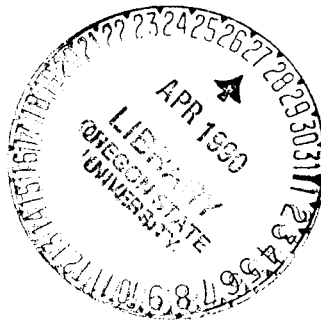


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College of Business
College of Forestry

Studies in Management and Accounting for the **FOREST PRODUCTS INDUSTRY**

Microcomputer Applications in Timber Management and Accounting

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Monograph Number 29
August 1988

Director's Note

In a 1984 monograph, "Microcomputer Modeling in the Forest Products Industry," Steven Reiff combined decision modeling with microcomputer technology to help managers more efficiently explore a number of different decision scenarios. An important consideration in Reiff's conclusions was that an expanding microcomputer technology had made modeling more accessible to all managers at an affordable price.

The current monograph demonstrates the evolution of microcomputer applications within the industry. What distinguishes this monograph is its attempt to capture and mirror actual decision processes with respect to timber bidding, inventory control, and performance evaluation. As such, these applications can be viewed as a step toward an "expert system," in which managers can more effectively and efficiently assess the impact of changes in different variables.

The software described in the current monograph is proprietary; requests for additional information about this software should be directed to the authors. While it is not the intention that Studies in Management and Accounting in the Forest Products Industry market commercial products, it is the responsibility of the series to focus on new developments and related opportunities within the industry.

Joseph Karas is a partner in the Portland office of Moss Adams. He has over twelve years' experience as a CPA, principally concentrated in the forest products industry. Joe leads his firm's forest products committee and provides audit and consulting services to over forty clients in the lumber and plywood manufacturing industry.

Joan S. Ryan is a business management instructor at Lane Community College who completed two masters degrees at OSU including an MBA in 1987. With 14 years teaching experience, she also has published national textbooks in the areas of personal finance, economics, and general business. She currently teaches applied economics, office management, and personal finance and is completing the second editions of previously published textbooks, totally computerized in Xywrite, a text-editing package, Harvard Presentation Graphics, and Lotus 1-2-3 software.

Marvin Rosette dba C&R Timber, Inc. has held job-related responsibilities in the timber industry, including timber cruising, sales, road engineering, timber supply and acquisitions, fibre management and now log and timber merchandising.

INTRODUCTION

The purpose of this monograph is to acquaint the reader with some possible uses of a microcomputer in timber management and accounting. Examples will illustrate the basic structure of an overall timber management and accounting system.

The information contained in this monograph is tailored to the needs of the small, independent mill. Intended users include the timber manager or log buyer, the general manager and the financial manager of the mill.

The microcomputer spreadsheet applications are designed to facilitate bidding on timber sales, to follow through with inventory control, and to help analyze the effects of purchases and inventory levels on future needs and profitability. Development of this model is based on the need for a means to monitor timber acquisition and to analyze the assumptions affecting the initial purchasing decisions, thus providing follow-up assessment of a timber manager's performance.

Background

With the high cost of logs and inventory carrying costs, management of timber acquisitions and inventory levels is crucial in today's volatile lumber and plywood industry. Several years ago, the average mill's log inventories would increase each fall to as much as a seven-month supply of that mill's raw material needs. At the present time, interest charges can add up to \$3/MBF per month to the real cost of the logs. To enhance monthly profitability, most managers therefore try to keep log inventories at levels close to mill needs. The need to closely regulate log volume can also be important during the winter months, depending on mill site location and timber availability.

Today the planning of log purchases and logging activities, along with the cost of timber inventory, is even more important to an operation's profitability, because managers can no longer rely on inflation to compensate for imprudent purchases or excessive inventory.

At the same time, the cost of computerizing timber management functions has decreased significantly. The timber management system described in this monograph was developed using an IBM PC with 640K memory and Lotus 1-2-3 spreadsheet software. Total cost was less than \$5,000. The timber accounting system, which follows up and analyzes data from an accounting perspective, operates on an IBM PC 360 and uses accounting software, at a total cost of less than \$12,000.

BENEFITS OF A TIMBER MANAGEMENT SYSTEM

An overall timber management and accounting system has numerous advantages:

- The system documents the buyer's decision-making process as a decision is made and action taken. This means the buyer's performance can be analyzed by comparing results to the assumptions used in the original purchasing decision.
- There is consistency and uniformity because the need to recreate the decision-making process for each new decision is eliminated.
- The system allows the general manager or owner to become a more active part of the decision-making process, since he can review and assess assumptions, thus becoming more involved in areas such as setting maximum or minimum bids.
- By allowing continual monitoring, the system reduces the risk of faulty decisions.
- Microcomputers quickly and economically process the necessary information to provide the log costs and inventory volumes needs for closer management of the log supply.
- The system easily provides sufficient detail for consistent application, whereas the manual process for monitoring log purchasing is very cumbersome and inconsistent.
- The microcomputer process requires the documentation and uniformity essential to good management.
- New variables can be added easily to change existing decisions.
- Overall, the system provides a process for follow-up and control, for tracking costs and comparing actual data to earlier assumptions, and for assessing the impact of each decision on profits.

THE TIMBER APPRAISAL SUMMARY

The first part of the timber management system described herein is the timber appraisal summary, which consists of three worksheets: the bid valuation worksheet, the volume and cost appraisal worksheet, and the log value worksheet (Exhibits 1-3). The information needed for completing these worksheets is taken from the data gathered by the timber manager for making purchasing decisions.

Purchaser Bid Valuation

The purchaser bid valuation, which provides the buyer with the maximum bid price, is based on the cost appraisal, which calculates the extraction costs needed before bidding (Exhibit 1). The bid valuation places a log value, by species, on each timber sale, as shown below:

EXHIBIT 1
PURCHASER BID VALUATION

SPECIES	D FIR	HEM	PSF	WRC	UTILITY	TOTAL MBF	
Volume	6,000	2,000	1,000	600	570	9,600	Volume in sale
Log value	237.50	174.90	174.90	223.40	95.79	2,138,340	Avg. log market value
Log costs	<u>127.95</u>	<u>123.95</u>	<u>122.95</u>	<u>134.95</u>	<u>88.50</u>	<u>1,269,965</u>	Delivery costs
Margin	109.55	50.95	51.95	88.45	7.29	868,375	Margin by species
Stumpage	<u>90.00</u>	<u>30.00</u>	<u>30.00</u>	<u>150.00</u>	<u>5.43</u>	<u>723,095</u>	Minimum stumpage
Bid up	19.55	20.95	21.95	-61.55	1.86	145,280	Profit margin
To bid	107.89	50.00	30.00	150.00	5.43	870,435	Maximum stumpage bid
					AVE/M	90.67	

In the above worksheet the log value is the estimated market value of those logs today. The delivered log cost is generated from the cost appraisal (described below). The margin is the difference between log value and costs to the mill. Minimum stumpage shows the minimum bid required by the seller for each species, and the profit margin is determined by subtracting the minimum stumpage bid from the margin. The maximum stumpage bid is the determination of the timber manger's final bid estimate, which in this example would be \$870,435.

Purchaser Volume and Cost Appraisal

The purchaser volume and cost appraisal in Exhibit 2 lists the variable costs involved in delivering timber to the designated mill site. The model takes data from the Forest Service to document estimated costs such as logging, road work, scaling, slash, road toll, erosion, and tax.

Log Value

The log value portion which follows reflects the quality and log value of the sale (Exhibit 3). Log values are equated to the mill recovery and product sales pricing, based upon market conditions. In this example, a grade of log is supplied for each sale, which is then used to arrive at the log value. Douglas Fir is estimated to have a

peeler rate of two percent of fir volume; sawmill grade is five percent, and so on. The average value of the Douglas Fir (\$238.62) is determined by adding up the various values for each component.

EXHIBIT 2
PURCHASER VOLUME AND COST APPRAISAL

	D FIR	HEM	PSF	WRC	UTILITY	TOTAL MBF
VOLUME	6,000	2,000	1,000	600	570	9,600
COSTS:						
LOGGING	\$90.00	\$90.00	\$90.00	\$95.00	\$85.00	\$915,450
ROAD	8.00	8.00	8.00	8.00	0.00	76,800
SCALING	3.50	3.50	3.50	3.50	3.50	35,595
SLASH	12.40	12.40	12.40	12.40	0.00	119,040
ROAD TOLL	6.70	6.70	6.70	6.70	0.00	64,320
EROSION	0.35	0.35	0.35	0.35	0.00	3,360
TAX	<u>7.00</u>	<u>3.00</u>	<u>2.00</u>	<u>9.00</u>	<u>0.00</u>	<u>55,400</u>
TOTAL	\$127.95	\$123.95	\$122.95	\$134.95	\$88.50	\$1,269,965

EXHIBIT 3
LOG VALUE

D FIR				HEMLOCK/PSF				WRC			
GRADE	%	VALUE PER M	DOL/ MBF	GRADE	%	VALUE PER M	DOL/ MBF	GRADE	%	VALUE PER M	DOL/ MBF
P1	2	400	8.00	P	2	210	4.20	SAW 1	4	260	10.40
P2	5	320	16.00	SAW 1	4	200	8.00	SAW 2	20	240	48.00
P3	15	275	41.25	SM	17	195	33.15	SAW 3	65	220	143.00
SM	5	255	12.75	SAW 2	45	175	78.75	SAW 4	11	200	22.00
SAW 2	55	230	126.50	SAW 3	28	160	44.80				
SAW 3	14	198	27.72	SAW 4	4	150	6.00				
SAW 4	4	160	6.40								
TOTAL	100		238.62	100		174.90		100		223.40	

The use of spreadsheets such as those above provides a means to prepare the timber appraisal and to quickly adjust costs or valuations. Different price levels can be compared to the expected value at harvest. Timber quality valuation and costs for each sale can be incorporated into the standard timber sale appraisal format, providing uniformity to the manner in which the timber sale is appraised.

Use of a uniform appraisal requires consideration of all the variable costs of a sale. This standardized format improves communications and allows all participants to evaluate bid decisions. After-the-fact reference and comparison to actual factors present at the time of timber removal is easily documented for future use.

Because the stumpage "to bid" results are dependent on value less costs of production, the effect of adjusting a cost or value is quickly reflected in the bottom line ("to bid"). Changing any item may alter the final decision. This feature is significant because last-minute decisions and their impact can be displayed later for evaluation and future use. The sensitivity analysis (considering the "what-ifs") of the particular factors of the timber purchase decision can be compared and additional data gathered to support the critical ones, such as grade values, volumes, etc.

THE LOGGING INVENTORY PLAN

Yet another factor affecting purchasing decisions is effective inventory control. The inventory control process involves two important areas: the planned volume of logs coming to the mill (Acquisitions), and the usage and inventory levels at the mill (Logs Sold and Average Log Inventory Volume).

Acquisitions

The acquisitions spreadsheet shown in Exhibit 4 is based on original timber sale appraisals and total committed standing timber inventories. Shown first is a particular month's timber sales (September, 1986), at the cost to the mill, followed by logs purchased from other mills.

"Total acquired" is the total amount purchased for the month. In this case, 2,360,000 feet of Douglas Fir logs are brought into the mill.

Logs Sold

Typically, some of the purchased logs are then sold. The example in Exhibit 5 shows the logs sold (in this case some lower-grade logs) and arrives at net acquisitions by species. It then computes the average log inventory volume (beginning inventory, plus acquisitions, less usage) and arrives at the ending inventory (Exhibit 6).

EXHIBIT 4
ACQUISITIONS

September 1986

	D FIR			HEM			WRC			PAM			TOTAL		
TIMBER SALES	VOL/M	DOL/M	AMOUNT	VOL/M	DOL/M	AMOUNT	VOL/M	DOL/M	AMOUNT	VOL/M	DOL/M	AMOUNT	VOL/M	DOL/M	AMOUNT
Sale 1	380	\$234.45	\$ 89,091	460	\$217.86	\$100,216	10	\$245.00	\$ 2,450	20	\$80.00	\$ 1,600	870	\$222.25	\$193,357
Sale 2	680	264.45	179,826	200	206.43	41,286	30	255.00	7,650	60	88.00	5,280	970	241.69	234,439
Sale 3	550	249.45	137,198	140	200.43	28,060	25	270.00	6,750	90	84.00	7,560	805	223.06	179,568
Sale 4	220	254.45	55,979	70	202.43	14,170	60	287.00	17,220	20	78.00	1,560	370	240.35	88,929
Sale 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL FROM TIMBER SALES	1,830	\$252.51	\$462,094	870	\$211.65	\$183,732	125	\$272.56	\$34,070	190	\$84.21	\$16,000	3,015	\$230.94	\$696,288 (a)

(a) Planned log production from timber sales
Dollars/MBF indexed including delivery costs

PURCHASED LOGS

Seller 1	140	\$205.00	\$ 28,700	50	\$190.00	\$ 9,500	0	0	\$ 0	10	\$85.00	\$ 850	200	\$195.25	\$ 39,050
Seller 2	90	220.00	19,800	80	195.00	15,600	0	0	0	20	88.00	1,760	190	195.58	37,160
Seller 3	300	265.00	79,500	140	205.00	28,700	0	0	0	30	80.00	2,400	470	235.32	110,600
Seller 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Seller 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL PURCHASED	530	\$241.51	\$128,000	270	\$199.26	\$ 53,800	0	\$ 0	\$ 0	60	\$83.50	\$ 5,010	860	\$217.22	\$186,810
TOTAL ACQUIRED	2,360	\$250.04	\$590,094	1,140	\$208.36	\$237,532	125	\$272.56	\$34,070	250	\$84.04	\$21,010	3,875	\$227.79	\$883,098 (b)

(b) Log purchases by seller at the delivered log cost

EXHIBIT 5
LOGS SOLD

	D FIR			HEM			WRC			PAM			TOTAL		
	<u>Vol/M</u>	<u>Dol/M</u>	<u>Amount</u>	<u>Vol/M</u>	<u>Dol/M</u>	<u>Amount</u>	<u>Vol/M</u>	<u>Dol/M</u>	<u>Amount</u>	<u>Vol/M</u>	<u>Dol/M</u>	<u>Amount</u>	<u>Vol/M</u>	<u>Dol/M</u>	<u>Amount</u>
Customer 1	80	\$150.00	\$ 12,000	0	\$ 0	\$ 0	0	\$ 0	\$ 0	0	\$ 0	\$ 0	80	\$150.00	\$ 12,000
Customer 2	200	160.00	32,000	0	0	0	0	0	0	0	0	0	200	160.00	32,000
Customer 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Customer 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Customer 5	0	0	0	0	0	0	110	280.00	30,800	220	85.00	18,700	330	150.00	49,500
Total Log Sales	<u>280</u>	<u>\$157.14</u>	<u>\$ 44,000</u>	<u>0</u>	<u>\$ 0</u>	<u>\$ 0</u>	<u>110</u>	<u>\$280.00</u>	<u>\$30,800</u>	<u>220</u>	<u>\$85.00</u>	<u>\$18,700</u>	<u>610</u>	<u>\$153.28</u>	<u>\$ 93,500</u>
Net Logs Acquired	2,080	\$262.54	\$546,094	1,140	\$208.36	\$237,532	15	\$218.00	\$ 3,270	30	\$77.00	\$ 2,310	3,265	\$241.72	\$789,2052

EXHIBIT 6
AVERAGE LOG INVENTORY VOLUME

	D FIR			HEM			WRC			PAM			TOTAL		
	<u>Vol/M</u>	<u>Dol/M</u>	<u>Amount</u>	<u>Vol/M</u>	<u>Dol/M</u>	<u>Amount</u>	<u>Vol/M</u>	<u>Dol/M</u>	<u>Amount</u>	<u>Vol/M</u>	<u>Dol/M</u>	<u>Amount</u>	<u>Vol/M</u>	<u>Dol/M</u>	<u>Amount</u>
SEPTEMBER															
Beg. Inventory	5,770	\$265.18	\$1,530,063	1,290	\$199.84	\$257,800	40	\$211.50	\$8,460	98	\$81.31	\$ 7,968	7198	\$250.67	\$1,804,291
Acquisition	2,080	262.54	546,094	1,140	208.36	237,532	15	218.00	3,270	30	77.00	2,310	3265	\$241.72	789,205
Usage	2,240	260.00	582,400	700	205.00	143,500	0	0.00	0	0	0.00	0	2940	\$246.90	725,900
Ending Inventory	5,610	\$266.27	\$1,493,757	1,730	\$203.37	\$351,832	55	\$213.27	\$11,730	128	\$80.30	\$10,278	7523	\$248.25	\$1,867,596

Inventory Flow

Each month, inventory estimates are replaced by actual data. For example, a manager could add timber harvested in a sale not included in the previous month's estimate. The mill would consequently increase usage, sell more logs, or buy less from the open market. By entering sales data along with expected harvesting plans, the manager can project the overall effect on the costs of logs to the mill.

Shown in Exhibit 7 is a summary of several months' inventory flow, by species, which can be used for assessing impact over time. This logging inventory plan is an on-line management tool which allows for timely actions and effective control over the impact caused by variations encountered by the mill.

Variations in production levels are a normal occurrence at most logging sites, usually caused by fire, weather and road closures. A change at the mill-for example, from a two-shift to a single-shift basis-has an immediate impact as well. Market changes may influence species usage, affecting the log inventory balance. In addition, log costs vary with new government rules such as the minimum cash downpayment, indexing, midpoint payments and harvest requirements. The Inventory Flow spreadsheet is easily modified to consider any of these variations.

As production and business cycles change, manually keeping track of their impact on log cost and inventory level becomes a tedious task. The on-line interactive planning tool presented here provides a much better method for managers to control costs, especially since entering up-to-the-minute changes into the microcomputer produces immediate updates.

The timber manager needs time and information to make effective decisions. Using such a log schedule means taking each of the cost variables, combining them into one package, and demonstrating the impact on a company's profitability. This ability to answer the "what-if" questions provides opportunities for the best possible decisions on log purchases and activity levels.

TIMBER SALES ANALYSIS

The final step in the timber management system is analysis and evaluation. The example shown on the following page tracks and monitors the effectiveness of appraisals and sales that were completed in the previous examples. Actual data is entered from scale bills or logging weight tickets and then compared to earlier assumptions. The system converts tonnage to board footage and computes stumpage, logging, and hauling costs on a per thousand foot basis. All costs, including road amortization, are accounted for. Monthly, year-to-date, and sale-to-date reports may be produced.

EXHIBIT 7
INVENTORY FLOW

	D FIR			HEM			WRC			PAM			TOTAL		
	<u>VOL/M</u>	<u>DOL/M</u>	<u>AMOUNT</u>	<u>VOL/M</u>	<u>DOL/M</u>	<u>AMOUNT</u>	<u>VOL/M</u>	<u>DOL/M</u>	<u>AMOUNT</u>	<u>VOL/M</u>	<u>DOL/M</u>	<u>AMOUNT</u>	<u>VOL/M</u>	<u>DOL/M</u>	<u>AMOUNT</u>
SEPTEMBER															
Beg. Inventory	5,770	\$265.18	\$1,530,063	1,290	\$199.84	\$257,800	40	\$211.50	\$ 8,460	98	\$81.31	\$ 7,968	7,198	\$250.67	\$1,804,291
Acquisition	2,080	\$262.54	546,094	1,140	208.36	\$237,532	15	218.00	3,270	30	77.00	2,310	3,265	241.72	789,205
Usage	2,240	\$260.00	582,400	700	205.00	\$143,500	0	0.00	0	0	0.00	0	2,940	246.90	725,900
Ending Inventory	5,610	\$266.27	\$1,493,757	1,730	\$203.37	\$351,832	55	\$213.27	\$11,730	128	\$80.30	\$10,278	7,523	\$248.25	\$1,867,596
OCTOBER															
Beg. Inventory	5,610	\$266.27	\$1,493,757	1,730	\$203.37	\$351,832	55	\$213.27	\$11,730	128	\$80.30	\$10,278	7,523	\$248.25	\$1,867,596
Acquisition	5,760	268.38	\$1,545,879	1,530	214.74	\$328,546	15	221.67	3,325	158	\$83.89	13,254	7,463	253.38	1,891,004
Usage	3,840	263.09	\$1,010,258	1,030	210.28	\$216,587	65	214.74	13,958	48	\$83.06	3,987	4,983	249.81	1,244,790
Ending Inventory	7,530	\$269.51	\$2,029,378	2,230	\$207.98	\$463,791	5	\$219.40	\$ 1,097	238	\$82.12	\$19,545	10,003	\$251.31	\$2,513,810
NOVEMBER															
Beg. Inventory	7,530	\$269.51	\$2,029,378	2,230	\$207.98	\$463,791	5	\$219.40	\$ 1,097	238	\$82.12	\$19,545	10,003	\$251.31	\$2,513,810
Acquisition	6,450	276.68	\$1,784,582	1,820	219.01	\$398,594	20	224.30	4,486	152	\$88.97	13,524	8,442	260.74	2,201,186
Usage	5,490	274.82	\$1,508,754	1,620	221.45	\$358,741	15	221.67	3,325	56	\$87.23	4,885	7,181	261.20	1,875,705
Ending Inventory	8,490	\$271.52	\$2,305,206	2,430	\$207.26	\$503,644	10	\$225.80	\$ 2,258	334	\$84.38	\$28,184	11,264	\$252.07	\$2,839,291

The accounting software used here will run on a microcomputer system. The software allows tracking of grade and species, by timber sale. The system is fairly extensive and can not utilize information on-line from a scaling bureau, which serves to streamline and enhance the procedure.

The timber accounting software maintains an open payables file by logger. Logger checks can be produced by selecting the scale bills or weight tickets to pay. A remittance advice is produced that shows detail by scale bill. The software provides extensive reporting including contract footages, amounts, loads, logs, stumpage footages, and special outside log purchases. These reports are available in many sequences, such as by sale, brand, species, sort and grade.

There are also numerous reports and options available from the timber reporting system which facilitate the accounting process. These include:

Sale master file report	Scale bill edit report
Weight ticket edit report	Detail analysis report
Destination analysis report	Purchased log worksheet
Contract logging worksheet	Stumpage worksheet
Amortization worksheet	Timber accounting journal
Timber sale analysis report	Summary of stumpage report
Timber sale status report	Timber sale synopsis report
Timber sale eligibility	Stumpage inventory report
Timber accounting open payables report screen	
Timber accounting preliminary check register report	
Timber accounting check register	
Timber accounting open payables report	
Contract logging analysis report	
Load, log, footage analysis report	
Summary of contract logging report	

On the following pages are two examples of reports available from the automated accounting and timber reporting system. These particular reports allow management to evaluate the earlier assumptions on which the timber sale was purchased.

SUMMARY AND CONCLUSIONS

The timber management and accounting system presented in this report is practical and useful. The process facilitates strategic planning and allows for changes in strategy as conditions warrant. With microcomputers and software, the process is efficient and effective. It allows the timber manager or general manager to plan log costs and inventory levels; to make better log and timber acquisition decisions; to control purchases and inventory levels; and to account for actual results and report variances from the plan.

Automating the timber management information system has numerous advantages over the typical manual system used by most small, independent mills:

1. Timber appraisals can be based on a wide range of variable costs and a sensitivity analysis (consideration of the what-ifs) can be easily performed.
2. The impact of each proposed purchase on overall log cost and log flow can be evaluated--before the decision is finalized.
3. Management time can be spent analyzing the key variables and relationships, instead of performing time-consuming mathematical calculations.
4. Logging plans and activities can be quickly updated to consider environmental changes--sudden or anticipated.
5. Accounting information can be easily stored and sorted to provide data for follow-up analysis of acquisition assumptions.

The cost of automating a timber management system is affordable, which makes the process even more attractive. While most is available in manual form, the use of microcomputer software information enhances its usefulness in decision-making and strategic planning. Finally, original assumptions can be analyzed to monitor the performance of the timber manager and provide an avenue for better cost control through better decisions.

TIMBER SALE COST ANALYSIS

YOUR COMPANY NAME
TIMBER SALE SUMMARY
SALE #1

MONTH OF _____				YEAR-TO-DATE			SALE-TO-DATE		
SPECIES	FOOTAGE	AMOUNT	DOL/M	FOOTAGE	AMOUNT	DOL/M	FOOTAGE	AMOUNT	DOL/M
STUMPAGE COSTS:									
D FIR	380	\$ 89,089	234	570	\$133,634	234	880	\$199,091	226
HEM	460	100,216	218	690	150,324	218	960	196,954	205
PSF	0	0	0	0	0	0	0	0	0
WRC	10	2,450	245	10	2,450	245	10	2,450	245
UTILITY	20	1,600	80	20	1,600	80	20	1,600	80
OTHER	0	0	0	0	0	0	0	0	0
TOTAL	870	\$193,355	222	1,290	\$288,008	223	1,870	\$400,095	214
CONTRACT LOGGING:									
D FIR	380	\$ 45,125	119	570	\$ 67,688	119	880	\$101,420	115
HEM	460	54,625	119	690	81,938	119	960	110,640	115
PSF	0	0	0	0	0	0	0	0	0
WRC	10	850	85	10	850	85	10	850	85
UTILITY	20	1,700	85	20	1,700	85	20	1,700	85
OTHER	0	0	0	0	0	0	0	0	0
TOTAL	870	\$102,300	118	1,290	\$152,176	118	1,870	\$214,610	115
ROAD AND OTHER COSTS:									
D FIR	380	\$ 11,761	31	570	\$ 17,642	31	880	\$ 24,059	27
HEM	460	14,237	31	690	21,356	31	960	26,246	27
PSF	0	0	0	0	0	0	0	0	0
WRC	10	310	31	10	310	31	10	310	31
UTILITY	20	70	4	20	70	4	20	70	4
OTHER	0	0	0	0	0	0	0	0	0
TOTAL	870	\$ 26,378	30	1,290	\$ 39,378	31	1,870	\$ 50,685	27
GRAND TOTAL:									
D FIR	380	\$145,975	384	570	\$218,963	384	880	\$324,570	369
HEM	460	169,078	368	690	253,617	368	960	333,840	348
PSF	0	0	0	0	0	0	0	0	0
WRC	10	3,610	361	10	3,610	361	10	3,610	361
UTILITY	20	3,370	169	20	3,370	169	20	3,370	169
OTHER	0	0	0	0	0	0	0	0	0
TOTAL	870	\$322,033	370	1,290	\$479,560	372	1,870	\$665,390	356

TIMBER SALE GRADE ANALYSIS

YOUR COMPANY NAME
TIMBER SALE SUMMARY
SALE #1

CURRENT MONTH

DOUGLAS FIR			HEMLOCK			WRC			TOTAL		
GRADE	%	FOOTAGE	GRADE	%	FOOTAGE	GRADE	%	FOOTAGE	GRADE	%	FOOTAGE
P1	1	3.80	P1	0	0.00	P1	0	0.00	P1	0.33	3.80
P2	4	15.20	P2	0	0.00	P2	0	0.00	P2	1.33	15.20
P3	16	60.80	P3	6	27.60	P3	0	0.00	P3	7.33	88.40
SM	4	15.20	SM	0	0.00	SM	0	0.00	SM	1.33	15.20
SAW 1	4	15.20	SAW 1	20	92.00	SAW 1	4	0.40	SAW 1	9.33	107.60
SAW 2	50	190.00	SAW 2	44	202.40	SAW 2	20	2.00	SAW 2	38.00	394.40
SAW 3	15	57.00	SAW 3	25	115.00	SAW 3	65	6.50	SAW 3	35.00	178.50
SAW 4	6	22.80	SAW 4	5	23.00	SAW 4	11	1.10	SAW 4	7.33	46.90
TOTAL	100	380.00	TOTAL	100	460.00	TOTAL	100	10.00	TOTAL	99.98	850.00

SALE-TO-DATE

DOUGLAS FIR			HEMLOCK			WRC			TOTAL		
GRADE	%	FOOTAGE	GRADE	%	FOOTAGE	GRADE	%	FOOTAGE	GRADE	%	FOOTAGE
P1	1	8.80	P1	0	0.00	P1	0	0.00	P1	0.33	8.80
P2	4	35.20	P2	0	0.00	P2	0	0.00	P2	1.33	35.20
P3	12	105.60	P3	5	48.00	P3	0	0.00	P3	5.67	153.60
SM	4	35.20	SM	0	0.00	SM	0	0.00	SM	1.33	35.20
SAW 1	4	35.20	SAW 1	18	172.80	SAW 1	4	0.40	SAW 1	8.67	208.40
SAW 2	52	457.60	SAW 2	42	403.20	SAW 2	20	2.00	SAW 2	38.00	862.80
SAW 3	16	140.80	SAW 3	27	259.20	SAW 3	65	6.50	SAW 3	36.00	406.50
SAW 4	7	61.60	SAW 4	8	76.80	SAW 4	11	1.10	SAW 4	8.67	139.50
TOTAL	100	880.00	TOTAL	100	960.00	TOTAL	100	10.00	TOTAL	100.00	1,850.00

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2	"Accounting and Financial Management in the Forest Products Industries: A Guide to the Published Literature," (1977 and 1981).
3	"A Decision Framework for Trading Lumber Futures," (October 1975).
4	"Capital Gains Tax Treatment in the Forest Products Industries," (June 1976).
5	"Measurement Difficulties in the Log Conversion Process," (June 1976).
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