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ANALYSIS OF LOST TIME ACCIDENTS — 1986

(ACCIDENT REPORTING SCHEME STATISTICS)

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INTRODUCTION

Last year saw the publication of the first comprehensive analysis of lost time accidents as recorded by the Logging Industry Accident Reporting Scheme for 1985 (Gaskin 1986). Within the conclusions of that Report it was noted that the analysis would be carried out and published on an annual basis. This Report is an analysis of lost time accidents recorded by the Scheme during the 1986 calendar year.

A breakdown of accidents recorded during the year is presented in Table 1.

Table 1 - Accidents recorded by the Scheme for 1986

	1986	(1985)
Fatal accidents	4	(4)
Lost time accidents	215	(283)
Minor accidents	33	(70)
Near miss accidents	8	(14)
Total	260	(371)

During 1986 there was a 32% reduction in lost time accidents reported. Rather than being a reflection of an improved accident record, it is considered more likely to be a poorer response by loggers in recording accidents. This opinion is based on the fact that fatal accidents are recognised as being a good predictor of other less serious accidents (Kay 1974). The Labour Department figures for the year ending March, 1986 indicate ten fatal accidents, while records to the beginning of March, 1987 indicate 11 fatal accidents. The Accident Reporting Scheme recorded 4 for the 1986 calendar year.

The importance of maintaining a good data base of accident statistics cannot be overstressed. The information can be used for :

- guiding industry management and employers in their safety programmes,
- focussing research and training efforts,
- increasing workers' awareness of hazards,

and potentially for negotiating reductions in Accident Compensation Corporation levies for logging work.

ANALYSIS OF 1986 LOST TIME ACCIDENTS

Time of Day of Lost Time Accidents

Using the same period for analysis (7.00 a.m. to 10.00 a.m., 10.00 a.m. to 1.00 p.m. and 1.00 p.m. to 4.00 p.m.) the strong trend of accidents occurring during the first "break" of the day continues. Figure 1 illustrates this trend.

The high proportional difference of accidents during the first break was tested and found to be significant.

The increasing use of the new forms is providing a better data base, e.g. time of accident.

Day of Week of Lost Time Accidents

The trend towards more accidents occurring on Mondays and Tuesdays, identified in the last analysis, was not so obvious this time. However, Monday and Tuesday still account for almost half of all lost time accidents (Figure 2).

Severity of lost time accidents by time of day and by day of week was also examined. There were no significant differences between either category or within each group.

Figure 1 - Time of Day for Lost Time Accidents

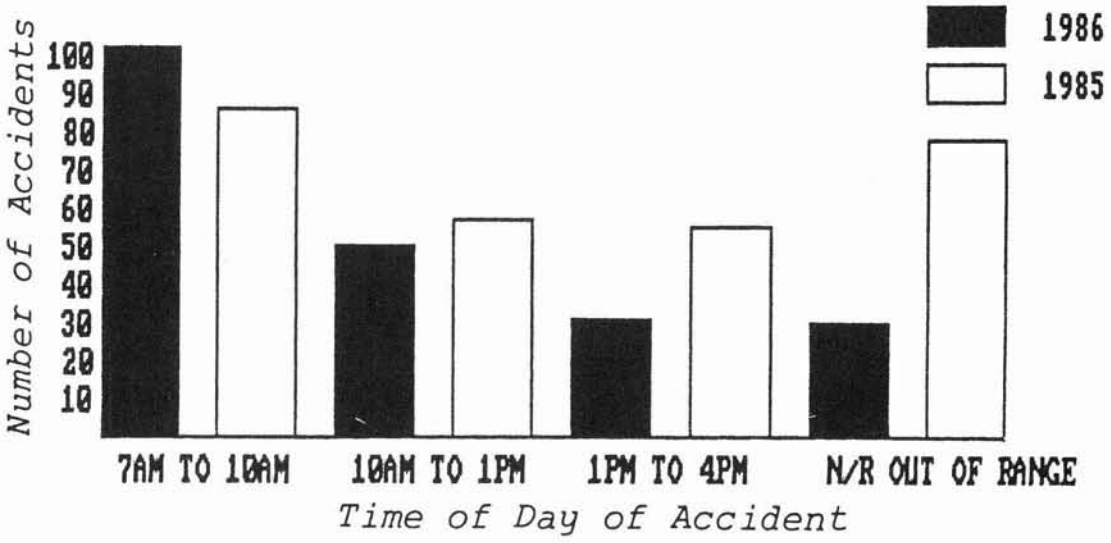


Figure 2 - Lost Time Accidents By Day of the Week

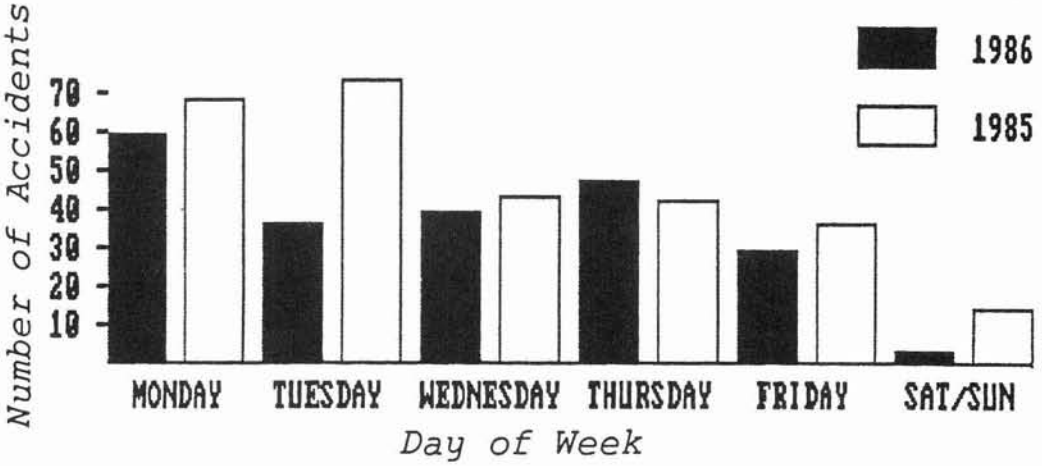
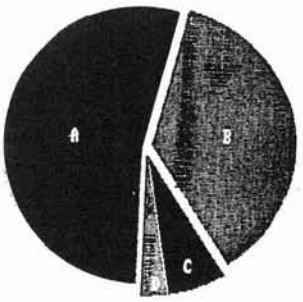


Figure 3 - Proportions of lost time accidents by type of operation



Operation	1986	(1985)
A Clearfell exotic	53.5%	(52%)
B Thinning exotic	37.1%	(38%)
C Other	6.6%	(6%)
D Native	2.8%	(4%)

Total Number - 215

Number of Lost Time Accidents by Type of Operation

The number of lost time accidents for each operation type recorded is almost identical to the 1985 results. This is the proportional split expected given the numbers working in clearfelling versus thinning.

No statistical difference was found for severity of lost time accidents, clearfell versus thinning. The range in data in both groups is large. The mean number of days lost is more than in 1985 but that could be a reflection of less serious accidents not being reported. Table 2 shows the comparison of the two main types of operations.

Table 2 - Accident Severity - Clearfell versus Thinning (days lost)*

Type of Operation	Number**	Mean 1986	Mean (1985)	Range 1986	Range (1985)
Clearfelling	92	12.23	(14.8)	1-99	(1-99)
Thinning	62	17.92	(14.1)	1-90	(1-60)
All Lost Time Accidents	170	14		1-99	

* All measurements are in days

** Number of observations do not correspond with data in Figure 3 due to missing information about the amount of time lost. This follows for all such analyses.

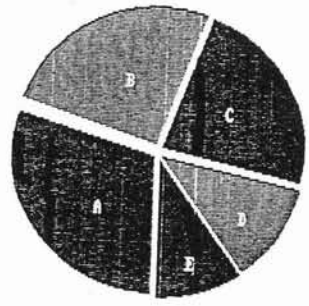
Lost Time Accidents by Part of Operation

As with the 1985 analysis, accidents in the four main parts of logging operations have been identified. Figure 4 illustrates the proportions of lost time accidents for each part of the operation.

Trimming still accounts for most accidents, followed by skid work and felling. [Fatal accidents are not included. Those occurred as follows; one in felling, one in trimming and two in breaking out and hauling.]

Severity of each of the four groups was calculated and treated for significance. The only significant difference was found between the severity of felling and breaking out accidents. Once again the notable aspect of the data is the large variation.

Figure 4 - Proportions of Lost Time Accidents by Part of Operation



Part of Operation	1986	(1985)
A Trimming	30.0%	(29%)
B Skidwork	25.4%	(23%)
C Felling	23.0%	(21%)
D Breaking out	11.7%	(13%)
E Other	9.9%	(14%)

Total Number - 215

Again, a close following of the trend observed in the 1985 figures is apparent.

Figure 5 - Severity by Part of Operation (days lost)

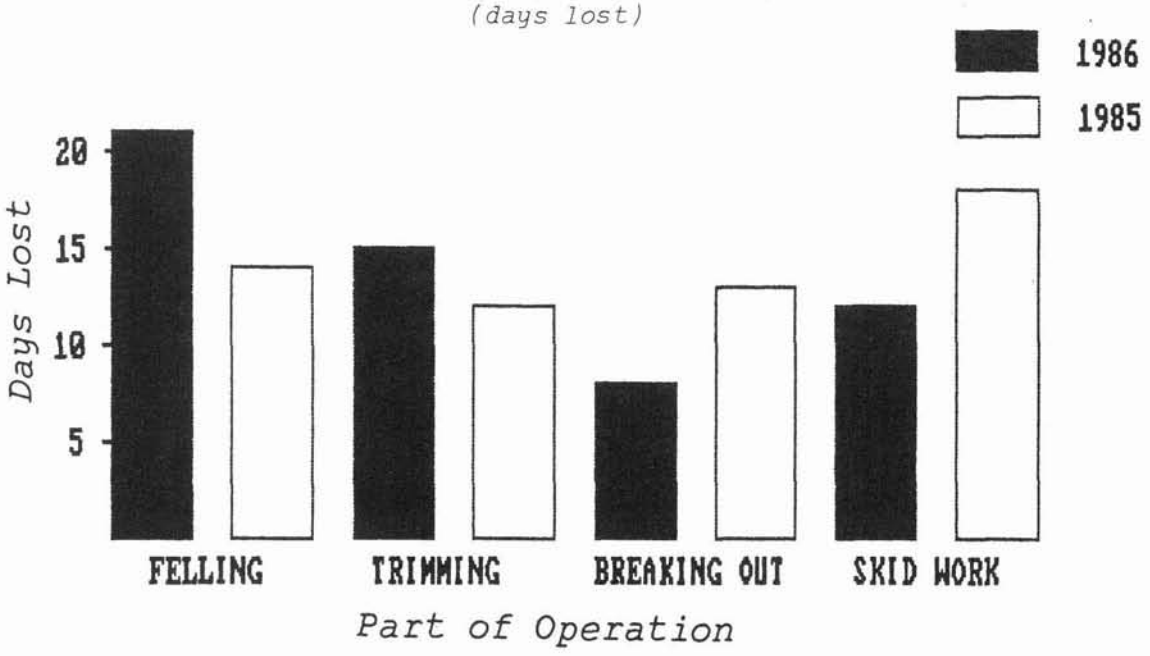
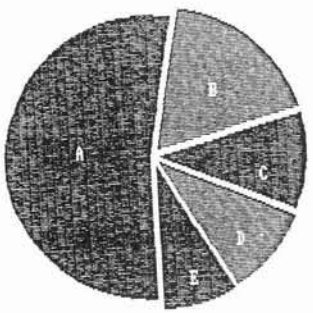


Figure 6 - Proportions of Lost Time Accidents by Type of Injury



Type of Injury		1986	(1985)
A	Lacerations	52.6%	(49%)
B	Strain/Sprain	17.8%	(19%)
C	Bruising	11.3%	(13%)
D	Fracture	8.5%	(10%)
E	Other	9.9%	(9%)

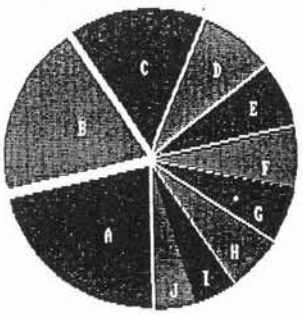
Total Number - 215

The influence of chainsaws is again apparent in the laceration type injuries. The trend in severity of the four classifications (Table 4) shows little difference from the 1985 data. As would be expected, fractures were the most severe type of injury. Severity of laceration type injuries was significantly higher than for either bruising or strain/sprain injuries.

Lost Time Accidents by Part of Body Affected

Classification of part of body affected has been slightly modified from the 1985 analysis where upper and lower leg, and upper and lower torso, were combined. Nine main categories are used, plus "other" which combines "multiple", "unknown" and "neck".

Figure 7 - Proportions of Lost Time Accidents by Part of Body Affected



Part of Body		1986	(1985)
A	Foot	21.6%	(15%)
B	Hand	19.2%	(19%)
C	Lower leg	15.5%	(23%)
D	Upper torso	8.5%	(21%)
E	Arm	7.0%	(8%)
F	Lower torso	6.6%	-
G	Upper leg	6.1%	-
H	Head	6.1%	(5%)
I	Eye	4.7%	(2%)
J	Other/multi	4.7%	N/A

Total Number - 215

Table 3 - Severity of Injury Type (Days Lost)

Type of Injury	Number	1986	(1985)	Range
Lacerations	85	13.2	(14)	1-99
Strain/Sprain	35	6.7	(7)	1-22
Bruising	19	5.0	(10)	1-15
Fracture	16	48.0	(39)	2-99

A marked proportional increase has been highlighted in foot and hand injuries. Protective boots are available and, from the trend in this data, their use must be encouraged. Many accidents are still occurring to the lower leg. Protective legwear, while not necessarily preventing the accident, will reduce the severity. As shown in the data in Table 4, lower leg accidents have the highest severity.

The differences in accident severity between lower leg and upper leg accidents was significant.

Lost Time Accidents versus Years of Experience

Of the 215 lost time accidents, 113 also recorded the years of experience of the victim.

Figure 8 compares the percentage of loggers, in three experience classifications, who had a lost time accident, against the percentage noted in that classification by the Logging Workforce Survey (Gaskin, Smith, Wilson 1987). It is interesting to note that those with a shorter time in logging, 0 - 4 years, had 42% of the accidents, while based on the above survey they make up only some 32% of the workforce.

There also appears to be a reversal of that trend amongst the longer serving workers, 37% of workers with 10 years or more experience have only 26% of the accidents.

Table 4 - Severity by Part of Body Injured (Days Lost)

Part of Body	Number	1986	(1985)	Range
Foot	34	19.50	(13)	1-90
Hand	35	10.54	(20)	1-42
Lower Leg	27	21.63	(17)	2-99
Upper Torso	11	9.23	(10)	2-30
Arm	10	9.50	(12)	1-21
All lost time Accidents	170	14.16	(14)	1-99

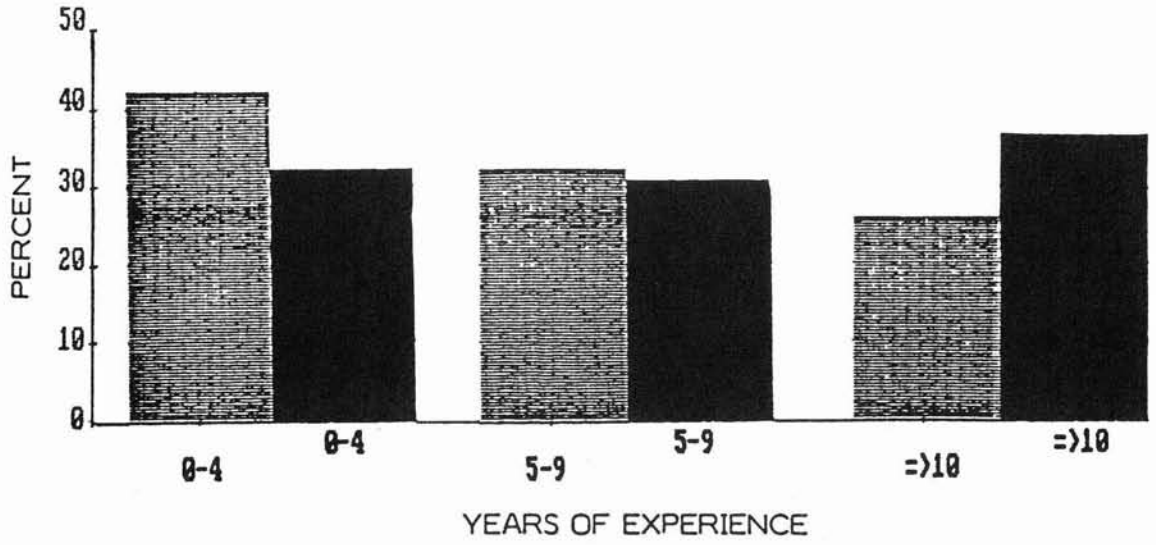


Figure 8 - Proportion of Lost Time Accidents versus Years of Experience

CONCLUSIONS

Although the data base has strengthened in the past year, it is still too variable to be used for much more than identifying trends. It has been encouraging to see the increased use of the newer forms, which has resulted in a fuller set of data to analyse.

The main points from the analysis are :

- most accidents occur in the first part of the day and in the first two days of the week. This is contrary to the expected influence of fatigue on worker safety.
- within logging operations, trimming still accounts for most accidents, followed by skidwork and felling. However, felling accidents result in more severe injuries.
- lacerations, principally chainsaw cuts, are still the most common type of injury, followed by strains, sprains and bruising. Fractures are the most severe type of injury.
- the incidence of chainsaw cuts to the legs has reduced markedly, probably due to the use of protective legwear. Wider use would reduce leg injuries further.
- foot injuries, again principally chainsaw cuts, are now the most common, followed by hand injuries. Boots with chainsaw cut protection are available and presumably proper use of chainsaw mitts and/or chain brakes are simple measures to reduce the likelihood of hand injuries.
- loggers with less than five years' experience have proportionally more accidents - this trend is reversed among loggers with more than ten years' experience.

A comprehensive set of accurate accident records is vital to the industry, especially with the recent increase in Accident Compensation levy. It is unlikely that the industry would ever be able to negotiate a review of that levy without the support of good statistics. The information can be used to guide safety management programmes and research and training efforts as well as increasing awareness of the hazards on the job. The industry is encouraged to use the new forms, which will provide all the necessary information for analysis.

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