Contractor and Other | 3.5 | Contractor and Other | 8.1 |
| Forest Owner Trainer and Independent Trainer | 0.6 | Forest Owner Trainer and Independent Trainer | 2.0 |
| Forest Owner Trainer and Self | 4.4 | Forest Owner Trainer and Self | 5.6 |
| Independent Trainer and Self | 3.1 | Independent Trainer and Self | 1.0 |
| Contractor and Independent Trainer and Self | 1.2 | Contractor and Independent Trainer and Self | 0.5 |
| Self and Other | 0.4 | Self and Other | 1.2 |
| Don't Know | 4.0 | Don't Know | 2.3 |
| Other Combinations | 1.4 | Other Combinations | 1.7 |

Workers were asked how long they had worked in logging and silviculture (Table 8, Figure 5). A considerable difference between the workforce

experience of loggers and silviculture workers was apparent. Both the mean and median for loggers were twice that of silviculture workers.

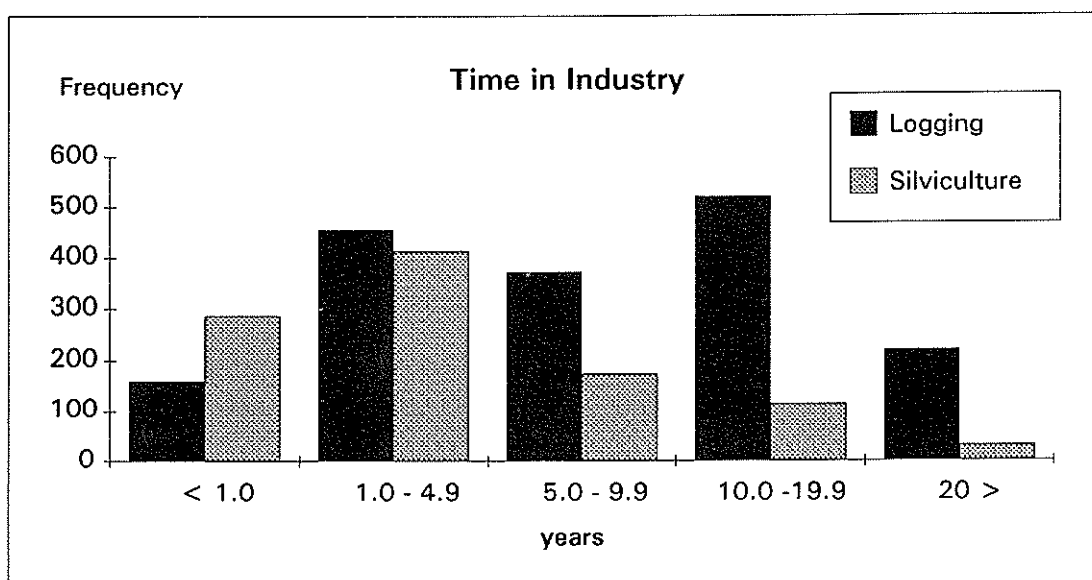


Figure 5 - Time in industry

Table 8 - Time in industry

| | Silviculture (years) | Logging (years) |
|---------|----------------------|-----------------|
| Mean | 4.2 | 8.4 |
| Minimum | 0.1 | 0.1 |
| Maximum | 37.3 | 49.0 |
| Median | 3.0 | 6.0 |

The time spent in logging has changed since the Logging Workforce Survey was conducted when the average time in logging was 6.9 years (Gaskin *et al.*, 1989). Loggers who had attained FIRS modules had, on average, spent 9.6 years in the industry which was 1.2 years longer than the average time in logging. This suggests that a worker who pursues the FIRS system is likely to be more stable (stay longer in the industry) than one who does not pursue FIRS modules. For silviculture workers with an average length of time in the industry of 4.2 years, the trend was more pronounced. Silviculture workers who had attained FIRS modules had on average spent 7.4 years in the industry.

Time spent in industry showed considerable variation by region. For silviculture workers, the average time

spent in the forest industry ranged from 3.4 years in Auckland to 9.6 years in the Southern North Island. Logging showed a similar range, from 4.7 years in Northland to 10.5 years in Nelson/Marlborough.

Time in Current Crew

The questionnaire also asked the workers how long they had been with their current crew. As can be seen in Table 10, there were differences between logging and silviculture crews. Loggers had on average spent 3.0 years in their current crew, while their silviculture counterparts had spent only 1.8 years in their current crew. It should be noted, however, that there is significant variation around this average figure.

Table 9 - Time in industry by region

| Wood Supply Region | Silviculture (years) | Logging (years) |
|-----------------------|-------------------------|--------------------|
| | Average | Average |
| Northland | 4.5 | 4.7 |
| Auckland | 3.4 | 6.6 |
| Central North Island | 4.3 | 8.9 |
| East Coast | 4.6 | 5.8 |
| Hawkes Bay | 5.2 | 7.1 |
| Southern North Island | 9.6 | 6.8 |
| Nelson / Marlborough | 3.6 | 10.5 |
| Canterbury | 7.7 | 9.3 |
| West Coast | 4.9 | 0.0 |
| Otago / Southland | 4.7 | 7.0 |

Table 10 - Time in current crew

| | Time In Current Crew (years) | | | |
|--------------|------------------------------|---------|---------|--------|
| | mean | minimum | maximum | median |
| Logging | 3.0 | 0.1 | 40.0 | 1.3 |
| Silviculture | 1.8 | 0.1 | 27.0 | 0.8 |

Table 11 - Time in crew by region

| | Silviculture (years) | | Logging (years) | |
|-----------------------|----------------------|-----|-----------------|-----|
| Wood Supply Region | Average | sd | Average | sd |
| Northland | 2.6 | 2.8 | 1.4 | 1.8 |
| Auckland | 1.1 | 1.4 | 2.2 | 3.6 |
| Central North Island | 1.6 | 2.7 | 3.0 | 4.2 |
| East Coast | 1.5 | 2.0 | 2.6 | 4.3 |
| Hawkes Bay | 1.6 | 1.7 | 2.4 | 3.0 |
| Southern North Island | 0.9 | 0.8 | 2.8 | 5.0 |
| Nelson / Marlborough | 1.7 | 2.6 | 4.1 | 5.2 |
| Canterbury | 2.2 | 2.1 | 3.8 | 5.6 |
| West Coast | 2.7 | 3.7 | 0.0 | 0.0 |
| Otago / Southland | 2.8 | 4.0 | 4.0 | 5.1 |

Table 11 illustrates the regional variation that exists in the length of time workers have spent with their current crew. With the exception of Northland, logging workers have spent longer in their current crew than silviculture workers from the same

region. The range for silviculture workers was from 0.9 years (Southern North Island) to 2.7 years (West Coast), while the range for loggers was from 1.4 years in Northland to 4.1 years in Nelson/Marlborough.

General Comments

At the end of the questionnaire, a space was provided for workers to make additional comments. Of the 2,768 questionnaires returned, 2,421 (85.6%) workers did not make any comment. The comments made by the remaining 398 (14.4%) are summarised on Table 12.

The majority of the comments made referred to the accessibility and availability of training. The main comments made about this were :

"it takes too long to see assessors" and "it was difficult to stay enthusiastic about gaining modules when the assessments did not happen."

Comments also made reference to the perceived lack of assessors which made it difficult to attain modules other than the core modules. The delays were causing frustration. In general, the workers were very positive about the FIRS system, and about becoming trained. However, they felt that the system was not working well for a considerable number of them.

Table 12 - Comments

| % of those who commented | % of total | Comment |
|--------------------------|------------|--|
| 43 | 6.1 | Need more trainers/assessors, takes too long to see them |
| 13 | 1.8 | General pay is too low /hours are too long |
| 10 | 1.5 | Want to learn more |
| 7 | 1.0 | Want to get Logger I/II |
| 4 | 0.5 | Change my forest/loggers certificates to FIRS |
| 3 | 0.4 | Need to look at man/work loads targets to decrease accidents |
| 3 | 0.4 | Need an incentive for training - bonus etc |
| 2 | 0.3 | Want to see trainer as soon as possible |
| 2 | 0.3 | Hard to get experience for some modules in Thinnings |
| 3 | 0.4 | Lack of assessors means it's hard to get past core modules |
| 2 | 0.4 | "How do I go about getting FIRS?" |
| 1 | 0.2 | Need some sort of compensation for time lost training |
| 1 | 0.2 | FIRS is good - national certificate is a good goal |
| 1 | 0.2 | General FIRS confusion |
| 1 | 0.2 | General safety comment |
| 1 | 0.2 | Modules are good - increase value of workforce |
| 1 | 0.2 | Need more than training to decrease accidents |
| 1 | 0.2 | Need to recognise the value of experience |
| 1 | 0.2 | Wording in FIRS booklets is confusing and difficult to read |
| 0.8 | 0.2 | Train supervisors better |
| 0.5 | 0.07 | Management should get out in the field |
| | | |

Other comments mentioned the impact of turnover on training. It was suggested by some, that in situations of high turnover, training seemed to be a waste of time as the trained workers did not stay long in the crew. Workers also wanted production aspects to be taken into account when assessments were made, that is, that the worker should not only be doing things right but operating at a productive level. Workers also noted that some form of overseas recognition of their training and certification would be useful.

DISCUSSION

The apparent coverage of the 'census' is disappointing. If the figures quoted in Forestry Facts and Figures 1994 were assumed to be correct, then only 62% of loggers and 24% of silviculture workers responded to the questionnaire. The information that has been collected, however, can still be of considerable use in determining industry trends.

The key objective of the questionnaire was to determine the current status of training in the industry. To that end, useful trend information has been obtained. With 76% of the loggers surveyed having one or more FIRS module at 1 January, 1994, the NZFOA target of 100% by 1 January, 1996 appears attainable. The same cannot be said for silviculture workers. Of the 24% who responded, just over half had one or more FIRS modules. To achieve the NZFOA objective, considerable effort is going to be required in this sector of the industry. Historically the silviculture workforce experiences a high level of turnover; this makes the attainment of a fully trained workforce a great deal more difficult.

Regionally some very real concerns have been highlighted. Northland and the East Coast, two areas which are undergoing significant expansion in both silviculture and logging, are two areas where less than half of the workers had FIRS modules. Increased effort will need to be afforded these two areas if the 1996 goal is to be met.

With 10% of the workforce either having not changed their Loggers or Forest Skills Certificates to FIRS modules, there appears to be some confusion still surrounding the FIRS

system. An effort will need to be made in improving workers understanding of the FIRS system.

It is interesting to note the dependence on the contractor for training amongst silviculture workers. Approximately 60% of silviculture workers noted that their training was provided by either the contractor or the contractor in combination with others. Forest owners' trainers and independent trainers were only used by 17% of silviculture workers. By contrast, the forest owners' trainers and independent trainers were used by almost 40% of loggers.

Demographic information collected by the census largely supported the findings of earlier research which had been considered geographically restrictive. This census offered the first opportunity to collect national information about the ethnic mix of the workforce. The proportion of Maori within the workforce is 45%, this indicates the importance of the forest industry to the New Zealand Maori population as they are strongly represented in the forest workforce.

CONCLUSIONS

A survey of the New Zealand logging and silviculture workforce found that logging workers appear to be well on track to achieving the NZFOA objective of having all workers either trained or under training by 1 January, 1996.

Considerable effort needs to be addressed to the silviculture workforce to improve the percentage of this workforce who are trained or under training.

Effort needs to be directed towards those areas with low levels of FIRS attainment.

The contractor has been highlighted as playing a significant role in the training of silviculture workers.

Some confusion continues to exist regarding the FIRS system and the previous system of Logging and Forest Skills Certificates.

Delays in the current systems of training and assessment are causing considerable frustration within the workforce.

The findings of earlier regional workforce surveys regarding the demographic composition of the logging and silviculture workforce have been well supported by this census.

REFERENCES

- Adams, D. (1993) : "Labour Movement in the Logging Industry - One Region's Experience", LIRO Report Vol 18, No. 4.
- Bomford, D. and J. Gaskin (1988) : "Turnover in Logging", LIRA Report Vol. 13 No. 9.
- Byers, J, and Adams, D. (1995) : "The Otago Southland Forestry Workforce - Five Years Later." LIRO Report (in press)
- Gaskin, J, Smith, B and P. Wilson, (1989) : "The New Zealand Logging Worker - A Profile." LIRO Project Report 44.
- Gibson, R. (1994) : "Attitudes Towards Safety in the New Zealand Forest Industry." LIRO Project Report No. 53.
- New Zealand Forest Owners' Association (1993) : "Occupational Safety and Health Strategy." NZFOA: Wellington.
- New Zealand Forest Owners' Association (1994) : "Forestry Facts and Figures." NZFOA/Ministry of Forestry: Wellington.
- Neumann, A. (1992) : "A National Exotic Forest Description as at 1 April, 1991." Ministry of Forestry: Wellington.
- Smith, B. and P. Wilson (1983) : "Labour Turnover in a Large Integrated Forestry Complex." FRI Bulletin No. 120
- Statistics New Zealand (1994) : "New Zealand Official Yearbook 1994." Statistics New Zealand: Wellington.
- Wilson, P. (1986) : "Labour Turnover of Salaried Employees in the New Zealand Forest Service." FRI Report.

- [illegible]

9. Do you have any Forest Industry Record of Skills (FIRS) modules?

yes no

If yes, how many _____

Which ones

| | |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

10. Do you still hold any Logger's or Forestry Skills Certificates which have not been changed to FIRS

yes no

11. Are you currently undergoing training for any FIRS modules

yes no

If yes, which ones, _____

12. Do you plan to attain any more FIRS modules yes no

If yes, which ones, _____

13. Who is training you for these modules

| | | |
|------------------|----------------------------|---------------------------|
| Contractor _____ | Forest owner trainer _____ | Independent Trainer _____ |
| Self _____ | Other _____ | |

14. When do you expect to be assessed for these modules

15. What is the main job you currently do in your crew

16. Any general comment _____

Thank you.