
INCENTIVE PAYMENT SYSTEMS

Michael Duggan

Tasman Forestry Limited

Incentive payment systems in logging operations are not new and most people involved in the industry have a variety of opinions (usually conflicting) on the relative merits of incentive payment systems as opposed to wages on hourly rate systems.

What I have set out to achieve in this paper today is:-

- (i) Provide a review of currently used systems both in New Zealand and abroad;
- (ii) Consider examples of incentive payment systems as they relate to the logging contractor (as the employer) and the crew member (as the employee).
- (iii) Identify factors which are important to the successful implementation and maintenance of incentive payment systems.

The first point I wish to make however is that I will discuss rather than promote the use of these systems.

THE LOGGING WORKFORCE

Before considering the subject of the incentive payment systems, I think it is important to consider the logging workforce itself. While we have heard from previous speakers on the characteristics of the logging workforce and various aspects of manpower motivation, what do we know of the logging workforce's attitudes and needs as they are now?

As part of LIRA's 1989 - 1990 12 month absenteeism and turnover survey, a measure of the job satisfaction of members of the logging workforce from 6 districts were surveyed (Tapp: L. 1990)

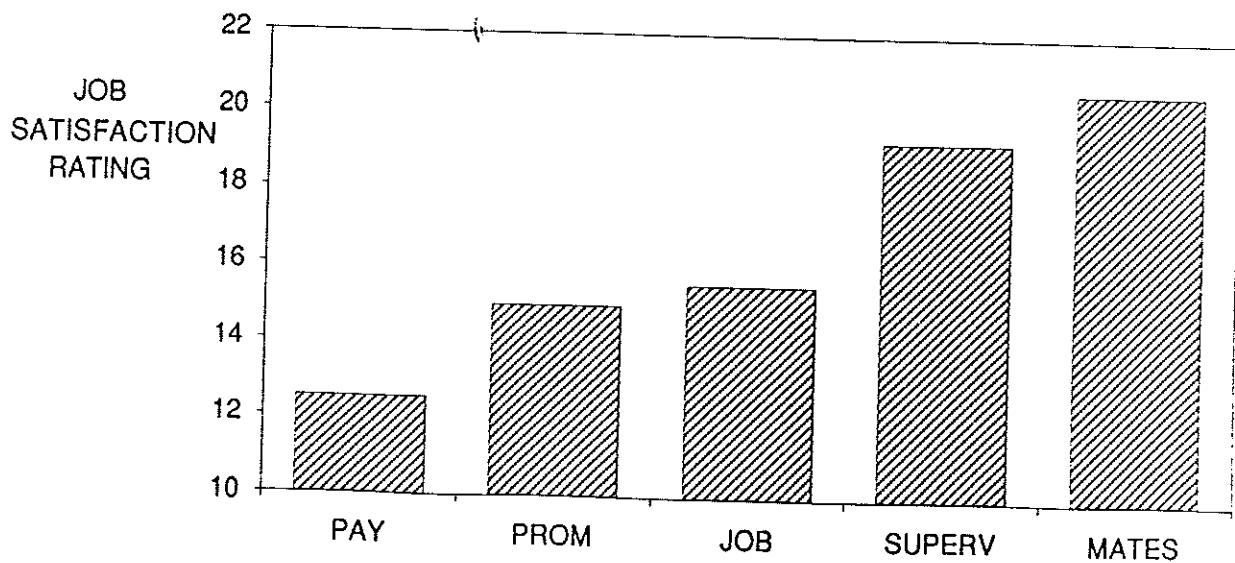
The survey involved a series of questions to determine the workers level of satisfaction with each of the following:-

- The job itself.
- The relationship with their co workers.
- The relationship with their supervisor.
- Promotion prospects.
- Pay.

The survey was administered 4 times over a 12 month period to 244 participants and yielded the following results.

Figure 1

JOB SATISFACTION OF THE NEW ZEALAND LOGGING WORKFORCE



RESULTS

While the job satisfaction with the co workers and the prime contractor (or with the supervisor for prime contractors) scored well, the job itself and the promotion prospects were less satisfying aspects of their employment. In regard to their financial rewards, this would appear to be the least satisfying aspect of the job.

While some improvement in the status of the logging workforce has been achieved by the introduction of training and certification schemes, the avenues for promotion for the majority of the workforce remain limited.

ALTERNATIVE APPROACHES TO REMUNERATION

Remuneration may assume any number or combination of different forms. This may include indirect forms such as the use of a vehicle, free firewood; or non financial rewards such as job status and hunting rights.

Unfortunately the "non financial" or "indirect" incentives or perks from the workforce's point of view are minimal. So where does this leave us - a workforce with limited promotion prospects with limited indirect and non financial remuneration who are generally dissatisfied with their level of pay.

FINANCIAL INCENTIVES

The level of remuneration to the logging workforce has frequently been identified as a problem area with the industry (Tapsell 1990, Heard 1990). It is common practice for contractors to pay above award wages to recruit and retain experienced workers. Other approaches recently adopted by at least one logging division is to incorporate more realistic wage levels for those with logging certificates than is currently allowed for in the award.

The general approach of the Forest Owners is that, while acknowledging the need for higher wages to the workforce, any increase in remuneration must be offset by a rise in production to maintain competitiveness. Other approaches to worker remuneration have also been suggested and include both superannuation and insurance:-

- (a) Superannuation has been suggested as a means of both increasing remuneration and to help stem the high turnover rates the logging industry is subject to (Heard 1990). While this approach may have some merit, it must be recognised that not all turnover has a negative effect on production and it may be better for a disgruntled or poorly motivated worker to leave rather than remain for superannuation benefits and adversely affect production. Also the superannuation companies need to seriously review the current "transportability" or more correctly "lack of transportability" of the packages currently available.

- (b) Insurance - the use of specially designed insurance packages into which both the prime contractor and the employee contribute is a recent development primarily aimed at assisting the crew foreman into being able to buy out the contract or part of the contract offer on a prearranged term. Contributions from both parties based on production goals are considered to be mutually beneficial.

RECENT DEVELOPMENTS WITHIN THE LOGGING INDUSTRY

The relative merits of incentive systems was considered in some depth by Robin Peterson at LIRA's 1984 seminar. Since 1984, the industry has evolved to a complete reliance on contract logging crews (as opposed to company crews) and a strong commitment to maximise value recovery.

The gains achieved through the implementation of both strategies have been well documented (Galbraith 1990, Twaddle 1986)

To encourage value maximisation the Forest Owners are increasingly turning towards the use of differential logging rates to encourage product outturn to match the stand's potential product outturn as predicted by pre harvest inventories.

The most commonly used system relates price per log type to the percent of the stand which it represented and as weighted to reflect the relative stumpages. Other more elaborate computer based systems such as "DIFFRATE" which was developed at LIRA to quickly allow the calculation of up to 4 differential rates from up to 10 individual log types. Diffrate (see figure 2 for typical output) directly relates pre harvest inventory data to the percentage revenue generated by each log type and also allows for the optional scaling of the prices and the averaging of log types which are commonly cross substituted. With both systems the average logging rate paid for m^3 for log will equal the base rate calculated from the daily cost and target. The benefits from the use of these systems are obvious and easily quantified by monitoring the revenue per hectare.

Figure 2

Differential Logging Payments					
Base Logging Rate = \$10.00			Crew Name : Example		
Log Group	Log Type	Volume per ha	Relative Price (\$/m ³)		
			\$		Diff
1	Pruned	100	100.00		Logging
2	J 12 Ex	56	70.00	Log	Rate
2	J 8 Ex	127	75.00	Group	
3	K 12 Ex	64	65.00	1-->	\$ 14.20
3	K 8 Ex	138	65.00	2-->	\$ 10.26
4	A Pulp	35	40.00	3-->	\$ 9.20
4	B Pulp	40	40.00	4-->	\$ 5.66

Output from DIFFRATE Programme

What I would like to discuss now is the scope for applying these concepts which are already in use at the contractor level, to the workforce itself.

The benefits derived from the implementation will vary widely and depend on many undefinable variables and is very much a matter of horses for courses.

While the use of incentive systems may not be relevant for a crew which is already performing well and satisfied with their remuneration, such system, properly implemented can meet the dual purpose of both the forestry company and the contractor by increasing production and increasing the take home pay of the workforce.

Before discussing the New Zealand experience with incentive systems I will quickly review the North American and Swedish experience with these systems.

1. PACIFIC NORTH WEST

A major increase in the use of logging incentive systems occurred between 1982 and 1987 in the Pacific North West region of the United States. One survey (Olsen, 1988) found 35% of the 146 logging operations used monetary incentive bonuses. Of these two thirds of the firms used production over a set goal as the basis for their incentive programs.

Production increases in the 20 to 30% range were found to be the most common while in some situations up to 50% increases were noted.

Olsen also noted how the level of mechanisation limited the potential to improve productivity, in that a crew cannot usually affect the machine paced portion of the work cycle.

Estimates of the proportion of different work cycles that are machine controlled were:-

Felling	20%
Logging	50%
Road building	60%
Trucking	70%

The estimates of the machine controlled percentages were found to explain why felling bonus generally yielded the highest bonuses and trucking the poorer bonuses.

Fears that incentives encouraged workers to work unsafely, abuse equipment and disregard quality were also shown to be unfounded. Many of the agreements surveyed made provision for quality and safety aspects to be incorporated into the production bonus.

THE SWEDISH EXPERIENCE

Until 1975 the Swedish forest industry was paid almost exclusively in the form of straight piece work rates. To a large degree however the rates paid were set on the basis of the forest supervisors own subjective assessment. A major strike occurred in 1975 and took place with the aim of securing a transition to remuneration by monthly salary. The final agreement arrived at a flat monthly salary for workers in the north, with a 15% productivity bonus for workers in other regions.

This dramatic change provided a rare opportunity to assess the impact of the change on both productivity and accident rate as they are affected by payment systems. (Werner, 1986)

No. of accidents per million working hours

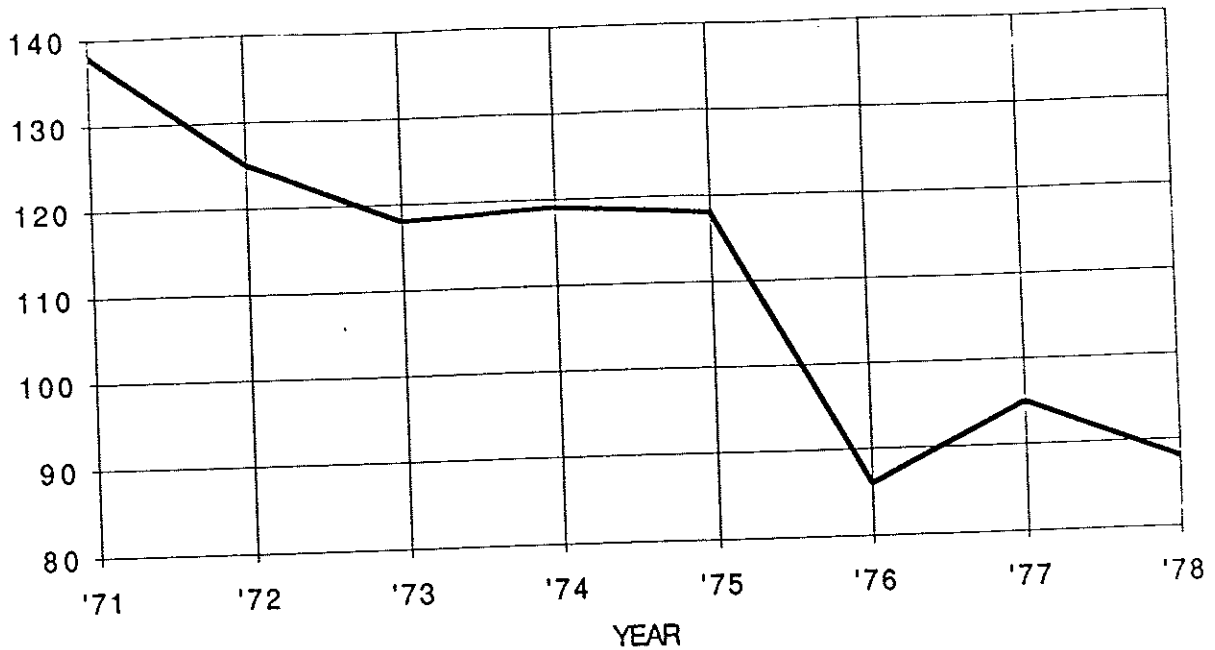


Figure 3 - Accident rate in cutting work 1971 - 1978 (source Swedish Forest Service).

A very significant drop in the accident rate was noted following the move away from piece rate payment. However while the level of accidents reduced, the average level of production also decreased proportionately.

Productivity Group	Productivity change/hour, per cent	
	Norrbottn region (flat monthly salary)	Rest of Sweden (85% time based 15% bonus)
High productive Cutters	- 41.3	- 23.6
Others	- 24.3	- 12.2

*Ratio between actual productivity and theoretical productivity >0.9 =
<0.9 = Others.

Figure 4 - "The influence of payment systems on productivity levels". (Werner, 1986)

Since this abrupt transition there has been a steady trend to an increase in the proportion of piece rate work. This increase in conjunction with a move to a higher level of mechanisation has resulted in an increase in productivity and a continual decrease in accident rates.

THE NEW ZEALAND EXPERIENCE

As part of LIRA's absenteeism and turnover survey the 20% of contractors who operate piece rate and bonus systems were asked to outline the structure of their payment systems.

The questionnaire yielded a wide variety of approaches to calculating incentive payment systems.

A few common practices which did emerge however include:-

- Payment based on rate/tonne produced.
- Rate per tonne calculated from an annual target with no adjustments made for differing stand types.
- The same rate paid to all workers although some did have a qualifying period.
- Most contractors deducted PAYE tax.
- A distinct regional trend in the use of incentive payment systems with the following order of prominence:-
 1. Nelson
 2. Otago/Southland
 3. Hawkes Bay
 4. Auckland/Northland
 5. Bay of Plenty

Apart from the informality of many of the incentive systems currently operating, concern was also expressed of the forest owners attitudes to the introduction of such systems, with a commonly held fear that any possible increase in production would be offset by a proportion of higher targets in the future.

Recently LIRA has been involved in assisting interested contractors to formulate their own incentive schemes. Two main approaches to date have been recommended. These include:-

The % Bonus Of Production In Excess Of Target

Bonus Payment System

(a)	Daily rate (excluding allowances)		\$100.00
(b)	Bonus payment	- Production	
		- Average daily production	245 tonnes
		- Target	230 tonnes
			(6.5% over target)
		therefore \$100 x 6.5% =	\$106.50
		Total payment	\$106.50

Ability to pay

Labour cost/day	\$100 x 7	=	\$700.00
Labour cost/tonne	<u>\$700</u>	=	\$3.04
	230		
	\$3.04 * 245/tonnes	=	\$744.80
Bonus cost	\$6.50 x 7	=	\$45.50
Hourly rate cost	\$100 x 7	=	<u>\$700.00</u>
			\$745.50

This approach allows for the maintenance of differential between hourly rate and continues to deduct PAYE directly. One thinning contractor who operates the system has found it to work well, with a discernable drop in the level of absenteeism.

PIECE RATE PRODUCTION PAYMENT

In operations where the individual components of a logging operation can be separated there is scope to move towards a piece rate approach. A sample calculation of which is detailed below:-

DAILY RATE	=	\$100
Allowances		
Statutory holidays	4%	
Sick leave (1 week)	2%	
Annual leave (3 weeks)	<u>6%</u>	
	12%	<u>12</u>
		\$112
Non taxables		
Saw	27/day	
Tea/clothing	<u>3/day</u>	
	\$30/day	

TARGET PRODUCTION

Target production/man/day	=	10.71 tonnes
@ 0.11 tonne piece size	=	97 pieces/day

PIECE RATE

<u>112/day</u>		
97 pieces	=	\$1.15/piece

WORKED EXAMPLE

<u>Production</u> 115 pieces/day	=	115* 1.15	=	132.25*
		less tax		<u>31.76</u>
		Net		\$100.49
		plus allowances		<u>30.00</u>
			=	\$130.49

*6% of 132.25 (ie 7.94) to be set aside for ACC

QUALITY INCENTIVE PAYMENTS

These systems can be easily modified to incorporate quality differentials, similar to those of the prime contractor. It is suggested that if the quality incentive approach is adopted that it be applied to all crew members in recognition of their respective roles in quality and value recovery.

Total labour cost	\$700/day		
	(\$100*7)		
Production target	230 tonnes/day		
Bonus rate for crew per tonne	<u>\$700</u>		
	230	=	\$3.04 tonne
Volume/value split	75%/25%		
Quantity	\$3.04 * .75	=	\$2.28/tonne
Quality	\$3.04 * .25	=	\$0.76/tonne

The quality payments are compared with the pre harvest stand assessment to determine what percent of the potential value the crew are achieving.

A base level can be set (in this example 90%) by which the crew's performance can be assessed against pre harvest assessment.

90% base for quality payments

% of potential quality recovery achieved	Rate per tonne
80	.68
85	.72
90	.76
95	.80
100	.84
105	.87
110	.91
115	.95
120	.99

Target performance -

Quantity 230 tonnes/day
 Quality 90%

Actual performance -

Quantity 245 tonnes/day
 Quality 100%

Payment quantity 245 * \$2.28/tonne = \$558.60

Payment quality 245 * \$0.84/tonne = \$205.80

Total labour cost \$764.40

or \$109.20/man/day

While this piece rate example involves PAYE tax deductions, the workers may also opt to pay their own tax and become subcontractors provided they meet the subcontractor requirements as specified in appendix 3. (Blackburne 1990)

CONSTRAINTS TO THE IMPLEMENTATION OF INCENTIVE PAYMENT SYSTEMS

Before any incentive payment system is considered, the legal implementations must be considered. The two main legislative features to be aware of include:-

1. That the current timber workers' award requires:-

"Where any piecework is done the employer of such piecework shall guarantee to such pieceworker the minimum rate of wages provided for in this agreement, and all such employers shall see that the conditions of this agreement in all other respects are observed."

2. Labour Department regulations require that holiday pay be deducted and paid out at termination and when annual leave is taken.

KEY FEATURES FOR A SUCCESSFUL INCENTIVE PAYMENT SYSTEM

The implementation on any incentive payment system requires a number of key factors to be present for it to have the opportunity of succeeding. These factors include:-

1. The Involvement And Approval Of The Employees

Without the co-operation of the workers, any plan will fail.

2. A Commitment From The Forest Owner For An Equitable And Consistent Approach To The Setting Of Production Targets

Where this commitment is lacking, incentive schemes are not viable. A consistent approach from the forest owner. This includes the adoption and use of standard target setting practices. The advance in personal computer information retrieval systems and the new generation of logging planning packages greatly simplify the implementation and maintenance of incentive systems. Such systems enable the high degree of subjectivity to be eliminated from the planning process and should allow contractors to compete on an equal footing. Management attention is better targeted at the poorer performers.

3. A Well Planned But Simple Payment System

The system must cover all the legal requirements and eventualities likely to be encountered, yet simple enough that the employee can calculate their expected payments. This requirement creates a preference for the % bonus or piece rate systems. Open information and providing feedback to the employees from the contractor, even to the extent of providing workers with the company calculated targets and company weighbridge summaries.

4. The System Should Involve As Few People As Possible

The more people involved in a system decrease the individual level of responsibility and motivation. Typically the employees become more involved in new selection processes and in determining the optimum number to work in the crew.

5. Establish A Suitable Basis And Time Frame For Production Measurement

This may involve piece counts, loadrite readings, number of truck loads, weighbridge dockets etc. Similarly it is important to decide upon the appropriate period for measurement and payment of production. Weekly or fortnightly payments are generally found to be most effective. Some employers have found that paying bonuses separately helps the employee more clearly identify the bonus as a bonus, rather than an additional sum of money which can become expected and thereby creating problems when not achieved. Also where production is scaled monthly, an interim payment based on an estimate of production is frequently necessary.

6. Document The System And Have All Parties Sign It

Include procedures for incorporating award increases in to the system and set an agenda to regularly review the system. Always be prepared to modify the system and anticipate problems before they arise. (See appendix 1 for sample format.)

CONCLUSION

Incentive payment systems are not a panacea to remedy all the logging contractors problems overnight. Furthermore, the implementation of poorly planned systems or systems which do not have the support of either the employees, contractors or forest owner are equally likely to fail.

Incentive systems are not a substitute for good contractor management but used properly, and in the right environment, they can provide a tool to assist in contract management. The impact of incentive systems is not limited to "motivation by money" but also acts on the other inter related factors which can collectively act to motivate workers including the need for satisfaction, achievement and affiliation. While it is acknowledged that different things motivate different people in different ways, research suggests that formalised incentive systems can play a part in stimulating crew output.

Productivity gains will vary with the level of dependency on machine controlled functions and in individual crew ability however increases in the region of 20% are found to be most typical. Take home pay is found to increase by similar levels.

Criticisms of incentive systems commonly focus on perceived problems of safety and quality and the level of experience required. Evidence suggests however that these perceptions are unable to be substantiated,

The systems discussed previously demonstrate the high level of flexibility achievable when formulating a payment system and how a system can readily be customised to meet individual requirements. Implementation of a system can be used to increase the business skills of those targeted as future contractors by providing the motivation and the methodology for eventually running their own small business (contracting) operations.

Finally, if contractors are unsure as to how the adoption of an incentive payment would impact on your crew then nothing is lost by implementing a system on a trial basis. After all unless you test alternatives you'll never know how good or bad your initial performance was.

An Incentive-Program Agreement

This example is not intended as a standard agreement but merely as an illustration of how administrative policies might be stated.

Date _____

This agreement shall become part of the labor agreement and shall supersede all previous yarding and loading agreements and practices inconsistent with this program.

age of volume removed, and, if owed, a bonus shall be paid up to eighty percent (80%) of the estimated bonus payable for the unit. When the unit is reactivated, the same crew shall be assigned, and one-hundred percent (100%) of any remaining bonus owed shall be payable upon completion of the unit.

A. Unit Prices

1. A unit (Harvest Plan) price is based on competitive prices as it would be offered to an outside contractor.
2. The price per MBF shall be established by the company. After consultation with the hooktender and before logging of a unit, the company will furnish the hooktender a "Harvest-Plan Cost and Bonus-Appraisal Data Sheet."

3. Bonus payable to the crew shall be distributed between the crew members according to actual hours worked by each crew member, as reported by the hooktender.

B. Crew Makeup

1. The company shall designate the crew leader (hooktender).
2. The company shall determine the maximum number of crew members to fit the unit being logged.
3. Upon date of ratification, all jobs except hooktender in the competitive logging program will be considered as new jobs for bidding purposes, and the job bid procedure of the working agreement will be used to fill any opening. Employees who enter the program at its inception may exercise, at any time up to the 30th workday, their plant seniority as though they were affected by a job elimination.

D. Advanced Wages

1. Advanced wages in the form of a guaranteed base rate shall be paid on regular pay periods.
2. The base rate will equal seventy-five percent (75%) of the hourly rate for an individual's classification in effect on _____.

C. Bonus Payment

1. On the following pay period, fifty percent (50%) of the estimated bonus payable shall be paid when fifty percent (50%) of the unit's volume has been removed, and one hundred percent (100%) of any remaining bonus owed shall be payable upon completion of the unit.
2. Should a unit remain inactive (partially logged) for more than two (2) months, the bonus shall be calculated upon the percent-

E. Hours of Labor

1. A normal work day is defined as an eight-(8) hour period.
2. Authorized overtime will be paid on the guaranteed base rate for hours worked in excess of eight (8) in a day and forty (40) in a week.
3. All crews will be required to check in at the woods office when going to work and to check out at the woods office when leaving the work site. If mutually agreed, alternative sites may be designated.

F. Vacation, Holidays, Jury Duty, and Funeral Leave

These items shall be paid at the guaranteed base rate.

G. Work Assignments

Each crew member shall have the responsibility and right to perform all tasks necessary to accomplish crew goals in a safe and reasonable manner.

Calculation Sheet for Standards and Bonuses

Month: _____ Job Name: _____ Incentive Area # _____ Logging Side # _____

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
Men																																
Hours																																
Man-Hrs																																

Incentive standard: _____ Cunits/man-hour

(WP) Week's production: _____ (Total volume delivered)

(TM) Total man-hours worked: _____ (Man-hours worked for week [from above])

Actual Production = $\frac{(WP)}{(TM)}$ = _____ Cunits/man-hr

Productivity = $\frac{\text{Actual production}}{\text{Incentive-standard}} \times 100 = \frac{\text{Cunits/man-hr}}{\text{Cunits/man-hr}} \times 100 = \text{_____ \%}$

Production incentive: 82%

(Productivity _____ - 100) x 0.82 = _____

Quality incentive: 18%

Sorting	One missorted load	= 4% = .04	_____
	Two missorted loads	= 2% = .02	_____
	More than two missorted	= 0% = .00	_____
Unbucked ends	One unbucked end	= 4% = .04	_____
	Two unbucked ends	= 2% = .02	_____
	More than two unbucked ends	= 0% = .00	_____
Clean logging	Less than 10 ft ³ /acre	= 8% = .08	_____
	10-20 ft ³ /acre left	= 4% = .04	_____
	More than 20 ft ³ /acre left	= 0% = .00	_____
Safety	No lost time (accident)	= 2% = .02	_____
	Lost time (accident)	= 0% = .00	_____

TOTAL

(Productivity _____ - 100) x (Quality total _____) = _____

TOTAL INCENTIVE:

TOTAL INCENTIVE, PRODUCTION PLUS QUALITY, TO BE PAID _____ %

H. Quality Control

The company shall determine quality standards and audit to assure compliance. A volume penalty for damaged logs, limby logs, missorts, and substandard utilization on the unit shall be assessed against any crew bonus earned.

I. Harvest Plan Compliance

The Forest Practices Act will be adhered to at all times and any violation made by a crew shall be corrected in the time specified by the Forest-Practices inspector. If violations require payment by the company of a fine, such amount will be assessed against any crew bonus earned.

The hooktender will accompany the woods superintendent during a Forest Practices inspection.

J. Safety and Fire Regulations

1. The Company shall remain responsible for providing and enforcing these programs.
2. The crew will be expected to comply with all applicable company, state, and federal regulations.

K. Discipline

The company's right to discipline shall not be diminished by this agreement.

L. Implementation

The program shall be implemented as soon as practical following ratification by the Union.

M. Duration

Either party reserves the right to terminate this Agreement thirty (30) days after giving written notice of intention to terminate.

During the thirty- (30) day period, the parties will meet in an effort to resolve any problem giving rise to the notice.

Upon termination by either party, this agreement shall have no affect on yarding and loading agreements and practices that existed prior to its inception.

Signed this _____ day of _____:

WORKER REPRESENTATIVES

By: _____

COMPANY REPRESENTATIVES

By: _____

Source: E.D. Olsen (1988)
Logging Incentive Systems
Forest Research Laboratory Research Bulletin 62

APPENDIX 2

It is particularly important that this documentation evidences the fact that the subcontractor is effectively self employed and this can be evidenced by the contract specifying the following:-

- (a) That where the contract work can reasonably be expected to exceed \$24,000 per annum that the subcontractor is registered for GST.
- (b) That the subcontractor is responsible for payment of all of his own operating expenses, including ACC.
- (c) That the subcontractor provides his own transport to and from work.
- (d) The subcontractor is paid on a specific basis (not an hourly basis) and payment is made upon the supply of an invoice to you, the main contractor.
- (e) The subcontractor supplies his own tools of trade eg chainsaw and any other tools or equipment required such as protective clothing etc.
- (f) The subcontractor can work his own hours as and when he chooses, and is not under the direct control or direct supervision of the prime contractor.
- (g) That the subcontractor is not entitled to sick leave or holiday pay, nor payment of union fees etc.

Source: M. Blackburne - The Business Of Logging - An Accountant's Perspective.

From LIRA Business Of Logging Workshop Notes.

REFERENCES

- Blackburne: M. (1990) "Business Of Logging - An Accountant's Perspective" from LIRA Business of Logging Workshop Notes (unpublished).
- Galand: J.J. (1985) "Perspectives On The Logging Labour Force : Selection, Training And Motivation". P 7 - 32 in People And Productivity : Keys To A Successful Harvesting Operation. FPRS/CPPA Harvesting Conference, Thunder Bay, Ontario, Canada.
- Galbraith: J. (1989) "New Harvesting And Log Merchandising Techniques In New Zealand And Australia". A paper presented to the 1989 Commonwealth Forestry Conference, September 1989, Rotorua, New Zealand.
- Heard: B. (1990) "Where To With Education And Training?". A paper to the Forest Industries 1990 Conference, Rotorua.
- McKay: M.B. (1983) "Company/Employee Gain-Sharing Programs. Studies In Management And Accounting For The Forest Products Industries". School of Business, Oregon State University, Corvallis. Monograph 19 4 p.
- Olsen: E.D. (1988) "Logging Incentive Systems". Forest Research Laboratory. Research Bulletin 62.
- Peterson: R.L. (1984) "Incentives And Contracts". P 174 - 188 in Proceedings, Human Resources In Logging, June 1984. New Zealand Logging Industry Research Association, Inc. Rotorua.
- Tapp: L. (1990) "Job Satisfaction And The New Zealand Workforce". LIRA brief report (in press).
- Tapsell: P. (1990) "Closing Address" - Forest Industries 1990 Conference, Rotorua.

- Twaddle: A. (1986) "Better Log Making" LIRA Technical release Volume 8 No. 5 1986.
- Werner: M. (1986) "Development In A New Wage Form In Swedish Forestry". Skogsaberten.

