

LOST TIME INJURIES IN FOREST SILVICULTURE - 1996

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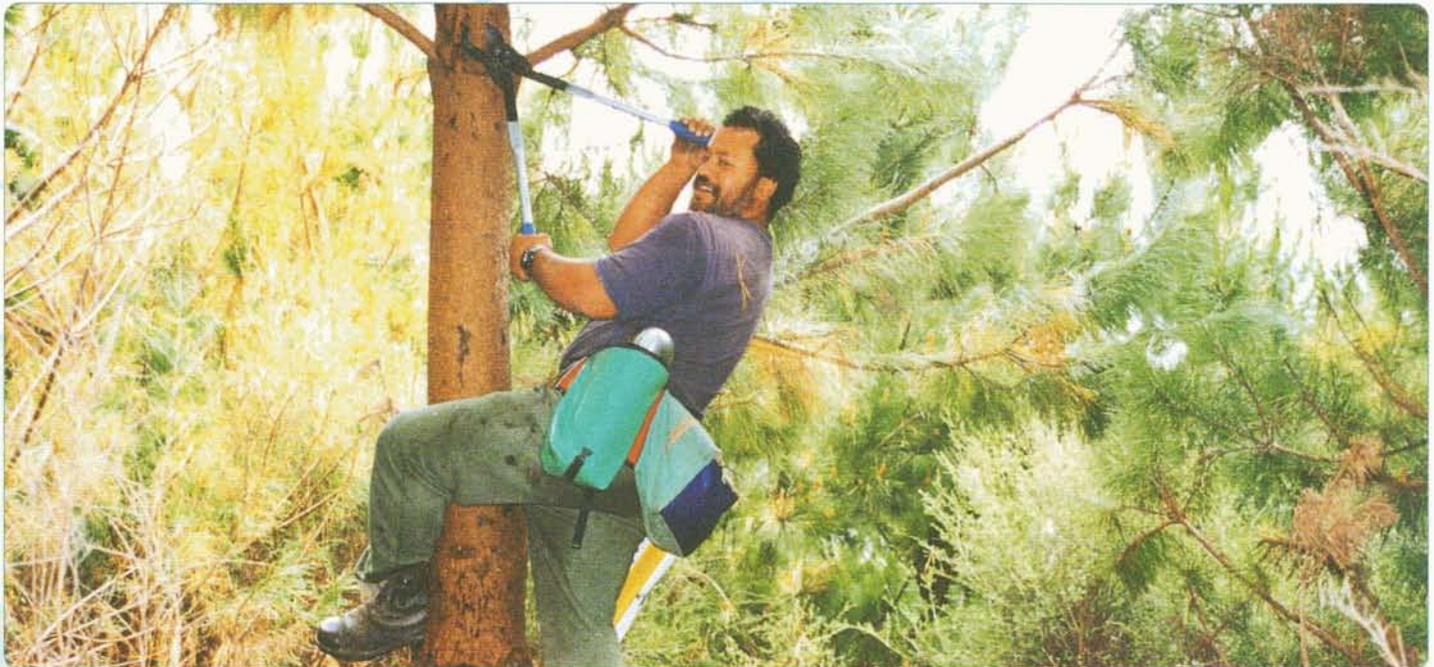


Figure 1 - Pruning on the East Coast

Summary

- 84 lost time injuries resulted in a total of 434 work days lost, with an average number of days lost of 5.2.
- Pruning had the highest injury frequency, and on average these accidents resulted in 4.3 days off work.
- There was a peak of injuries in January, followed by a second larger peak in October, the biggest proportion of these injuries occurred while pruning.
- 56% of those injured had been working in silviculture for less than one year.
- The hand was the most frequently injured part of the body, and most of these injuries were caused by loppers.
- There were nine chainsaw injuries in thinning, four of these were caused by chainsaw kickback (three of these kickback injuries resulted in lacerations to the head and face).
- None of those injured while planting reported having any FIRS modules, 65% of the pruners and 77% of those thinning reported that they had no FIRS modules.

This report summarises the information supplied to the Forest Silviculture Accident Reporting Scheme (ARS) for 1996. This is the seventh year of data collection.

Forest silviculture includes the following operations: nursery work, establishment, releasing, thinning to waste, pruning and forest maintenance.



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Definitions

- lost time the injury causes the injured person to miss any full day's scheduled work
- minor first aid or medical treatment required, but lost time as defined above does not apply
- near miss first aid or medical treatment not required but the incident could have caused injury or property damage.

Injuries

One hundred and sixty-six injuries and incidents were reported in silviculture for 1996 (Figure 2). This is slightly higher than the number recorded for 1995 and 1994, but it is more likely to be associated with an increase in reporting (particularly for near misses) than an increase in the number of accidents occurring within the silvicultural workforce.

It is encouraging that the number of reports received for these analyses continues to increase. This increase improves the accuracy of the ARS and allows accurate trend information to be made available to the forest industry.

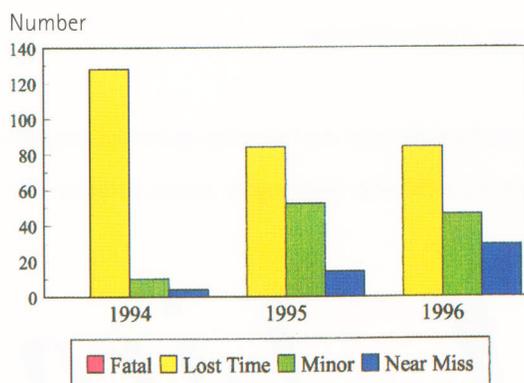


Figure 2 - Reported injuries and incidents

Analysis of lost time injuries

Lost time per injury

The average number of days lost per injury was 5.2, similar to both the 1995 (5.6 days) and 1994 (5.0 days) figures. The number of days lost per injury ranged from one day to 60 days, with median of three days, following the same trend as in 1995 (Parker, 1997).

The total number of work days lost in 1996 was 434. This compares to the 474 days in 1995 and the 630 days in 1994 (Figure 3). While it may appear that the amount of lost time through injury is decreasing, lost time is frequently estimated, and therefore these results should be treated with caution.

Most injuries (76%) as in previous years, resulted in the loss of one to five days work. The overall severity of the injuries sustained by silviculture workers appears to be similar to previous years (Figure 4).

Total Number of Days Lost

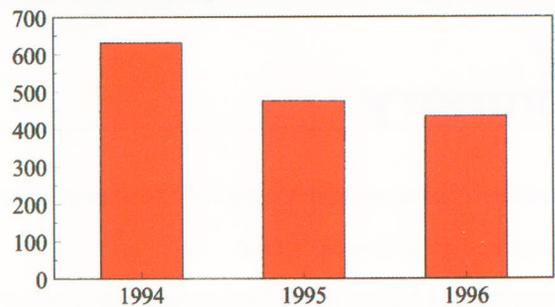


Figure 3 - Total number of days lost

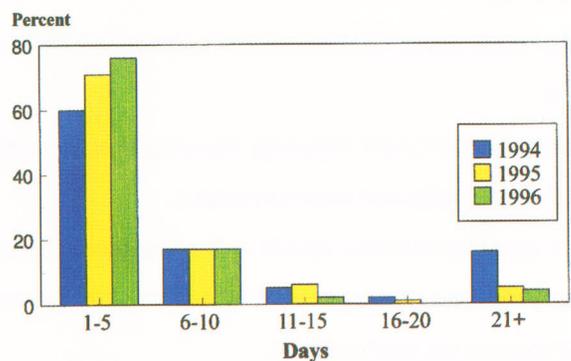


Figure 4 - Days lost per injury

There were no accidents reported for 1996 that required 16 to 20 days lost time. The proportion of injuries which resulted in 6 to 10, 11 to 15 and more than 21 days lost time remained stable.

Time of year - month

The injuries for 1996 show a significantly different pattern from those of 1995. In 1996 there were two main peaks of injury - one in January and a second in October (Figure 3).

In 1996, 50% of the injuries were in the first half of the year and 50% in the second. This is a different pattern of injury from the previous year. In 1995, 74% of all injuries occurred in the first seven months of the year.

Figure 5 shows that most of the injuries that occurred during January and October were pruning injuries. It is important to realise that after time off work (for an injury or for a holiday such as Christmas) your body needs some time to become physically conditioned to work again, especially in a physically demanding job such as pruning. This may account for the high number of injuries in January.

The second peak of injuries in October may be due to a change in operation from planting and releasing to pruning.

Day of week

Most of the injuries (65%) occurred during the first three days of the week (Figure 6). There were fewer injuries on Thursdays and Fridays. There were more injuries on Fridays in 1996 than in 1995.

There was also a decline in the number of injuries which occurred during the weekend. This may relate to an increase in the hours worked during the week and a corresponding decrease in hours worked on the weekends.

There was no pattern in the types of injury (laceration, sprains) or the operation undertaken at the time of injury (planting, pruning) by the day of injury.

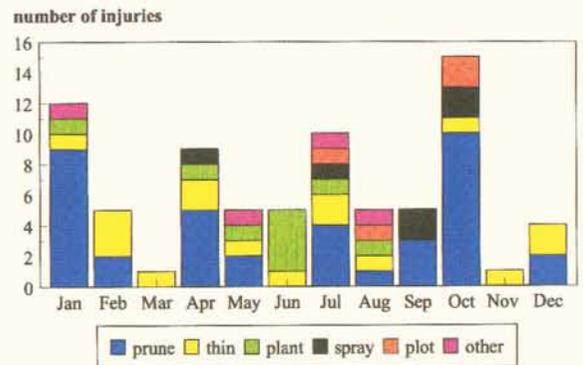


Figure 5 - Injuries by month and operation - 1996

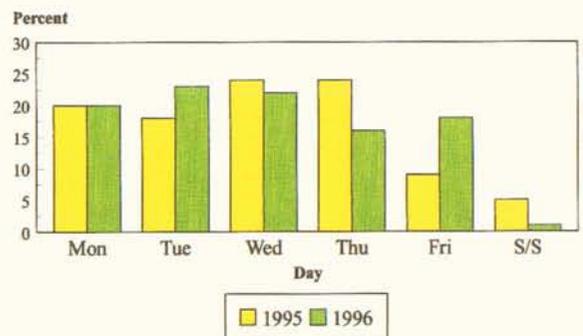


Figure 6 - Injury by day of week

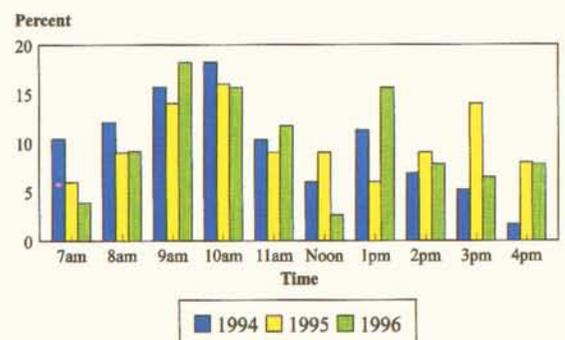


Figure 7 - Injury by time of day

Hour of day

There was a steady increase in the proportion of accidents occurring every hour from 7am to 9am, corresponding to silvicultural workers starting work. Over a third of all the injuries reported occurred between 9am and 11am. There was a second peak of injuries later in the day, between 1pm and 2pm (Figure 7).

This may be due to several things, including heat and fatigue. If forest workers eat a good breakfast, suited to the high energy output required for their job, they will have increased physical performance, have better concentration, co-ordination and awareness

of their surroundings in the first few hours of work (Kirk, Gilbert and Darry, 1996). This needs to be followed up with a suitable intake of carbohydrate food and fluid throughout the day in order to sustain the level of performance needed for silvicultural tasks (Paterson and Kirk, 1997).

It is also important to rest for as long as possible after lunch or smoko to enable your body to begin digesting the food you have just eaten. This will enable your body to get some benefit from this food quite quickly.

Experience

Of those who had experienced a lost time injury in 1996, 38% had been working in silviculture for less than six months and 56% for less than one year. Four workers received injuries in their first week of work; one of these injuries resulted in three weeks off work, a very expensive injury for the contractor, and worker.

Eight injuries (to those employed for less than six months) were caused by lacerations from loppers. Two of these injuries were caused by trainees *fighting* with their loppers.

The remainder of the injuries caused by loppers (to workers with less than six months experience) occurred while removing the loppers from their pouch (two injuries), or while sharpening their loppers (four injuries).

This suggests that new workers may be unaware of the correct method of working with and maintaining their loppers. This also highlights the need for a structured induction training programme for silviculture workers.

Injury - Part of Body

Figures 8 and 9 show that the hand was the most frequently injured part of the body (16 injuries) followed by the upper torso (12 injuries), the head (11 injuries) and the upper leg (10 injuries).

Most of the hand injuries were due to lacerations caused by loppers. Upper torso injuries were mainly sprains and strains caused by lifting or pulling ladders through the forest. The head injuries which occurred were predominantly lacerations (seven injuries):

- three lacerations were caused by chainsaw kickback
- two by loppers
- one by a falling ladder
- one by a stick which poked the worker in the eye.

Six of the upper leg injuries which occurred were knee strains/sprains; nearly all were as a result of slipping over.

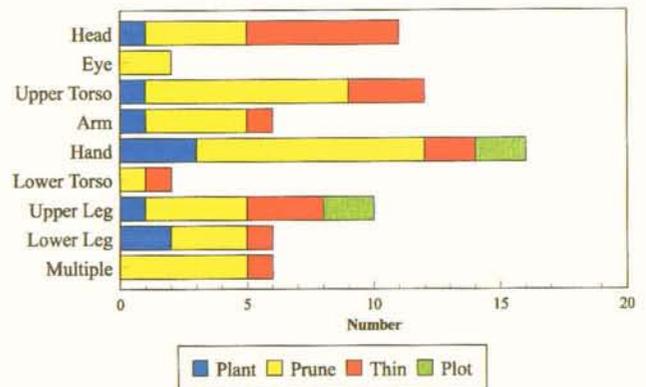


Figure 8 - Body part injured by operation - 1996

Injury - Operation

Table 1 - Lost time injuries by operation - 1996

Operation	No. of injuries	Average days lost*	Total days lost*
Planting	9	12.1	109
Pruning	40	4.3	169
Thinning	18	6.0	102
Spraying	5	2.9	11
Plotting	4	5.3	21

* Days lost data missing for some injuries

Planting

There were nine lost time injuries in planting with a total of 109 lost days. The most serious injury was a broken ankle (60 days lost time); this occurred while playing league on the skid during a break.

There were three cuts to the body (leg, hand and arm) caused by slipping over and landing on a sharp object (one, two, and 10 days

lost time respectively). There were two other slip accidents which resulted in bruising (two and 15 days lost time). One possible solution to the problem of slip accidents is the wearing of spiked boots which have been shown to reduce significantly the number of slip injuries suffered by fallers (Kirk and Parker, 1992) and breakerouts (Kirk and Parker, 1993).



Figure 10 - Body part injured, all operations - 1996

References

- Kirk, P. and Parker, R. : (1992) *Effect of Spiked Boots on Faller Safety, Productivity and Workload*. LIRO Report Vol. 17, No. 19.
- Kirk, P. and Parker, R. : (1993) *The Impact of Spiked Boots on the Safety, Workload and Productivity of Breaking Out*. LIRO Report Vol. 18, No. 3.
- Kirk, P., Gilbert, T. and Darry, K. : (1996) *Increased Safety and Performance through "Smart Food"* Liro Report Vol. 21, No. 26.
- Parker, R. : (1997) *Lost Time Injuries in Forest Silviculture - 1995*, Liro Report Vol. 22 No 7.
- Paterson, T. and Kirk, P. : (1997) *Fluid and Energy for Forest Workers* Liro Report Vol. 22, No. 8.

None of the workers who were injured were reported as having any Forest Industry Record of Skills (FIRS) modules. One worker was listed as being in training for FIRS modules. This low level of training may be partly due to contractors taking on extra employees for the planting season.

Pruning

There were 40 lost time injuries in pruning with a total of 169 days lost. Pruning accounted for most (48%) of the lost time injuries. The most frequent cause of injury during pruning was sprain/strains (14 injuries) followed by lacerations (12 injuries). Four of the sprain/strain injuries resulted from slipping from the ladder.

The most serious injury was a crush injury which resulted in 21 days lost time. The pruner crushed his little finger between his pruners and a tree, the injury did not heal, and required surgery. The second most serious injury occurred when a worker fell from the tree he was pruning and was knocked unconscious by his loppers (nine days lost time).

Of those workers who had an injury in 1996, 65% reported they did not hold any FIRS modules at all; 23% of those injured held relevant FIRS pruning modules.

Thinning

There were 18 lost time injuries in thinning with a total of 102 days lost. The most common type of injury was lacerations (10 injuries). The most serious of these resulted in 30 days lost time; the worker was limbing a standing tree, and his chainsaw kicked back into his face. The accident report stated that he was probably saved from a far more serious injury by his helmet.

There were nine chainsaw-related injuries and four of these were kickback injuries (three of these were kickback injuries to the head). (There were also three near misses recorded where chainsaw kickback occurred without injury.) This illustrates the need to maintain chainbrakes in good working order and to use correct techniques always. Good training is crucially important.

The value of safety trousers was illustrated by one particular injury where the operator slipped on a steep slope putting the chainsaw

into his leg at full throttle. The saw cut through to his skin, but because he was wearing safety trousers, this injury only resulted in one day's lost time.

A second operator was not so fortunate and needed seven days off work after his saw was forced into his leg by a falling hangup. It is also important to recognise that chaps need to be replaced regularly. Protective legwear only minimises the risk of injuries from chainsaws; they do not completely eliminate the hazard.

Of those who were injured in thinning operations, four had FIRS modules, the remaining 14 (77%) did not have any FIRS modules.

Plotting

There were four plotting injuries, which resulted in a total of 21 lost days. These consisted of two sprain/strain injuries (both resulted from slipping on slopes), one crush injury and one laceration (worker was climbing over a tree, the branch broke and he cut his finger - 10 days lost time).

Spraying

There were five spraying injuries, two of these were foreign bodies in eyes (two days lost time each), which occurred while the operators were spot spraying. There was also one bruise injury where the worker dropped a water tank on to his foot (five days lost time) and one sprain/strain injury when the worker slipped on some logging slash while spot spraying (two days lost time).

Near Miss Incidents

There were 29 near miss incidents reported to the ARS. Table 2 shows where these incidents occurred.

Operation	Number of injuries
Planting	3
Spraying	3
Pruning	7
Thinning	7
Travel	4
Other	5

Table 2 - Near miss incidents - 1996