

THE MAN WITH THE DOCKING SAW.

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The expression "docking for grade" is one that is often glibly used in timber-yards. Every yardman is familiar with the principle of docking a short length containing a defect from a board to make the remaining piece more valuable than the original and longer board. But the writer, trying to broaden his knowledge, found that practically no yardman could tell him exactly how much it was permissible to dock from any given board and still have the entry on the right side of the ledger. So price-lists were studied and an attempt was made to arrive at something definite and practically useful.

It is necessary to distinguish between docking, cross-cutting, and recutting.

Docking the writer considers to be the cutting of a board cross-wise of its length into two pieces with the total wastage of one of them.

Cross-cutting is the term applied to the same operation when both pieces can be sold as timber.

Recutting is the term applied to the operation of splitting or ripping a board lengthwise parallel to either width or depth.

It is obvious that if in a cross-cutting operation the grade of one of the resulting two pieces has been improved and that of the other not lowered (and by the definition, both pieces can be sold), the value of the twin product must be greater than that of the original piece and the operation profitable *wherever the cut is made*. If one piece becomes a "short," the above remark may or may not be true—it would depend on the species and grades concerned and the length of the longer (and more valuable per super. foot) of the two pieces. It might be possible to work out a practicable rule to cover the case but the problem looks complicated and it is easier to consider a short as a docking and "shout for the staff" when the cheque for the shorts comes in from the furniture manufacturer. Exactly similar remarks apply to the operations of recutting. The case is parallel in every respect even to the case of fillets (c.f. shorts) being sold for mouldings. But it is docking which cuts timber to waste that will be dealt with here.

Obviously it is a question of the comparative prices of the grades. The price-list, dated September 1st, 1936, of a prominent King Country organisation was consulted and a few calculations were made. The price-list, abbreviated, is as follows :—

Species	Size	Price per 100 super feet					
		Heart			Ordinary		
		D.A.	B.A.	B.B.	D.A.	B.A.	B.B.
Rimu	6x1	37/6	25/-	20/-	22/6	18/-	11/6
	8x1	40/6	28/-	22/-	24/-	19/6	12/6
	12x1	43/6	31/-	—	27/6	23/-	—
Matai	6x1	37/6	29/-	17/6	18/-	14/6	—
	8x1	40/6	—	—	21/6	—	—
Totara	6x1	44/6	33/-	22/-	29/6	21/-	16/-
	8x1	47/-	35/6	24/6	32/-	23/6	18/6
	12x1	49/6	38/-	—	34/6	—	—

Converting this price-list to pence per super foot, it becomes :—

Species	Size	Price per Super Foot					
		Heart			Ordinary		
		D.A.	B.A.	B.B.	D.A.	B.A.	B.B.
Rimu	6x1	d.	d.	d.	d.	d.	d.
	8x1	4.50	3.00	2.40	2.70	2.16	1.38
	12x1	4.86	3.36	2.64	2.88	2.34	1.50
Matai	6x1	5.22	3.72	—	3.30	2.76	—
	8x1	4.50	3.48	2.10	2.16	1.74	—
Totara	6x1	4.86	—	—	2.58	—	—
	8x1	5.34	3.96	2.64	3.54	2.52	1.92
	12x1	5.64	4.26	2.94	3.84	2.82	2.22

Docking may increase the value of a board in two ways :—firstly by improving its quality ; secondly by improving its grade.

Docking for Quality.

Improvement in the quality of a board will be dealt with first and as medium quality rimu was not in great demand for the last few years, only improvement from Ordinary to Heart quality will be considered.

In the pence-per-super-foot price-list 6x1 D.A.H.R. shows at 4.50 and D.A.O.R. at 2.70. Therefore

100 sup. ft. D.A.O.R. = 270 pence.
and 60 sup. ft. D.A.H.R. = 270 pence.

Thus if 40 super ft. is docked from 100 super ft. of 6x1 D.A.O.R. which is thereby changed into 60 super ft. of D.A.H.R., there is no improvement except that the D.A.H.R. will be easier to sell. But if the change can be effected by docking only 35 super ft., the operation shows a profit in spite of the throwing away of the 35 feet of timber. Of course the cost of making the cuts must be considered, but this will vary with the method used and no attempt has been made to deal with it accurately ; but depending on the grades concerned, from 4% to 8% less can be allowed to be docked. Thus in the case quoted above, if docking cost nothing, 40% could be docked from D.A.O.R. to make it D.A.H.R. of equal value. But if docking cost 1/8 per 100 super ft., only 35% could be docked. Then any docking of less than 35% of the length of the piece would show a profit.

Tables worked out as above showing the allowable percentage of length that can be docked to give a Heart in place of an Ordinary quality board, follow.

Docking from Ordinary to Heart Quality.

Grade	Size	Docking %		
		Rimu	Matai	Totara
D.A.	6x1	40	52	33
	8x1	40	46	31
	12x1	36	—	30
B.A.	6x1	28	50	36
	8x1	30	—	33
	12x1	25	—	—
B.B.	6x1	42	—	27
	8x1	43	—	24
Averages		35	49	30
Less cost of cut :		6	6	6
Net Docking %		29	43	24

In actual practice it does not follow that if 29% exactly is docked from an Ordinary rimu board, the resulting Heart board will be of the same value because it may be a board of 11 ft. 11 ins. length which has only the value of a 11 ft. board. Therefore the docking must allow a further margin of safety.

But if a yardman is told that to change the quality of a board from Ordinary to Heart he may dock :—

Rimu 1 foot in every 5 feet.
Matai 1 foot in every 3 feet.
Totara 1 foot in every 6 feet.

the operation will be profitable (when based on the price-list quoted).

Docking for Grade.

Increasing the value of timber by docking to improve its grade will now be considered. The table is made in the same way as the previous one.

Species	Grades	Size	Docking %		Average
			Heart	Ord.	
Rimu	B.B. to B.A.	6x1	20	36	
		8x1	21	35	
	B.A. to D.A.	6x1	33	20	Cost of cut 25 6
		8x1	30	18	
		12x1	28	16	Net 19%
Matai	B.B. to B.A.	6x1	39	—	26 Cost of cut 6
	B.A. to D.A.	6x1	22	19	Net 20%
Totara	B.B. to B.A.	6x1	33	23	
		8x1	31	21	
	B.A. to D.A.	6x1	25	28	26 Cost of cut 6
		8x1	24	26	
		12x1	23	—	Net 20%

If the yardman is told that he can dock 1 foot in 6 feet for an improvement of one grade in rimu, matai, and totara, this operation also will show a profit.

For an improvement of two grades, a docking of 1 foot in 4 feet would allow a safe margin.

To change a board from Ordinary to Heart and at the same time improve by one grade will allow a docking of :—

Rimu	1 foot in 3 feet
Matai	2 feet in 5 feet
Totara	1 foot in 4 feet

Conclusion.

If the foregoing tables are examined, it will be seen that they show no uniformity or proportional price difference between grades and qualities at all. In fact there seems to be very little of rhyme or reason about them. Of course various economic factors such as demand or lack of it for certain classes, percentage of a class in the log, and I suppose, many others, are in an indefinite fashion at the bottom of the differences. But for all that, any price system which allows anything from 1/6 to 2/5 of a board to be thrown away and an increased profit made seems to be fundamentally wrong. The writer has not now the opportunity to make a study of the subject but offers the idea to anyone who cares to do a thesis on the economics and practice underlying a difficult but interesting and important problem.