

COMPUTING THE ECONOMICS
OF FORESTRY

by

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In the June, 1969 issue of Forest Notes an article entitled "Economics of Forestry" by D. Spriggins compared estimated costs of production and possible returns from some typical forest crops. Many hours of tedious calculations must have gone into producing the figures quoted for each exercise.

The purpose of this article is to point out that a computer programme (called "FINTAB" for "Financial Tabulation") is available for that type of calculation. It could save aspiring economists a few hours of drudgery and produce a wider range of results with better precision and reliability.

A table of profit or loss values is produced for four interest rates and three levels of overheads; both interest and overhead rates may be varied to suit the exercise being computed. Appendix 1 shows an example of the output for a set of test data.

Recently Mr. Spriggins' four exercises were run by computer and the resulting tables are shown in appendices 2-5, together with his results for comparison. The extra levels of 30 and 60% overheads were used to fully utilize the capability of the computer programme.

There are only small differences between the manual and computed results; due probably to the following reasons:-

1. Human errors.
2. The manual calculations did not maintain as much precision as is possible in the computer.

Further calculations have proven the validity of the computed results and have shown where errors crept into the manual work.

Finally, the most noteworthy feature of this exercise was the little time required by the computer to produce the four sets of results. Feeding in the data and printing out results took four minutes, of which the actual computations only required 34 seconds.

APPENDIX 1

Example of Fintab Output

Test Data for Program "FINTAB"

Statement of costs and returns used in the calculation of the profit values tabled below.

Initial Establishment costs of \$100. /Acre
 Subsequent cost of \$10. /Acre incurred in Year 1.
 Subsequent cost of \$10. /Acre incurred in Year 2.
 Subsequent cost of \$10. /Acre incurred in Year 3.
 Subsequent cost of \$10. /Acre incurred in Year 4.
 Subsequent cost of \$10. /Acre incurred in Year 5.
 Subsequent cost of \$10. /Acre incurred in Year 10.
 Subsequent cost of \$10. /Acre incurred in Year 20.
 Intermediate yield of \$50. /Acre gained in Year 20.
 Final yield of \$500. /Acre at the end of Year 30.

Test Data For Program "FINTAB"

Net Profits, Discounted to the Year of Establishment, for Various Overhead and Interest Rates.

Overheads	Interest Rates			
	3.0%	4.0%	5.0%	6.0%
0.0	\$ 74.90	\$ 21.14	\$-18.67	\$ -48.18
50.0%	\$ -4.48	\$-56.78	\$-95.27	\$-123.59
100.0%	\$-83.87	\$-134.70	\$-171.87	\$-199.01

APPENDIX 2

Exercise 1(A) regrowing a crop of Jarrah.

Net Profits, Discounted to the Year of Establishment, for Various Overhead and Interest Rates.

Method	Overheads	Interest Rates			
		2.0%	3.0%	4.0%	5.0%
Computer	30.0%	\$34.29	\$2.99	-\$6.03	-\$8.10
Computer	60.0%	\$27.43	-\$1.76	-\$9.56	-\$10.86
Computer	40.0%	\$32.00	\$1.41	-\$7.21	-\$9.02
Manual	40.0%	\$29.66	\$0.82	-\$6.44	-\$9.02

APPENDIX 3

Exercise 1(B) Pinaster on former Jarrah site.

Net Profits, Discounted to the Year of Establishment, for Various Overhead and Interest Rates.

Method	Overheads	Interest Rates			
		2.0%	3.0%	4.0%	5.0%
Computer	30.0%	\$101.57	\$13.77	-\$37.18	-\$66.47
Computer	60.0%	\$45.14	-\$35.23	-\$80.60	-\$105.62
Computer	40.0%	\$82.76	-\$2.56	-\$51.65	-\$79.52
Manual	40.0%	\$79.00	-\$4.00	-\$52.00	-\$75.80

APPENDIX 4

Exercise 2 Pinaster Crop on the Swan Coastal Plain

Net Profits, Discounted to the Year of Establishment, for Various Overhead and Interest Rates.

Method	Overheads	Interest Rates			
		2.0%	3.0%	4.0%	5.0%
Computer	30.0%	\$212.47	\$102.11	\$35.98	-\$3.82
Computer	60.0%	\$163.15	\$ 60.18	-\$0.41	-\$35.96
Computer	40.0%	\$196.03	\$88.13	\$23.85	-\$14.54
Manual	40.0%	\$189.00	\$87.00	\$22.00	-\$14.70

APPENDIX 5

Exercise 3 A Crop of Low Site Quality P. radiata.

Net Profits, Discounted to the Year of Establishment, for Various Overhead and Interest Rates.

Method	Overheads	Interest Rates			
		2.0%	3.0%	4.0%	5.0%
Computer	30.0%	\$1087.33	\$736.26	\$489.19	\$314.00
Computer	60.0%	\$1021.12	\$674.69	\$431.33	\$259.19
Computer	40.0%	\$1065.26	\$715.74	\$469.90	\$295.73
Manual	40.0%	\$1001.00	\$715.00	\$470.00	\$295.2