



CHARACTERISTICS OF NZ LOG-TRUCKING INDUSTRY

(A Summary of Weighbridge Surveys Carried Out)

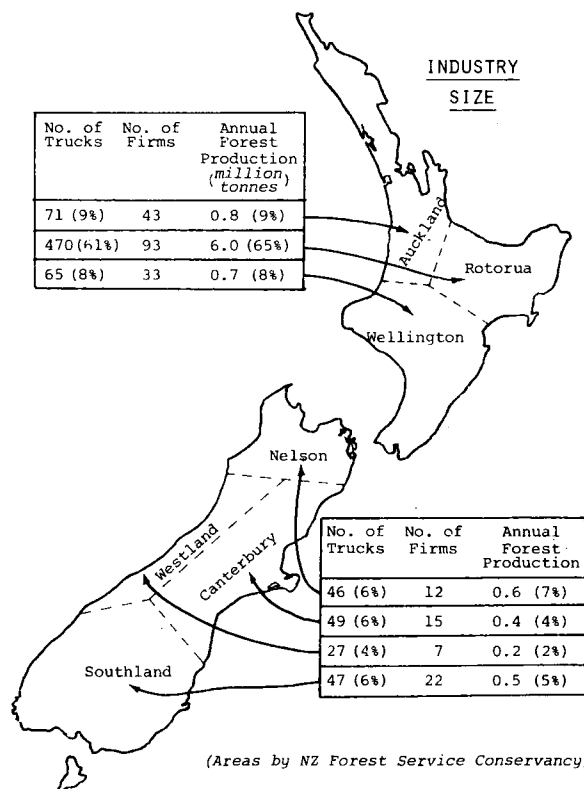
During 1977 LIRA arranged for a number of surveys to be carried out at selected areas and weighbridges throughout New Zealand. The objective of this was to establish the characteristics of the log-trucking industry in terms of *Industry Size*, *Truck Characteristics*, and *Operational Aspects*. This was an important initial step for LIRA's study of the log transport sector aimed at identifying valid research areas.

Two of the weighbridge surveys have been reported in detail separately (see *LIRA Reports, Vol.2 Nos.2 and 3, 1977*). This Report summarises all the surveys carried out, presenting overall characteristics of log trucking in New Zealand.

ACKNOWLEDGEMENTS: The assistance provided by the N.Z. Road Transport Association Inc. in supplying information, and by both N.Z. Forest Products Limited and the N.Z. Forest Service in obtaining and supplying data is acknowledged. The co-operation of contractor log-truck operators who freely offered information during the surveys is also acknowledged.

INDUSTRY SIZE (1977):


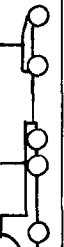
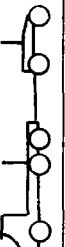
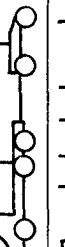



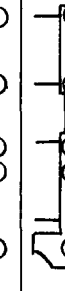
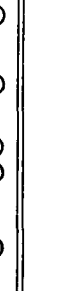

The numbers of trucks, numbers of operators or firms, and locations of these were established using information supplied by the N.Z. Road Transport Association supplemented with field trip data collected by LIRA staff. Approximately 775 trucks are in use as log trucks either on or off highway, including part-time operation. These trucks are operated by approx. 225 different firms distributed throughout N.Z. as shown opposite. This distribution of trucks compares reasonably well with the estimated 1977 distribution of N.Z. roundwood production, which totalled 9.2 million tonnes.



TRUCK CHARACTERISTICS:

The establishment of data typifying the characteristics of log trucks being used was obtained by short (one day) detailed weighbridge surveys for high log-truck density areas, and by LIRA staff field trip information for low log-truck density areas. The weighbridge surveys were carried out by NZFS, NZFP and LIRA staff, and covered nine major log-truck weighbridges during 1977. Truck characteristic data collected was estimated to represent approximately 40% of the total number of log trucks in N.Z.

Typical truck data in specific locations is indicated in Table I below.
(NOTE: This table only includes the weighbridge survey data; it does not include information collected by LIRA from other areas.)

Area (by Conservancy):	Auckland	Rotorua					Nelson	Canterbury		N.Z.
Weighbridge:	Riverhead	Kinleith	Whakarewa-rewa	Kawerau	Murupara	Waimihia	Belgrove	Balmoral	Leithfield	Total Surveyed
No. of trucks surveyed:	7	76	41	13	22	23	35	8	26	251
Most Common Layout:										
Av. Tare this layout: (tonnes)	12.5	13.5	13.0	12.4	31.4	13.1	13.0	12.9	12.8	13.0
Most Common Make:	Merc.	Kenw.	Kenw.	Leyl.	Pacif	Kenw.	Merc.	Bedf.	Bedf.	Kenw.
Av. Power Rating: (kW): (h.p.):	170 228	216 290	216 290	206 276	261* 350*	246 330	186 249	160 215	151 202	203 272
Av. No. Transm. Ratios:	7	14	13	13	15*	13	16	13	12	13
Av. Truck Age (Yrs.)	6.5	4.1	3.6	4.4	12.0*	2.4	3.6	3.9	6.0	4.1
Av. Truck Mileage (to date) (Thousand Miles): (Thousand kms.):	403 645	263 421	212 339	298 477		150 240	140 224	114 182	169 270	214 342

(* These figures relate to KLC trucks only, and are not included in the N.Z. averages)

TABLE I : TYPICAL LOG-TRUCK CHARACTERISTICS

The weighbridge surveys indicate the most common log-truck layout (59% of those surveyed) is a 3-axle truck with a 2-axle logging trailer set up for cartage of long-length logs (8 metres to 15 metres). Of the 2-axle log trailers, the N.Z. 2.4m spaced-axle type are most common, the remainder being older close-axle types and the newly introduced 1.8m wheel-base types.

Average tare weight of the most common configuration was 13 tonnes. The most common make of truck was Kenworth (30% of those surveyed), and overall there was only a slight preference for conventional long-nose trucks instead of cab-over-engine types. Average power rating was 203 kW (272 h.p.) and average number of transmission ratios was 13. The average truck age was 4.1 years and average mileage life to date 342,000 kms indicating an average mileage rate of 83,000 kms per year.

While Table I indicates the more typical log-truck characteristics, the distribution of common alternatives in log-truck layout is shown in Table II.

Weighbridge:	Riverhead	Kinleith	Whakarewarewa	Kawerau	Murupara	Waimihia	Belgrove	Balmoral	Leithfield	Total Surveyed
No. of 5-axle rigs	2	67	27	9	8	16	31	5	11	176 (70%)
No. of 6-axle rigs	3	2	14	4	3	7	2	2	9	46 (18%)
No. of Long-Nose trucks	5	57	16	1	18	19	21	1	1	139 (55%)
No. of Twin-Steer trucks	1	0	5	1	0	0	1	0	0	8 (3%)
No. of 2-axle jinkers	3	65	25	8	7	18	30	2	3	161 (64%)
No. of 3-axle jinkers	1	1	4	0	1	0	0	2	5	14 (6%)
No. of Short-log trailers	3	6	11	5	2	4	5	3	15	54 (22%)

TABLE II : COMMON ALTERNATIVES IN LOG TRUCKS

Next to 5-axle combinations, the 6-axle combinations are most popular. These 6-axle combinations though, come from a wide range including twin-steer trucks, 3-axle driving set trucks, and 3-axle trailers. The extent to which each of these alternatives occurs is very small being 3%, 4% and 6% respectively of total trucks surveyed.

Truck characteristics are very area dependent with the major fleet operators in each case playing a major role in influencing the most popular type of unit in that area.

OPERATIONAL ASPECTS:

The collection of this information was carried out in conjunction with the collection of data on truck characteristics. The one-day weighbridge surveys covered a total of 17,835 tonnes of logs representing approximately

49% of the total daily N.Z. roundwood movement by road.

Typical operational data in specific locations is shown in Table III.

Area (by Conservancy)	Auckland	Rotorua					Nelson	Canterbury		N.Z. Total Surveyed
	Riverhead	Kinleith	Whakarewarewa	Kawerau	Murupara	Waimihia	Beigrove	Balmoral	Leithfield	
Weighbridge:										
Av.No.Loads weighed per day	20	380	110	33	309	100	70	6	41	not relevant
Av.Truck Payload (tonnes)	21.1	25.6	25.6	24.1	42.0	24.7	22.2	22.3	19.3	24.7
Av.Payload Haul Distance (kms.)	18	24	60	56	29	109	56	50	50	39
Av.No. Trips per Driver Shift	2.9	3.8	2.7	2.5	3.0	2.3	2.0	1.4	1.6	not relevant

TABLE III : TRUCK OPERATIONAL ASPECTS

Operationally, the survey indicates the average truck pay-load is 24.7 tonnes, average pay-load haul distance is 39 kms and trucks average from two to three trips per driver-shift. However, as with the truck characteristics, the truck operational aspects are very area dependent with such influences as night-shift operation, off-highway cartage, location differences and truck-layout differences (many trucks at Murupara were double or triple load units), causing wide variation.

CONCLUDING POINTS:

Some points to note from this report are:

1. The industry is strongly dependent on 5-axle log-truck layouts which in the main are 3-axle trucks with 2-axle (wide spaced) trailers. As such these units are limited to a maximum gross weight of 36.3 tonnes if operating on Class I highways. By comparison, common 6-axle rigs can operate at 39 tonnes gross weight, and under the new road-user charges system, these 6-axle combinations operate at a substantially lower road tax rate.
2. There is a strong industry dependence on premium quality, higher priced trucks such as Kenworth, particularly in the higher producing area of the Central North Island where higher powered trucks are most common.

LIRA's 1977 transport studies Project Report is currently being compiled. The areas for further research in road transport have been identified in general and will be detailed in a subsequent LIRA Report.

GENERAL NOTE: The use of trade names in this Report is for clarification and in no way endorses the particular product.

For Further Information Contact: N.Z. LOGGING INDUSTRY RESEARCH ASSOC. INC.
P.O.Box 147,
ROTORUA, NEW ZEALAND. Phone 82-620.