Classification and Presentation of Softwood Sawlogs

Second Edition

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SECOND EDITION

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Introduction

This publication is a revision of the 1990 Field Book 9 which replaced *Softwood sawlogs – presentation for sale,* first published in 1980. In common with the earlier publications, this revision is based on recommendations of a joint working party of the Forestry Commission's Forest Enterprise, 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. Four categories – green, red, short green and log pole – will cover all sales of logs. The descriptions of these classes are given in Tables 1, 2 and 3. 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

Unless otherwise indicated, potential purchasers of log parcels will have an opportunity to examine 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 logs are already cut, this will be made clear in the sale particulars.

Measurement

Normally, sales will be on an underbark basis. The top diameter method of measurement (Forestry Commission Field Book 1) 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) and the resulting overbark volume converted to an underbark volume using the appropriate conversion factor from Appendix 1. When the basis of sale is by weight this will be clearly indicated in the sale particulars.

The appropriate measurement conventions described in Field Book 1 and Field Book 11 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, adding an absolute minimum of 0.05 m for subsequent cross-cutting or squaring. For short green category logs less than 3 m, the absolute minimum addition shall be increased to 0.1 m. 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* where excessive cost and/or loss of value occurs. The method of calculating lost value is given in Appendix 2. Please note that where the volume of a parcel of logs is reduced as a consequence of cutting stated lengths only, the shortfall may not be made up from elsewhere.

c. Short green category logs will be cut into one stated length only at one time plus 0.1 m absolute minimum cutting allowance.

Sub-standard logs

Where a parcel of logs fails to meet the criteria listed for 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 red category logs in all respects other than the listed deficiencies.

Figure I **Straightness**
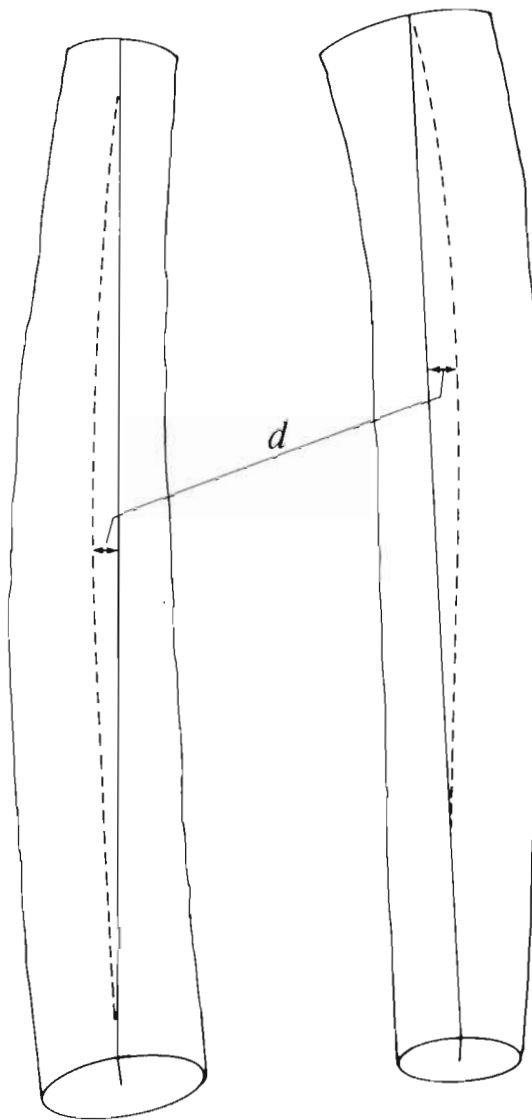
Where $\dfrac{d\text{(cm)}}{\text{length (m)}}$ is 1 or less – categories green or short green a

Where $\dfrac{d\text{(cm)}}{\text{length (m)}}$ is 1.5 or less – category short green b

Table 1 Sawlog categories – green and red

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	To be stated – normally 16 cm but not less than 14 cm (12 cm in certain localities)
Length	Minimum – 3.0 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. * 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. At the butt end the centre point should be derived by ignoring obvious flares caused by irregular buttressing in the living tree.	Capable of being cross-cut into straight lengths of at least 1.2 m without significant waste
Knots	On any individual log 80% of knots will not exceed 5 cm in diameter; however, logs of an excessively coarse appearance will be excluded.	No restriction on knot size and frequency; however, logs of excessively coarse appearance will be excluded.
Trim	For manual felling, root spurs well dressed, felling cuts as square as practicable, snedding flushing 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, double tops and fused stems are not permitted.	
Scars/decay	Scars and visible decay will not be permitted if they will down-grade sawn timber outturn.	
Insect damage and staining	Visible insect damage or staining indicating decay will not be present when logs are 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. Purchasers will be informed as early as possible of the availability for uplift; wherever practicable this will be done in writing. 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 *all* the standing trees which are to be removed by felling or thinning and from which the parcel of logs is to be taken, will be stated.	

Table 2 Sawlog categories – short green

Log category	Short green a	Short green b
Species	Any conifer – species to be stated.	
Minimum top diameter	14 cm (12 cm in certain localities)	18 cm
Length	Minimum – 1.8 m; maximum – 2.5 m (longer in certain localities)	
Cross-cut steps	One length between the maximum and minimum length to the nearest 0.1 m	
Straightness	Bow not to exceed 1.0 cm for every 1.0 m length and this in one plane and one direction only	Bow not to exceed 1.5 cm for every 1.0 m length and this in one plane and one direction only
*See Figure 1	*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. At the butt end the centre point should be derived by ignoring obvious flares caused by irregular buttressing in the living tree.	
Knots	On any individual log 80% of knots will not exceed 5 cm in diameter; however, those of an excessively coarse appearance will be excluded.	
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, double tops and fused stems are not permitted.	
Scars/decay	Scars and visible decay will not be permitted if they will down-grade sawn timber outturn.	
Insect damage and staining	Visible insect damage or staining indicating decay will not be present when logs are 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. Purchasers will be informed as early as possible of the availability for uplift; wherever practicable this will be done in writing. 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 *all* the standing trees which are to be removed by felling or thinning and from which the parcel of logs is to be taken, will be stated.	These logs may be taken from more than one stand of trees; therefore, the mean dbh of *all* standing trees to be removed by felling or thinning might not be indicated, and opportunity for inspection might be limited.

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Table 3 Sawlog categories – log pole

Log category	Log pole
Species	Any conifer – species to be stated
Minimum top diameter	To be stated; normally not less than 14 cm
Length	Minimum – 5.2 m; maximum – to be stated
Cross-cut steps	There will be no cross-cut steps. Cross-cutting to permit transportation will only be done when necessary and normally in such a way as to maximise the butt length. Any green logs removed in this process will be included in the contract.
Straightness	Capable of being cross-cut into logs of at least 2.4 m; short green log specification applies and no more than 20% waste by length.
Knots	On any potential individual cross-cut log 80% of knots will not exceed 5 cm in diameter; however. those with excessively coarse appearance will be excluded.
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; fused stems will only be allowed beyond 2.4 m from the butt end.

Scars/decay	Scars and visible decay will not be permitted if they will down-grade sawn timber outturn.
Insect damage and staining	Visible insect damage or staining indicating decay will not be present when logs are 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. Purchasers will be informed as early as possible of their availability for uplift; wherever practicable this will be done in writing. 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 *all* the standing trees which are to be removed by felling or thinning and from which the parcel of logs is to be taken, will be stated.

Table 4 Loss in log volume (%) for specified minimum log length, 16 cm top diameter (underbark)

Minimum length (m)	Mean dbh (cm)																			
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
4.2	20	14	10	8	6	5	5	4	4	3	3	2	2	2	2	2	2	1	1	1
4.5	31	22	16	13	10	8	7	6	5	5	4	4	3	3	3	2	2	2	2	2
4.8	43	31	23	18	14	12	10	8	7	6	5	5	4	4	4	3	3	3	3	2
5.1	53	40	30	23	19	15	13	11	9	8	7	6	5	5	4	4	4	3	3	3
5.4	62	48	37	29	23	19	16	13	11	10	9	8	7	6	5	5	5	4	4	4
5.7	69	55	44	35	28	23	19	16	14	12	10	9	8	7	6	6	5	5	5	4
6.0	75	62	50	41	33	27	23	19	16	14	12	11	9	8	8	7	6	6	5	5
6.3	79	67	56	46	38	31	26	22	19	16	14	12	11	10	9	8	7	7	6	6
6.6	83	72	61	51	42	35	29	25	21	18	16	14	12	11	10	9	8	7	7	6
6.9	86	76	65	55	46	39	33	28	24	20	18	16	14	12	11	10	9	8	8	7
7.2	88	79	69	59	50	42	36	31	26	23	20	17	15	14	12	11	10	9	8	8
7.5	90	82	72	63	54	46	39	33	29	25	22	19	17	15	13	12	11	10	9	8
7.8	91	84	75	66	57	49	42	36	31	27	23	21	18	16	15	13	12	11	10	9
8.1	92	86	78	69	60	52	45	39	33	29	25	22	20	18	16	14	13	12	11	10

Table 5 Loss in log volume (%) for specified minimum log length, 18 cm top diameter (underbark)

Minimum length (m)	Mean dbh (cm)																	
	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
4.2	28	22	17	13	10	8	6	5	4	4	3	3	3	2	2	2	2	2
4.5	36	29	23	18	14	11	9	7	6	5	5	4	4	3	3	3	2	2
4.8	44	36	29	23	18	14	11	9	8	7	6	5	5	4	4	3	3	3
5.1	51	43	34	27	22	17	14	12	10	8	7	6	6	5	5	4	4	4
5.4	57	48	40	32	25	20	17	14	12	10	9	8	7	6	6	5	5	4
5.7	62	54	44	36	29	24	19	16	14	12	10	9	8	8	7	6	6	5
6.0	67	58	49	40	33	27	22	19	16	14	12	11	10	9	8	7	7	6
6.3	70	62	53	44	36	30	25	21	18	16	14	12	11	10	9	8	8	7
6.6	73	65	56	48	40	33	28	23	20	18	15	14	12	11	10	10	9	8
6.9	76	69	60	51	43	36	30	26	22	19	17	15	14	13	12	11	10	9
7.2	78	71	63	54	46	39	33	28	24	21	19	17	15	14	13	12	11	10
7.5	80	74	65	57	49	41	35	30	26	23	21	18	17	15	14	13	12	11
7.8	82	76	68	59	51	44	38	32	28	25	22	20	18	17	15	14	13	12
8.1	84	78	70	62	54	46	40	35	30	27	24	22	20	18	17	15	14	13

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Conversion Factors

Underbark volume = overbark volume multiplied by the conversion factor

The agreed conversion factors are as follows:

Species	*Conversion factor*
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

Charges for loss of value

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 logs, and the price of the alternative product.

The calculation is as follows:

$$\text{Surcharge} = \pounds \frac{\% \text{ volume lost x loss in value}}{100 - \% \text{ volume lost}} \text{ per m}^3 \text{ underbark}$$

where *% volume lost* is taken from Table 4 or Table 5 according to dbh and minimum length, and stated sawlog top diameter (underbark); and

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

2. Loss to cover additional expenditure

Normal practice will be sorting into two separate stacks of logs. Any net additional costs of measurement, cross-cutting, extraction, sorting and stacking 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 description of sale.

Further information

Related publications:-

Forest mensuration handbook (BK39), 1985	*£6.00*
Mid diameter volume tables (FB11), 1990	*£3.65*
Thinning control (FB02), 1988	*£3.00*
Timber measurement – a field guide (BK49), 1983	*£4.00*
Top diameter sawlog tables (FB01), 1987	*£2.00*
Yield models for forest management (BK48), 1981	*£1.20*

These titles, and a full catalogue of publications, are available from: Publications, The Forestry Authority, Research Division, Alice Holt Lodge, Wrecclesham, Farnham, Surrey, GU10 4LH.
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