

Classification and Presentation of Softwood Sawlogs

Forestry Commission
Field Book 9

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Introduction

This publication replaces *Softwood sawlogs – presentation for sale*, first published by the Forestry Commission in 1980. In common with the earlier publication this Field Book is based on recommendations of a joint working party of the Forestry Commission, the British Timber Merchants' Association (England and Wales) and the United Kingdom Softwood Sawmillers' Association. The text has been agreed by all three of these bodies.

Classification policy

The normal practice of the Forestry Commission will be to classify parcels of sawlogs offered for sale. Two categories, Green and Red, will cover all sales of logs. The description of each of these classes is given in Table 1. It will be the aim of the Commission at all times to maximise the proportion of Green category logs subject to appropriate stand conditions and market requirements.

Inspection

Potential purchasers of log parcels will have the opportunity of examining the stand or stands from which the logs will be produced, before any cross-cutting is carried out. They will also be given details, including category, of any other log parcels to be taken from the same stand. In the exceptional case where the logs are already cut, this will be made clear in the sale particulars.

Measurement

All sales will be on an underbark basis. The top diameter method of measurement (Forestry Commission Field Book 1, formerly FC Booklet 31) will be used for log lengths up to and including 8.3 m. For lengths of 8.4 m or greater, volume will be assessed by the mid diameter method (Forestry Commission Field Book 11, formerly FC Booklet 26) and the resulting overbark volume converted to an underbark volume using the appropriate conversion factor from Appendix 2.

The appropriate measurement conventions described in each of these publications will be used. Lengths are measured on the shortest side.

Cross-cutting

It will be normal practice for lengths up to and including 8.1 m to be cross-cut in steps of 0.3 m, adding an absolute minimum of 0.05 m for subsequent cross-cutting or squaring. For lengths of 8.4 m or greater, normal practice will be to cut truly random lengths. The Commission will endeavour to meet alternative length requirements, to a maximum of 8.3 m, within the following options. In appropriate cases as defined below an additional charge will be levied over and above the bid price.

- a. Logs will be cut to no more than three preferred lengths in 0.3 m steps (or 0.1 m steps by request), plus 0.05 m absolute minimum cutting allowance, within the limits of log volume maximisation with a balance being produced in other lengths which fall within the description of the logs offered for sale.
– *no charge*
- b. Logs may be cut to *stated lengths only*, in steps of 0.1 m. An absolute minimum cutting allowance of 0.05 m will be added.
– *a charge may be levied*

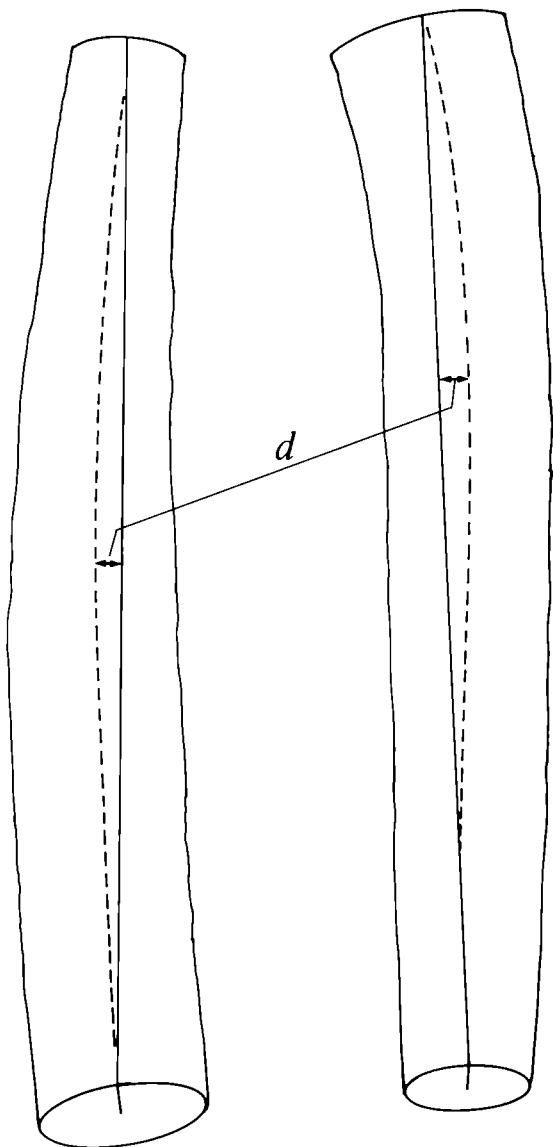
The method of calculating cross-cutting charges is given in Appendix 1.

It is considered inappropriate to offer the above options where the minimum top diameter specified is less than 16 cm underbark, or where the mean dbh is less than the minimum included in either Table 2 or Table 3.

Sub-standard logs

Where a parcel of logs fails to meet the criteria listed for the Red category sawlogs, for example, due to the presence of metal, the sale particulars will describe any such deficiency. These logs will be held to satisfy the criteria for the Red category logs in all respects other than the listed deficiencies.

Figure 1



Where $\frac{d(\text{cm})}{\text{length}(\text{m})}$ is 1 or less – Green category

Where this calculation exceeds 1 – Red category

Table 1 Sawlog categories

Log category	Green	Red
Species	Any conifer – species to be stated.	
Minimum top diameter	To be stated. Normally 16 cm but not less than 14 cm (12 cm in certain localities).	
Length	Minimum – 1.8 m Maximum – 8.3 m	Minimum – 1.8 m Maximum – to be stated
Cross-cut steps	0.3 m normal practice to 8.1 m maximum. (0.1 m by request, to 8.3 m maximum)	0.3 m normal practice to 8.1 m maximum (0.1 m by request, to 8.3 m maximum) Truly random for longer lengths.
Straightness (see Figure 1)	Bow not to exceed 1.0 cm for every 1.0 m length and this in one plane and one direction only. Up to 5% of individual logs in any one load can be outside the specification to the extent that bow may be up to 1.5 cm for every 1.0 m length. Bow is measured as the maximum deviation at any point of a straight line joining the centres at each end of the log from the actual centre line of the log.	

Knots	On any individual log 80% of knots will not exceed 5 cm in diameter. However, up to 5% of the logs will be allowed outwith this specification but those of an excessively coarse appearance will be excluded.	No restriction on knot size and frequency.
Trim	For manual felling, root spurs well dressed, felling cuts as square as practicable, snedding flush to stem. With mechanised harvesting, exactly the same standards of snedding may not prove practicable, but only a modest relaxation will be acceptable.	Splits, tear-outs, and double tops are not permitted.
Scars/decay	Significant visible decay and significant scars will not be permitted.	
Insect damage and staining	Visible insect damage or staining indicating incipient decay will not be present when made available for loading.	
Blue stain	To minimise the infection of pine logs with blue stain, logs will be brought to the loading point within four weeks of felling. In view of this undertaking, the Commission will not accept blue stain as a defect or entertain claims in respect of it.	
Metal	Logs suspected of containing metal will not be included.	
Mean dbh	The mean dbh of <i>all</i> the standing trees which are to be removed by felling or thinning and from which the parcel of logs are to be taken, should be stated.	

Cross-cutting Charges

Cross-cutting charges may arise for two different reasons. The first is to cover loss of potential log volume as a result of cutting to the customer's stated lengths, and the second is to cover the cost of additional expense incurred in cutting these stated lengths.

1. Loss of potential log volume

- a. If the customer includes a length specification of 4.0 m or less *no charge* will be made to compensate for loss of potential log volume.
- b. When a minimum length specified exceeds 4.0 m a charge will be levied. The amount of this charge depends on the minimum length specified, the diameter at breast height (dbh) of the trees from which the logs are cut, the price of the sawlogs, and the price of the alternative product, e.g. pulpwood.

The calculation is as follows:

$$\text{Surcharge} = \text{£} \frac{\% \text{ volume lost} \times \text{loss in value}}{100 - \% \text{ volume lost}} (\text{per m}^3 \text{ underbark})$$

Table 2 Loss in log volume (%) for specified minimum log length, 16 cm top diameter (underbark)

Mean dbh (cm)	Minimum length (m)						
	4.2	4.5	4.8	5.1	5.4	5.7	6.0
16	20	31	43	53	62	69	75
17	14	22	31	40	48	55	62
18	10	16	23	30	37	44	50
19	8	13	18	23	29	35	41
20	6	10	14	19	23	28	33
21	5	8	12	15	19	23	27
22	5	7	10	13	16	19	23
23	4	6	8	11	13	16	19
24	4	5	7	9	11	14	16
25	3	5	6	8	10	12	14
26	3	4	5	7	9	10	12
27	2	4	5	6	8	9	11
28	2	3	4	5	7	8	9
29	2	3	4	5	6	7	8
30	2	3	4	4	5	6	8
31	2	2	3	4	5	6	7
32	2	2	3	4	5	5	6
33	1	2	3	3	4	5	6
34	1	2	3	3	4	5	5
35	1	2	2	3	4	4	5

where *% volume lost* is taken from Table 2 or Table 3 according to dbh and minimum length, and stated sawlog top diameter (underbark);

where *loss in value* is the difference between the roadside price of the sawlogs and the roadside price of the alternative product.

- c. It should be noted that where the volume of a parcel of logs is reduced as a consequence of cutting stated lengths only, the shortfall will not be made up from elsewhere.

2. Loss to cover additional expenditure

Any *net* additional costs of measurement, cross-cutting, and extraction etc., relative to that required to produce the logs as specified by the original sale offer, will be assessed.

If requested the best estimate of the charges arising from 1 and 2 above will be advised to the potential purchaser prior to the sale. When the parcel is sold the exact charge will be advised prior to production. If this is not acceptable the logs will be produced according to the original sale description.

Mean dbh (cm)	Minimum length (m)						
	6.3	6.6	6.9	7.2	7.5	7.8	8.1
16	79	83	86	88	90	91	92
17	67	72	76	79	82	84	86
18	56	61	65	69	72	75	78
19	46	51	55	59	63	66	69
20	38	42	46	50	54	57	60
21	31	35	39	42	46	49	52
22	26	29	33	36	39	42	45
23	22	25	28	31	33	36	39
24	19	21	24	26	29	31	33
25	16	18	20	23	25	27	29
26	14	16	18	20	22	23	25
27	12	14	16	17	19	21	22
28	11	12	14	15	17	18	20
29	10	11	12	14	15	16	18
30	9	10	11	12	13	15	16
31	8	9	10	11	12	13	14
32	7	8	9	10	11	12	13
33	7	7	8	9	10	11	12
34	6	7	8	8	9	10	11
35	6	6	7	8	8	9	10

Table 3 Loss in log volume (%) for specified minimum log length, 18 cm top diameter (underbark)

Mean dbh (cm)	Minimum length (m)						
	4.2	4.5	4.8	5.1	5.4	5.7	6.0
18	28	36	44	51	57	62	67
19	22	29	36	43	48	54	58
20	17	23	29	34	40	44	49
21	13	18	23	27	32	36	40
22	10	14	18	22	25	29	33
23	8	11	14	17	20	24	27
24	6	9	11	14	17	19	22
25	5	7	9	12	14	16	19
26	4	6	8	10	12	14	16
27	4	5	7	8	10	12	14
28	3	5	6	7	9	10	12
29	3	4	5	6	8	9	11
30	3	4	5	6	7	8	10
31	2	3	4	5	6	8	9
32	2	3	4	5	6	7	8
33	2	3	3	4	5	6	7
34	2	2	3	4	5	6	7
35	2	2	3	4	4	5	6

Mean dbh (cm)	Minimum length (m)						
	6.3	6.6	6.9	7.2	7.5	7.8	8.1
18	70	73	76	78	80	82	84
19	62	65	69	71	74	76	78
20	53	56	60	63	65	68	70
21	44	48	51	54	57	59	62
22	36	40	43	46	49	51	54
23	30	33	36	39	41	44	46
24	25	28	30	33	35	38	40
25	21	23	26	28	30	32	35
26	18	20	22	24	26	28	30
27	16	18	19	21	23	25	27
28	14	15	17	19	21	22	24
29	12	14	15	17	18	20	22
30	11	12	14	15	17	18	20
31	10	11	13	14	15	17	18
32	9	10	12	13	14	15	17
33	8	10	11	12	13	14	15
34	8	9	10	11	12	13	14
35	7	8	9	10	11	12	13

Appendix 2

Conversion Factors

Underbark volume = overbark volume multiplied by the conversion factor.

The agreed conversion factors are as follows:

<i>Species</i>	<i>Conversion factor</i>
Scots pine, lodgepole pine	0.87
Corsican pine	0.83
Sitka spruce, Norway spruce, grand fir, noble fir	0.92
European larch	0.82
Japanese larch, hybrid larch	0.85
Douglas fir	0.88
Western hemlock, red cedar, Lawson cypress	0.90

Further information

Forestry Commission publications:

- Booklet 39 Forest Mensuration Handbook (1985)
- Booklet 48 Yield Models for Forest Management (1981)
- Booklet 49 Timber Measurement – A Field Guide (1983)
- Field Book 1 Top Diameter Sawlog Tables (1987)
- Field Book 2 Thinning Control (1988)
- Field Book 11 Mid Diameter Volume Tables (1990)

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