Forestry Commission

# SAWMILL SURVEY 1998

**Report on the survey of sawmill consumption and production in Great Britain in 1998, carried out by Economics & Statistics Unit of the Forestry Commission on behalf of the Forestry Commission Advisory Panel (FCAP) Sub-Committee on Supply and Demand.**

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# GB SAWMILL SURVEY 1998

## INTRODUCTION

This report gives results from the Sawmill Survey for 1998.  The survey of sawmills in Great Britain is carried out by the Economics & Statistics Unit of the Forestry Commission, for the Forestry Commission Advisory Panel Sub-Committee on Supply and Demand (SSD). We gratefully acknowledge the assistance of all sawmills that completed the survey questionnaire, of the UK Forest Products Association and the members of SSD who provided advice.

It consists of two sections, the first reports results from the annual survey, the second results from the full survey now carried out every second year.

## GB SAWMILLS - ANNUAL SURVEY 1998

1. This section gives results for timber consumption and sawnwood production from the Sawmill Survey for 1998, covering all sawmills that saw British logs. It incorporates some minor corrections to the results first published in November 1999 in the ‘Wood Supply and Demand 1998’.

### 1998 Survey responses

2. In the 1998 Survey, 407 questionnaires were sent out and there were 225 responses of some form, a response rate of 55%. Due to the higher response rate from larger mills, the respondents are estimated to have represented 82% of total softwood consumption and 60% of total hardwood consumption. This is a good response rate for a voluntary survey and further details are in Appendix 1.

### Revisions to 1998 and earlier years

3. During the processing of each year’s survey, information is received which enables a more accurate data set to be compiled for previous years. Better estimates may be able to be imputed for non-respondents in previous years, and the record is also amended if it is discovered that the mill had closed down. Due to these amendments the figures in this report differ slightly from those published in the ‘Wood Supply and Demand Report 1998’. The latest estimates for consumption and production in 1994 to 1998, incorporating revisions to all years, are shown in Table 1, expressed in thousand cubic metres underbark for consumption and thousand cubic metres sawnwood for production.

**Table 1: Consumption and production 1994-1998**

| | | | **1994** | **1995** | **1996** | **1997** | **1998** |
|---|---|---|---|---|---|---|---|
| **Softwood:** | consumption | 000 $m^3$ ub | 3,366 | 3,333 | 3,431 | 3,497 | 3,584 |
| | production | 000 $m^3$ | 1,923 | 1,901 | 1,921 | 1,984 | 2,003 |
| **Hardwood:** | consumption | 000 $m^3$ ub | 316 | 332 | 260 | 261 | 229 |
| | production | 000 $m^3$ | 180 | 191 | 153 | 144 | 127 |

**Number of mills**

4. Based on all of the 1998 survey responses, together with data from previous years for those who did not respond (see Appendix 1), it is estimated that there were 361 sawmills processing British timber in 1998, of which 79 produced more than 5,000 $m^3$ sawnwood. Of the 79 large mills, 60 processed softwood only, 2 hardwood only and 17 both hardwood and softwood. Of the 282 smaller mills, 156 processed softwood only, 26 hardwood only and 100 both softwood and hardwood. Over 40 mills had closed in the previous two years.

**Table 2: Number of sawmills 1998**

| | Size category (000 $m^3$ production: soft + hard) | | | | | | Total |
|---|---|---|---|---|---|---|---|
| | **< 1** | **1 - <5** | **5 - <10** | **10 - <25** | **25 - <50** | **50+** | |
| **GB Total** | **163** | **119** | **38** | **19** | **11** | **11** | **361** |
| Scotland | 38 | 25 | 13 | 9 | 4 | 6 | 95 |
| England | 112 | 85 | 21 | 9 | 5 | 3 | 235 |
| Wales | 13 | 9 | 4 | 1 | 2 | 2 | 31 |

**Imported round timber**

5. It is estimated that 19 mills used imported round timber in 1998, totalling 21,000 $m^3$ ub softwood and 5,000$m^3$ ub hardwood. This is based on responses for 1998 and estimates for non-respondents that had reported using imported round timber in earlier years.

**British softwood**

6. Softwood consumption (in thousand cubic metres underbark) and production (in thousand cubic metres sawnwood) are shown in the following tables, including estimates for mills as described in Appendix 1. Results for the larger size categories are combined, to avoid disclosure of individual returns. Total softwood consumption was 3.58 million $m^3$ underbark and sawn softwood production was 2.0 million $m^3$ sawnwood. This shows an increase of about 8% in total for the largest mills (over 10,000 $m^3$), and a slight decrease for the smaller.

Apparent recovery was 56% - the same as for 1996. This is calculated as the ratio of production to consumption; it is not representative of the recovery figures used by management at mill level for production management purposes.

**Table 3: Softwood consumption**

**000 $m^3$ underbark**

| | **Size category (000 $m^3$ production: soft + hard)** | | | | |
|---|---|---|---|---|---|
| | **< 1** | **1 - <5** | **5 - <25** | **25+** | **Total** |
| **GB Total** | **66** | **372** | **911** | **2,234** | **3,584** |
| Scotland | 21 | 117 | 425 | 942 | 1,505 |
| England | 43 | 224 | 396 | 808 | 1,470 |
| Wales | 3 | 32 | 91 | 483 | 608 |

**Table 4: Softwood production**

**000 $m^3$ sawnwood**

| | **Size category (000 $m^3$ production: soft + hard)** | | | | |
|---|---|---|---|---|---|
| | **< 1** | **1 - <5** | **5 - <25** | **25+** | **Total** |
| **GB Total** | **38** | **225** | **514** | **1,226** | **2,003** |
| Scotland | 12 | 69 | 234 | 518 | 834 |
| England | 24 | 138 | 232 | 449 | 843 |
| Wales | 2 | 17 | 49 | 259 | 326 |

**Summary – Mills over 5,000$m^3$**

7. Table 5 (on the next page) gives a summary of production and consumption, for softwood, for the years 1987 to 1998, together with figures for 1983 and 1980.

**Table 5 - Summary softwood statistics**[1]

| Year | Log consumption (000 $m^3$ ub) | | Sawnwood production (000 $m^3$ sawnwood) | | *Apparent recovery (%)* | |
|---|---|---|---|---|---|---|
| **Great Britain** | | | | | | |
| 1980 | 1,638 | | 937 | | *57* | |
| 1983 | 2,139 | | 1,227 | | *57* | |
| 1988 | 2,856 | | 1,602 | | *56* | |
| 1989 | 3,044 | | 1,775 | | *58* | |
| 1990 | 3,121 | | 1,854 | | *59* | |
| 1991 | 2,925 | | 1,713 | | *59* | |
| 1992 | 3,135 | | 1,823 | | *58* | |
| 1993 | 3,247 | | 1,897 | | *58* | |
| 1994 | 3,366 | | 1,923 | | *57* | |
| 1995 | 3,333 | | 1,901 | | *57* | |
| 1996 | 3,431 | | 1,921 | | *56* | |
| 1997 | 3,497 | | 1,984 | | *57* | |
| 1998 | 3,584 | | 2,003 | | *56* | |
| **Scotland** | | | | | | |
| 1980 | 721 | | 423 | | *59* | |
| 1983 | 949 | | 537 | | *56* | |
| 1988 | 1,204 | | 676 | | *56* | |
| 1989 | 1,322 | | 770 | | *58* | |
| 1990 | 1,397 | | 812 | | *58* | |
| 1991 | 1,405 | | 797 | | *57* | |
| 1992 | 1,337 | | 740 | | *55* | |
| 1993 | 1,334 | | 781 | | *59* | |
| 1994 | 1,440 | | 814 | | *57* | |
| 1995 | 1,394 | | 784 | | *56* | |
| 1996 | 1,444 | | 799 | | *55* | |
| 1997 | 1,478 | | 823 | | *56* | |
| 1998 | 1,505 | | 834 | | *55* | |
| **England & Wales** | | | | | | |
| 1980 | 917 | | 514 | | *56* | |
| 1983 | 1,190 | | 690 | | *58* | |
| 1988 | 1,652 | | 926 | | *56* | |
| 1989 | 1,722 | | 1,005 | | *58* | |
| 1990 | 1,724 | | 1,042 | | *62* | |
| 1991 | 1,520 | | 916 | | *60* | |
| 1992 | 1,798 | | 1,083 | | *60* | |
| 1993 | 1,913 | | 1,116 | | *58* | |
| | **England** | **Wales** | **England** | **Wales** | **England** | **Wales** |
| 1994 | 1,427 | 499 | 828 | 281 | *58* | *56* |
| 1995 | 1,385 | 554 | 813 | 304 | *59* | *55* |
| 1996 | 1,406 | 581 | 806 | 316 | *57* | *54* |
| 1997 | 1,414 | 605 | 827 | 333 | *58* | *55* |
| 1998 | 1,470 | 608 | 843 | 326 | *57* | *54* |

[1] Before 1994 all Sawmill survey results excluded mills producing less than 1,000 $m^3$ per year (500 $m^3$ for 1980 and 1983).

## British Hardwood

8. Hardwood consumption (in thousand cubic metres underbark) and production (in thousand cubic metres sawnwood) are shown in the following tables, including estimates for mills as described in the Appendix. Results for the larger size categories are combined, to avoid disclosure of individual returns. Total hardwood consumption was 229,000 $m^3$ underbark and total sawn hardwood production was 127,000 $m^3$ sawnwood, showing a decrease of over 10% from 1996 and 1997.

**Table 6: Hardwood consumption**

**000 $m^3$ underbark**

| | Size category (000 $m^3$ production: soft + hard) | | | |
|---|---|---|---|---|
| | **< 5** | **5 - <25** | **25+** | **Total** |
| **GB Total** | **132** | **86** | **11** | **229** |
| Scotland | 3 | 8 | 0 | 10 |
| England | 122 | 79 | 11 | 211 |
| Wales | 7 | 0 | 0 | 7 |

**Table 7: Hardwood production**

**000 $m^3$ sawnwood**

| | Size category (000 $m^3$ production: soft + hard) | | | |
|---|---|---|---|---|
| | **< 5** | **5 - <25** | **25+** | **Total** |
| **GB Total** | **72** | **48** | **6** | **127** |
| Scotland | 2 | 4 | 0 | 6 |
| England | 66 | 45 | 6 | 117 |
| Wales | 5 | 0 | 0 | 5 |

## Summary – mills over 5,000$m^3$

9. Table 8 (on the next page) gives a summary of production and consumption, for hardwood, for the years 1987 to 1998, together with figures for 1983 and 1980.

**Table 8 - Summary hardwood statistics[1]**

<table>
<tr><th>Year</th><th colspan="2">Log consumption<br>(000 $m^3$ ub)</th><th colspan="2">Sawnwood production<br>(000 $m^3$ sawnwood)</th><th colspan="2">Apparent recovery<br>(%)</th></tr>
<tr><td colspan="7">Great Britain</td></tr>
<tr><td>1980</td><td colspan="2">942</td><td colspan="2">604</td><td colspan="2">64</td></tr>
<tr><td>1983</td><td colspan="2">663</td><td colspan="2">390</td><td colspan="2">59</td></tr>
<tr><td>1988</td><td colspan="2">475</td><td colspan="2">260</td><td colspan="2">55</td></tr>
<tr><td>1989</td><td colspan="2">614</td><td colspan="2">364</td><td colspan="2">59</td></tr>
<tr><td>1990</td><td colspan="2">517</td><td colspan="2">338</td><td colspan="2">65</td></tr>
<tr><td>1991</td><td colspan="2">558</td><td colspan="2">347</td><td colspan="2">62</td></tr>
<tr><td>1992</td><td colspan="2">303</td><td colspan="2">181</td><td colspan="2">60</td></tr>
<tr><td>1993</td><td colspan="2">238</td><td colspan="2">143</td><td colspan="2">60</td></tr>
<tr><td>1994</td><td colspan="2">316</td><td colspan="2">180</td><td colspan="2">57</td></tr>
<tr><td>1995</td><td colspan="2">332</td><td colspan="2">191</td><td colspan="2">58</td></tr>
<tr><td>1996</td><td colspan="2">260</td><td colspan="2">153</td><td colspan="2">59</td></tr>
<tr><td>1997</td><td colspan="2">261</td><td colspan="2">144</td><td colspan="2">55</td></tr>
<tr><td>1998</td><td colspan="2">230</td><td colspan="2">128</td><td colspan="2">55</td></tr>
<tr><td colspan="7">Scotland</td></tr>
<tr><td>1980</td><td colspan="2">71</td><td colspan="2">42</td><td colspan="2">59</td></tr>
<tr><td>1983</td><td colspan="2">39</td><td colspan="2">19</td><td colspan="2">49</td></tr>
<tr><td>1988</td><td colspan="2">42</td><td colspan="2">21</td><td colspan="2">50</td></tr>
<tr><td>1989</td><td colspan="2">24</td><td colspan="2">13</td><td colspan="2">53</td></tr>
<tr><td>1990</td><td colspan="2">32</td><td colspan="2">18</td><td colspan="2">56</td></tr>
<tr><td>1991</td><td colspan="2">30</td><td colspan="2">16</td><td colspan="2">53</td></tr>
<tr><td>1992</td><td colspan="2">21</td><td colspan="2">12</td><td colspan="2">57</td></tr>
<tr><td>1993</td><td colspan="2">7</td><td colspan="2">4</td><td colspan="2">50</td></tr>
<tr><td>1994</td><td colspan="2">12</td><td colspan="2">6</td><td colspan="2">51</td></tr>
<tr><td>1995</td><td colspan="2">16</td><td colspan="2">9</td><td colspan="2">56</td></tr>
<tr><td>1996</td><td colspan="2">12</td><td colspan="2">6</td><td colspan="2">51</td></tr>
<tr><td>1997</td><td colspan="2">13</td><td colspan="2">6</td><td colspan="2">50</td></tr>
<tr><td>1998</td><td colspan="2">10</td><td colspan="2">6</td><td colspan="2">53</td></tr>
<tr><td colspan="7">England & Wales</td></tr>
<tr><td>1980</td><td colspan="2">871</td><td colspan="2">562</td><td colspan="2">65</td></tr>
<tr><td>1983</td><td colspan="2">624</td><td colspan="2">371</td><td colspan="2">59</td></tr>
<tr><td>1988</td><td colspan="2">433</td><td colspan="2">239</td><td colspan="2">55</td></tr>
<tr><td>1989</td><td colspan="2">590</td><td colspan="2">352</td><td colspan="2">59</td></tr>
<tr><td>1990</td><td colspan="2">485</td><td colspan="2">320</td><td colspan="2">66</td></tr>
<tr><td>1991</td><td colspan="2">528</td><td colspan="2">331</td><td colspan="2">63</td></tr>
<tr><td>1992</td><td colspan="2">282</td><td colspan="2">169</td><td colspan="2">60</td></tr>
<tr><td>1993</td><td colspan="2">231</td><td colspan="2">139</td><td colspan="2">60</td></tr>
<tr><td></td><td>England</td><td>Wales</td><td>England</td><td>Wales</td><td>England</td><td>Wales</td></tr>
<tr><td>1994</td><td>294</td><td>10</td><td>167</td><td>7</td><td>57</td><td>63</td></tr>
<tr><td>1995</td><td>306</td><td>11</td><td>176</td><td>7</td><td>57</td><td>64</td></tr>
<tr><td>1996</td><td>240</td><td>8</td><td>141</td><td>5</td><td>59</td><td>62</td></tr>
<tr><td>1997</td><td>241</td><td>8</td><td>133</td><td>5</td><td>55</td><td>63</td></tr>
<tr><td>1998</td><td>212</td><td>7</td><td>117</td><td>5</td><td>55</td><td>66</td></tr>
</table>

1 Before 1994 all Sawmill survey results excluded mills producing less than 1,000 $m^3$ per year (500 $m^3$ for 1980 and 1983).

# GB SAWMILLS - FULL SURVEY

10. Additional information was collected in 1998 from mills that produced at least 5000 $m^3$ sawnwood. Similar information had been collected in 1996, 1993 and 1990, but the scope had then included mills producing 1000-5000 $m^3$ sawnwood. The reduction in the range of mills surveyed had been agreed after a review in 1998, to reduce the statistical burden on small businesses, while still covering around 88% of softwood throughput. Of the estimated 79 mills producing over 5000 $m^3$ sawnwood, 52 completed a full questionnaire. Most non-respondents were in the 5000-10000 $m^3$ size category, so respondents accounted for 86% of the softwood throughput of mills in the survey scope and 75% of the softwood throughput of all mills. All results are shown rated up to the total of 79 mills and to their consumption and production figures reported in the annual survey. Further details of the response rates and rating factors are given in Appendix 1.

**Days and hours worked**

10. Most mills (85%) worked for between 220 and 260 days in 1998; none worked for less than this. This is similar to 1996 and 1993.

11. About three-quarters of all mills worked for either 8 hours a day (43%) or 9 hours (35%); very few worked less than this. The largest mills (over 25,000 $m^3$ production) tended to work longer hours. Less than half (44%) said that the site could sustain double-shift or continuous working. The unweighted average was around 9.3 hours per day, compared with around 8.5 hours/day in 1996 and 8.8 hours/ day in 1993.

**Converting long length logs**

12. Over half the mills (58%) indicated that they converted long length logs into shorter logs before primary breakdown. This figure is lower than in 1996, when around three-quarters of mills indicated that they converted long length logs into shorter logs before primary breakdown.

## Softwood
## GB Summary (see Table 10)

13. Total **softwood capacity** in 1998, defined as the level that the site could sustain on single-shift working, was 3,056,000 cubic metres underbark. It should be noted that this is a different definition from previous surveys. About 40% of the softwood capacity was in mills producing more than 50,000 cubic metres sawnwood. Softwood consumption in 1998 was running at 103% of capacity, because of double-shift working.

14. For mills that reported a breakdown of softwood consumption by **size category**, 76% was top diameter (16 cm and over). One half of mills reported a maximum butt diameter between 30-70 cm, about 17% reported a maximum below 30cm and one third over 70cm. The **species breakdown** showed an increase in spruce compared with 1996. The species reported were spruce 68%, pine 18% and other conifers 14%.

15. Softwood production broken down by **market classification** showed that in 1998, 31% went to construction (including agricultural buildings), 32% to fencing, 33% to packaging and pallets and 4% to all other markets. This breakdown was similar to 1996.

16. Softwood **co-products** added up to 1,748,000 green tonnes. In 1998, 83% of softwood co-products (1,454,000 green tonnes) were sold to wood processing industries, 4% to other industries, 11% sold as bark, and 2% burnt (for heat) or disposed of.

### England, Scotland & Wales

17. The main flows of softwood logs between countries were from Scotland and Wales into England. Around 82% of reported Scottish logs were sawn in Scottish mills. Around 61% of reported Welsh logs were sawn in Welsh mills; the rest were sawn in English mills just over the border.

**Table 9: Flow of softwood logs between countries**

| | | Sawmills in | | |
|---|---|---|---|---|
| **Source** | **GB** | **Scotland** | **England** | **Wales** |
| England | 550 | 55 | 439 | 56 |
| Scotland | 1,459 | 1,197 | 215 | 47 |
| Wales | 663 | 0 | 257 | 406 |
| Imports | 18 | 6 | 12 | 0 |
| **Total response** | **2,691** | **1,259** | **924** | **509** |
| Non-response to question or survey | 454 | 108 | 280 | 65 |
| **Total** | **3,145** | **1,367** | **1,204** | **574** |

18. Table 11 presents the same information as Table 10, but broken down by country (England, Scotland and Wales) instead of size category. The main differences were

- English mills sawed less spruce (54%) and a higher proportion of pines (27%) and other conifers (19%);
- More Scottish timber went to construction (41%) and less to fencing (20%).

**Table 10: Softwood - consumption and production (1998 full survey)**

| | Mill size category (000 $m^3$ total production) [1] | | | | |
|---|---|---|---|---|---|
| | 5 - <10 | 10 - <25 | 25 - <50 | 50+ | Total |
| Capacity (000 $m^3$ underbark) | 422 | 625 | 713 | 1,298 | 3,056 |
| % of consumption against capacity | 91 | 84 | 100 | 117 | 103 |
| Consumption (000 $m^3$ underbark) | 386 | 525 | 713 | 1,521 | 3,145 |
| Top diameter 16cm+ | 228 | 239 | 522 | 1,278 | 2,267 |
| Top diameter <16cm | 106 | 177 | 191 | 243 | 717 |
| Not reported | 52 | 109 | 0 | 0 | 161 |
| Spruce | 182 | 197 | 481 | 1,250 | 2,110 |
| Pine | 97 | 234 | 133 | 111 | 575 |
| Other conifer | 83 | 94 | 99 | 160 | 435 |
| Not reported | 24 | 0 | 0 | 0 | 24 |
| Sawnwood production (000 $m^3$ ) | 220 | 294 | 387 | 840 | 1,741 |
| Construction | 21 | 29 | 78 | 415 | 543 |
| Fencing | 93 | 109 | 193 | 155 | 550 |
| Packaging & pallets | 93 | 153 | 87 | 241 | 573 |
| Mining timber | 8 | 1 | 8 | 0 | 17 |
| Furniture | 0 | 0 | 0 | 0 | 1 |
| Other | 5 | 2 | 20 | 28 | 55 |
| Not reported | 0 | 0 | 1 | 1 | 2 |
| Co-products (000 green tonnes) | 176 | 287 | 392 | 894 | 1,748 |
| To wood processing industries | 146 | 240 | 334 | 735 | 1,454 |
| Sawdust | 26 | 58 | 51 | 151 | 286 |
| Slabwood | 3 | 0 | 1 | 0 | 4 |
| Peeled Chips | 69 | 148 | 234 | 581 | 1,034 |
| Unpeeled chips | 45 | 31 | 43 | 1 | 119 |
| Other | 3 | 3 | 3 | 3 | 12 |
| To other sales | 13 | 20 | 13 | 19 | 65 |
| Sawdust | 10 | 8 | 6 | 11 | 35 |
| Slabwood | 1 | 0 | 0 | 0 | 1 |
| Peeled Chips | 0 | 0 | 7 | 0 | 7 |
| Unpeeled chips | 1 | 0 | 0 | 0 | 1 |
| Firewood | 1 | 2 | 0 | 1 | 5 |
| Other | 0 | 10 | 0 | 8 | 17 |
| Sold as bark | 16 | 25 | 39 | 110 | 191 |
| Burnt for heat | 0 | 2 | 3 | 28 | 32 |
| Disposed rubbish/burning | 1 | 1 | 3 | 1 | 5 |

[1] Size category is based on total production of mill (softwood and hardwood), not just softwood production

**Table 11: Softwood-consumption and production (1998 full survey) - breakdown by country**

| | Scotland | England | Wales |
|---|---|---|---|
| Capacity (000 $m^3$ underbark) | 1,501 | 1,138 | 420 |
| % of consumption against capacity | 91 | 106 | 137 |
| Consumption (000 $m^3$ underbark) | 1,367 | 1,204 | 574 |
| Top diameter 16cm+ | 1,050 | 807 | 411 |
| Top diameter <16cm | 286 | 278 | 153 |
| Not reported | 31 | 119 | 11 |
| Spruce | 1,013 | 634 | 464 |
| Pine | 219 | 322 | 34 |
| Other conifer | 136 | 223 | 76 |
| Not reported | 0 | 24 | 0 |
| Sawnwood production (000 $m^3$ ) | 752 | 681 | 308 |
| Construction | 309 | 170 | 64 |
| Fencing | 149 | 285 | 116 |
| Packaging & pallets | 270 | 190 | 113 |
| Mining timber | 6 | 10 | 0 |
| Furniture | 0 | 1 | 0 |
| Other | 18 | 24 | 13 |
| Not reported | 1 | 0 | 1 |
| Co-products (000 green tonnes) | 759 | 648 | 341 |
| To wood processing industries | 614 | 544 | 296 |
| Sawdust | 99 | 114 | 72 |
| Slabwood | 0 | 2 | 2 |
| Peeled Chips | 475 | 340 | 218 |
| Unpeeled chips | 32 | 84 | 3 |
| Other | 8 | 4 | 1 |
| To other Sales | 38 | 25 | 2 |
| Sawdust | 26 | 7 | 2 |
| Slabwood | 0 | 0 | 0 |
| Peeled Chips | 0 | 7 | 0 |
| Unpeeled chips | 0 | 1 | 0 |
| Firewood | 4 | 1 | 0 |
| Other | 8 | 10 | 0 |
| Sold as bark | 74 | 77 | 40 |
| Burnt for heat | 29 | 2 | 2 |
| Disposed rubbish/burning | 5 | 1 | 0 |

**Hardwood**
**GB Summary (See Table 12)**

19. In 1998, total **hardwood capacity** (defined as for softwood) was 97,000 cubic metres underbark. **Hardwood consumption** was 97,000 cubic metres underbark, 100% of single shift capacity. The 1998 survey gives a more limited coverage of hardwood than previous years, because of the exclusion of mills producing less than 5000 $m^3$ sawnwood, and the results are more subject to distortion by variable response rates.

20. For mills that reported a breakdown of hardwood consumption by size category, over half of the hardwood consumed was top diameter 40 cm and over. The maximum butt diameter of log most mills were able to cut was over 100cm. The **main species** reported were oak 37%, beech 26%, ash 13% and sycamore 13%.

21. Hardwood production broken down by **market classification** showed that the main markets were sawn mining timber (22%) and furniture (36%). **Hardwood co-products** added up to 33,000 green tonnes, of which around 26,000 green tonnes were sold to wood processing industries.

**England, Scotland & Wales**

22. No Welsh mills that sawed hardwood were in the scope for the survey (mills sawing over 5,000$m^3$), and little was in the scope for Scotland, so only GB totals are given.

**Table 12: Hardwood - consumption and production (1998 full survey)**

| | All mills with total production[1] over 5,000$m^3$ |
|---|---|
| Capacity (000 $m^3$ underbark) | 97 |
| % of consumption against capacity | 100 |
| Consumption (000 $m^3$ underbark) | 97 |
| Top diameter 40cm+ | 45 |
| Top diameter <40cm | 36 |
| Not reported | 17 |
| | |
| Oak | 36 |
| Ash | 13 |
| Beech | 25 |
| Sycamore | 13 |
| Elm | 3 |
| Other white hard | 5 |
| Other hard | 3 |
| Not reported | 1 |
| Sawnwood production (000 $m^3$) | 54 |
| Construction | 8 |
| Fencing | 4 |
| Packaging & pallets | 6 |
| Mining timber | 12 |
| Furniture | 20 |
| Other | 6 |
| Co-products (000 green tonnes) | 33 |
| To wood processing industries | 26 |
| Sawdust | 2 |
| Slabwood | 0 |
| Peeled Chips | 2 |
| Unpeeled chips | 22 |
| Other | 0 |
| To other sales | 7 |
| Sawdust | 3 |
| Slabwood | 1 |
| Peeled Chips | 0 |
| Unpeeled chips | 1 |
| Firewood | 2 |
| Other | 0 |
| Sold as bark | 0 |
| Burnt for heat | 0 |
| Disposed rubbish/burning | 0 |

[1] Size category is based on total production of mill (softwood and hardwood), not just hardwood

**Additional Facilities of Mill**

23. Of the (rated up) total of 79 mills, the number with each of the additional facilities is shown below (treating non-response to this question as "no"). Capacity and throughput for machine strength grading and kiln drying were estimated by rating up respondents' figures by the same factor used to rate up softwood production for each size category (as described in the Appendix). The capacity and throughput of the machine strength grading has increased since 1996. The capacity for kiln drying has decreased since 1996, although throughput has increased.

**Table 13: Additional facilities of mills (1998 full survey)**

| | Number of mills | | | |
|---|---|---|---|---|
| | **GB** | **Scotland** | **England** | **Wales** |
| **Total number of mills** | **79** | **32** | **38** | **9** |
| Debarker | 56 | 27 | 22 | 7 |
| Log sorter | 30 | 14 | 12 | 4 |
| Drop sorter | 17 | 11 | 5 | 1 |
| Automatic sticker/stacker | 19 | 12 | 6 | 1 |
| Additional resawing/cross-cutting | 75 | 31 | 35 | 9 |
| Machining (e.g. planing, moulding) | 40 | 15 | 18 | 7 |
| Treatment plant | 45 | 19 | 19 | 7 |

| | **GB** | **Scotland** | **England** | **Wales** |
|---|---|---|---|---|
| Machine strength grading | | | | |
| Number of mills | 15 | 9 | 5 | 1 |
| Capacity ($000m^3$) | 523 | 319 | 149 | 55 |
| Throughput ($000m^3$) | 321 | 198 | 99 | 24 |
| Kiln Drying | | | | |
| Number of mills | 24 | 10 | 12 | 2 |
| Capacity ($000m^3$) | 479 | 302 | 145 | 32 |
| Throughput ($000m^3$) | 344 | 206 | 112 | 26 |

**Employment**

24. The numbers of direct employees and of contractors and subcontractors are shown below, rated up according to the number of mills responding in each size category. Contractors or sub-contractors accounted for around three-quarters of the employment on haulage, but less than 2% of other employment.

**Table 14 : Sawmill Employment (1998 Full Survey)**

| | Direct | Contract | Total |
|---|---|---|---|
| Sawmill line workers | 1,573 | 17 | 1,590 |
| Secondary process workers | 1,078 | 10 | 1,088 |
| Others (e.g. fitters) | 291 | 33 | 324 |
| Haulage to mill | 78 | 196 | 274 |
| Haulage from mill | 79 | 252 | 331 |
| Clerical staff | 197 | 5 | 202 |
| Marketing & sales staff | 108 | 0 | 108 |
| Supervising & managerial | 278 | 0 | 278 |
| **Total** | **3682** | **513** | **4,195** |

**Table 15: Sawmill Employment (1998 Full Survey) Country breakdown**

| | Scotland | | England | | Wales | |
|---|---|---|---|---|---|---|
| | **Direct** | **Contract** | **Direct** | **Contract** | **Direct** | **Contract** |
| Sawmill line workers | 613 | 0 | 720 | 17 | 240 | 0 |
| Secondary process workers | 302 | 3 | 722 | 7 | 54 | 0 |
| Others (e.g. fitters) | 121 | 9 | 131 | 22 | 39 | 2 |
| Haulage to mill | 29 | 103 | 47 | 83 | 2 | 10 |
| Haulage from mill | 19 | 122 | 55 | 116 | 5 | 14 |
| Clerical staff | 50 | 5 | 126 | 0 | 21 | 0 |
| Marketing & sales staff | 29 | 0 | 74 | 0 | 5 | 0 |
| Supervising & managerial | 99 | 0 | 137 | 0 | 42 | 0 |
| **Total** | **1,262** | **242** | **2,012** | **245** | **408** | **26** |

**APPENDIX 1**

## SURVEY METHODOLOGY

### 1998 Annual Survey Responses

1. In the 1998 Survey 407 questionnaires were sent out in February 1999. One reminder was issued in April to all non-respondents. Non-respondents estimated to have annual production of over 10,000 $m^3$, were contacted again by telephone. At the end of this process, responses had been received for 34 of the 41 mills producing over 10,000 $m^3$ (a response rate of 83%), 18 of the 38 mills between 5,000 and 10,000 (47% response), 136 of the estimated 286 smaller mills (47% response) and 35 mills were reported as having closed or having consumed no British timber in the year. In total, 225 responses were returned in some form, a response rate of 55%. Because of the much higher response rate from large mills, the respondents are estimated to have represented 82% of total softwood consumption and 60% of total hardwood consumption. The last survey in which estimates were obtained for all non-respondents was the survey for 1994.

2. Of the 225 responses for 1998:
- 57 completed the full (pink) questionnaire, intended for mills over 5000 $m^3$ production,
- 132 completed the shorter (yellow) questionnaire, intended for smaller mills,
- 36 reported that the sawmill no longer exists, or that they didn't saw any British logs in 1998.

### Full Survey Responses and Rating Factors

3. Of the estimated 79 mills producing over 5000 $m^3$ sawnwood, 52 completed a full questionnaire, 2 reported their 1998 figures on the short yellow questionnaire, and 25 did not report any figures for 1998, so estimates based on previous years were used in the report on the Annual Survey. The response rate to the full questionnaire is 66% if measured by the number of mills, but 86% by softwood volume. The full questionnaire was also completed for 5 mills that produced less than 5000 $m^3$ sawnwood; these were excluded from the full survey analysis. The response rate (number of mills) for each size category is shown below.

| | **Size category (000 $m^3$ production)** | | | | |
|---|---|---|---|---|---|
| | **5 - <10** | **10 - <25** | **25 - <50** | **50+** | **Total** |
| Mills with full (pink) questionnaire | 18 | 14 | 9 | 11 | 52 |
| Other mills | 20 | 5 | 2 | 0 | 27 |
| **Total** | **38** | **19** | **11** | **11** | **79** |
| *Response rate* | *47%* | *74%* | *82%* | *100%* | *66%* |

4. In all paragraphs and tables produced only from the full (pink) questionnaire, data reported by the 52 respondents were rated up to give estimates for all 79 mills producing over 5000 $m^3$ sawnwood. Separate rating factors were used for each of the four size categories. Capacity and consumption were rated up by factors based on consumption, with separate factors for hardwood and softwood. Production and residues were rated up by factors based on production, again with separate factors for hardwood and softwood. This ensured that production and consumption estimates in these tables are consistent with those given in the report on the Annual Survey. Responses to all other questions were rated up by factors based on the number of mills - the inverse of the response rates shown above.