

Forestry Statistics 2022

Sources: Timber

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The Research Agency of the
Forestry Commission

Forest Research is the Research Agency of the Forestry Commission and is the leading UK organisation engaged in forestry and tree related research.

The Agency aims to support and enhance forestry and its role in sustainable development by providing innovative, high quality scientific research, technical support and consultancy services.

11.2 Sources: Timber

Introduction

This page provides an overview of the sources for the timber statistics presented in Chapter 2; more detailed information is provided on the following pages.

The chapter covers wood production (removals) from UK woodland, and consumption and production by primary wood processors in the UK. The timber statistics presented cover both softwood (wood from coniferous trees such as spruce, pine and larch) and hardwood (wood from non-coniferous trees such as oak, birch and beech). Please refer to the Glossary for an explanation of the terms used.

Quantities of wood can be expressed in different units. Conversion factors can be used to convert between units.

Data sources and methodology

Statistics on timber are obtained from a number of sources. For wood production (removals), data are compiled from:

- Administrative records of removals from Forestry England (FE), Forestry and Land Scotland (FLS), Natural Resources Wales (NRW) and Northern Ireland Forest Service (FS) woodlands;
- the Private Sector Softwood Removals Survey for softwood removals from private sector woodlands and
- deliveries of hardwood to wood processing industries (see below) for total hardwood removals.
- There is no source of data for hardwood removals from private sector woodlands, so these are estimated to be:
- deliveries of hardwood to wood processing industries (see below) less

- hardwood removals from FE/FLS/NRW/FS woodlands.

Timber availability forecasts are obtained from the "25 year forecast of softwood availability 2022", released in July 2022, and the "50 year forecast of hardwood availability", released in April 2014, and made available by [National Forest Inventory](#).

Deliveries are estimated from the following sources:

- the Sawmill Survey;
- the Wood Panel Industries Federation (for wood-based panels);
- the Confederation of Forest Industries, Confor (for integrated pulp and paper mills);
- the Confederation of Paper Industries (for paper production);
- the Survey of Round Fencing Manufacturers;
- the Private Sector Softwood Removals Survey (for softwood deliveries to woodfuel);
- shavings manufacturers;
- companies believed to export roundwood and/or chips.

Estimates are also provided by the [Expert Group on Timber and Trade Statistics](#).

The [Methodology note: UK wood production](#) sets out the data analysis methods used to produce annual estimates of UK wood production.

Quality

Detailed information on the quality of the statistics presented in this publication is available in the ["Quality Report: UK Wood Production and Trade"](#).

Further quality information on our Official Statistics, including separate reports for each of the industry surveys used in this release, is available in [our code of practice](#).

Revisions

Figures for 2021 and earlier years have been previously published. They are however subject to revisions from those published in "UK Wood Production and Trade: 2021 provisional figures" and previous publications, to reflect late updates to administrative or survey data. Further details on any revisions made are provided in the following pages.

Information on significant revisions to published statistics is provided in [the quality report on UK Wood Production and Trade](#).

[Our revisions policy](#) sets out how revisions and errors to these statistics are handled.

Further information

Most of these statistics are used to compile data that are sent to international organisations in the Joint Forest Sector Questionnaires, in some cases giving more detail than in this release. These returns are published as Official Statistics on the Forest Research website; provisional figures in May and final figures in September/October. The statistics are used by UNECE Timber Bulletins and UN/FAO Forest Product Statistics and are published on the [FAOSTAT database](#). Summary results from the FAOSTAT database are provided in the International Forestry chapter.

The definitions used in this publication are consistent with the international definitions, as given in the [Joint Forest Sector Questionnaire definitions](#).

The United Nations Economic Commission for Europe (UNECE) Committee on Forests and the Forest Industry (previously the UNECE Timber Committee) also collects, on an annual basis, estimates for the current year and projections for the following year of wood production, imports and exports. Results are available on the [UNECE's Timber Committee webpage](#). Copies of [previous UK returns for the UNECE Timber Forecast Questionnaire](#) are available online.

The Department for Business, Energy and Industrial Strategy publishes an [annual Digest of UK Energy Statistics](#). Chapter 7 of this digest covers renewable sources of energy including wood. Figures for wood use in renewable energy statistics take into account wood from all sources (including processed wood, recycled wood and imports), not just UK-grown roundwood.

Release schedule

Provisional figures for 2022 will be released on 18 May 2023 in "UK Wood Production and Trade: 2021 provisional figures".

Final figures for 2022 will be released on 28 September 2023 in "Forestry Statistics 2023" and "Forestry Facts & Figures 2023".

11.2.1 Sources: Wood production

Sources

Figures on UK wood production (or removals) are compiled from a variety of sources:

- Forestry England (FE), Forestry and Land Scotland (FLS), Natural Resources Wales (NRW) and Northern Ireland Forest Service (FS) administrative records - for all removals from FE/FLS/NRW/FS woodlands;
- the Private Sector Softwood Removals Survey - for softwood removals from private sector woodlands and
- statistics on deliveries - for total hardwood removals.

The compilation of data on wood production was extended in 2004 to include Northern Ireland.

These sources cover removals of roundwood (trunk and branch wood) only. A survey was introduced in 2009 to collect data on removals of brash (branch wood

and leaf material) and stumps (above-ground base part of trees). The collection of stump removals was discontinued in 2012.

Methodology

Figures for removals from FE/FLS/NRW/FS woodlands are converted from cubic metres (m³) to green tonnes using standard conversion factors. For total softwood figures, the results from the Private Sector Softwood Removals Survey are combined with the data for FE/FLS/NRW/FS woodlands to produce total softwood removals.

For hardwood figures, the total hardwood removals are assumed to equal the total hardwood deliveries (obtained from industry surveys and industry associations; see subsequent pages for further information on these sources). Hardwood removals from FE/FLS/NRW/FS woodlands are then subtracted to give an estimate of the amount of hardwood removed from private sector woodlands.

Softwood removals methodology change

The methodology used to estimate the quantity of UK softwood removals from private sector woodland was revised for the release of provisional 2011 estimates in "UK Wood Production and Trade: 2011 provisional figures". Details of the change in methodology and its impact on the figures are available in the ["Methodology Review of Softwood Removals from Non-FC/FS Woodland"](#).

Revisions

Private sector softwood removals are subject to revision annually (see following page, on the Private Sector Softwood Removals Survey). Removals from FE/FLS/NRW/FS woodlands are not normally revised. Total hardwood removals (and consequently hardwood removals from private sector woodlands) are subject to annual revisions (see notes on deliveries for further information).

Figures for 2021 are final; provisional figures were previously released in "UK Wood Production and Trade: 2021 provisional figures". Figures for 2021 and earlier years have not been revised from those provided in "UK Wood Production and Trade: 2021 provisional figures".

Information on revisions made since "Forestry Statistics 2021" are provided in "UK Wood Production and Trade: 2021 provisional figures".

Further information

Figures are published as UK totals. Country breakdowns (England, Wales, Scotland, Northern Ireland) are also published for softwood in table 2.2 for private sector removals and table 2.3 for FE/FLS/NRW/FS removals. Approximate country breakdowns are also estimated for hardwood removals.

Longer time series, presenting estimates of FE/FLS/NRW/FS and private sector removals by country and by softwood/hardwood are [available on our data downloads web page](#).

Release schedule

Provisional figures for 2022 will be released on 18 May 2023 in "UK Wood Production and Trade: 2022 provisional figures".

Final figures for 2022 will be released on 28 September 2023 in "Forestry Statistics 2023" and "Forestry Facts & Figures 2023".

11.2.2 Sources: Private Sector Softwood Removals Survey

Introduction

The Private Sector Softwood Removals Survey is an annual survey conducted by Forest Research (on behalf of the Forestry Commission, Scottish Forestry, Natural Resources Wales and the Northern Ireland Forest Service) of a sample of harvesting companies in the UK.

Figures are published as UK totals and by country (England, Wales, Scotland, Northern Ireland).

Data collected

The [questionnaire used for the Private Sector Softwood Removals Survey](#) is issued annually to around 40 harvesting companies, to collect information on:

- the quantity of softwood roundwood harvested from private sector woodlands in the UK in the current (latest) year and in the previous year;
- the quantity of softwood roundwood harvested from certified private sector woodlands;
- (from the 2008 survey) the quantity sold to bioenergy (including wood pellet manufacture);
- (for the 2013 - 2017 surveys) the quantity of softwood roundwood harvested as required by plant health legislation and
- (from the 2018 survey) the quantity of removals by type of product.

Response rates

The questionnaire was issued to 46 harvesting companies for the collection of 2021 data, of which 33 responded, giving a response rate of 72%. These respondents

are estimated to account for around 99% of all the softwood harvested by companies covered by the survey.

Private Sector Softwood Removals Survey Response Rates, 2012-2021

Year	Forms issued	Responses received	Response rate ¹	Weighted response rate ²
2012	37	27	73%	95%
2013	40	28	70%	96%
2014	39	30	77%	97%
2015	40	27	68%	94%
2016	40	26	65%	94%
2017	40	31	78%	95%
2018	43	37	86%	90%
2019	40	26	65%	88%
2020	42	33	79%	94%
2021	46	33	72%	99%

Notes:

1. Response rates are calculated as the number of responses received divided by the number of forms issued.
2. Weighted response rates are an estimate of the proportion of the softwood harvested by companies covered by the survey that is accounted for by respondents.

Methodology

A review of the methodology used to estimate total private sector softwood removals (including businesses not covered by the survey) was undertaken in 2011-2012.

The ["Methodology Review of Softwood Removals from Non-FC/FS Woodland"](#) paper presents the results from this review and the implications of the change in methodology.

In the current methodology, businesses not covered by the survey are assumed to represent 15% of the total softwood removals from private sector woodland. This fixed percentage is applied from 2006 onwards. This figure remains under review.

Quality

Detailed information on the survey quality is available in the ["Quality Report: Private Sector Softwood Removals Survey"](#).

Revisions

Results from the Private Sector Softwood Removals Survey may be revised between the provisional figures published in the First Release "UK Wood Production and Trade: provisional figures" and the final data published in "Forestry Facts & Figures" and "Forestry Statistics", to take account of late returns and the results of additional data quality checking procedures.

In order to use the most accurate information possible in estimating total private sector softwood removals, figures for non respondents in earlier years are estimated wherever possible, using their responses in previous and in subsequent years. This may cause the estimates for all previous years to be revised when new data are received from a former non-respondent. This process reduces the potential over-inflation of estimated removals which can be caused by harvesting companies tending to respond when removals have increased but being less likely to do so when their removals have reduced.

Figures for 2021 are final. Figures for 2021 and earlier years have not been revised from those provided in "UK Wood Production and Trade: 2021 provisional figures".

Information on revisions made since "Forestry Statistics 2021" are provided in "UK Wood Production and Trade: 2021 provisional figures".

Release schedule

Provisional figures for 2022 will be released on 18 May 2023 in "UK Wood Production and Trade: 2022 provisional figures".

Final figures for 2022 will be released on 28 September 2023 in "Forestry Statistics 2023" and "Forestry Facts & Figures 2023".

11.2.3 Sources: Sawmill Survey

Introduction

The Sawmill Survey is an annual survey conducted by Forest Research (on behalf of the Forestry Commission, Scottish Forestry, Natural Resources Wales and the Northern Ireland Forest Service) of sawmills in the UK that are believed to use UK-grown logs. The survey comprises a short questionnaire (for smaller mills) and a detailed questionnaire (for larger mills).

The detailed survey has changed over the years, both in terms of coverage and periodicity. From 2016, the threshold for inclusion in the detailed sawmill survey has been raised to annual production of at least 25,000 m³ sawnwood. Information on changes prior to 2009 are available in previous editions of Forestry Statistics.

Statistics reported for each year are limited to mills that are known to use UK roundwood, but also include any imported logs used by these mills.

Tables for softwood are broken down by country (England, Wales, Scotland, Northern Ireland) and by size of mill. Given the low number of sawmills using UK hardwood, tables for hardwood are presented at a total UK level only.

The number of active mills (those that produced sawnwood in the reporting year) is presented in tables 2.8 to 2.10.

Longer time series, providing data on numbers of mills and on softwood consumption and production are available on [our data downloads web page](#). The time series data feature breakdowns by size of mill, by country and by region (in England).

Data collected

Two questionnaires are used for the Sawmill Survey:

- a detailed questionnaire goes to around 30 mills that have annual production of at least 25,000 m³ of sawnwood, and

- a short questionnaire is sent to all other mills that are believed to use UK sawlogs (currently around 120 mills).

Both the detailed and the short questionnaires collect information on:

- the consumption of UK and imported logs,
- the production of sawnwood,
- chain of custody certificates and certified timber,
- (from the 2006 survey) sales to bioenergy,
- (from the 2008 survey) sales as firewood and internal use for heat/energy,
- (from the 2010 survey) other products,
- (from the 2008 survey) total employment and
- (for the 2018 survey only) total wood inputs.
- (from the 2021 survey) preservative treatment of sawnwood

In addition, the detailed questionnaire also collects information on:

- the source of UK logs (England, Wales, Scotland or Northern Ireland),
- sawnwood product markets,
- other products by type and destination and
- sawmill employment by type.

More [information on the Sawmill Survey](#), including copies of the questionnaires sent to businesses in recent years, are available.

Response rates

Detailed questionnaires were issued to 30 mills for the collection of 2021 data, of which 27 responded, giving a response rate of 90%. For the short questionnaire, 31 responses were received from the 119 forms issued, corresponding to a 26% response rate. This gives an overall response rate of 39%.

Overall, the 58 sawmills responding to the sawmill survey in 2021 are estimated to account for around 88% of total UK sawnwood production.

Sawmill Survey Response Rates (all questionnaires), 2012-2021

Year	Forms issued	Responses received	Response rate ¹	Weighted response rate ²
2012	196	86	44%	84%
2013	191	83	43%	80%
2014	178	82	46%	84%
2015	179	84	47%	79%
2016	173	74	43%	83%
2017	170	73	43%	86%
2018	155	64	41%	79%
2019	151	57	38%	75%
2020	98	51	52%	87%
2021	149	58	39%	88%

Notes:

1. Response rates are calculated as the number of responses received divided by the number of forms issued.
2. Weighted response rates are an estimate of the proportion of total UK sawnwood production that is accounted for by respondents.

Methodology

Each year, figures for non respondents are estimated by rolling forward data from previous years for these mills. For larger mills, these estimates may be modified to take account of advice from the Expert Group on Timber & Trade Statistics.

Time series data for the detailed sawmill survey

From one year to another, some mills may have moved above or below the threshold for inclusion in the detailed sawmill survey. This may affect the trends over time in tables 2.16a to 2.19a.

The total volume of roundwood consumed and sawnwood and other products produced by sawmills covered by the detailed sawmill survey varies over time, so a change in the percentages shown in tables 2.16a to 2.18a does not necessarily reflect a change in volumes.

Quality

Detailed information on the survey quality is available in the "Quality Report: Sawmill Survey", available in our [code of practice](#).

Revisions

Results from the Sawmill Survey may be revised between the provisional figures published in the First Release "UK Wood Production and Trade: provisional figures" and the final data published in "Forestry Facts & Figures" and "Forestry Statistics" to take account of late returns and the results of additional data quality checking procedures.

All the main results (number of mills, consumption, production) are subject to revision annually, as information becomes available about mills opening or closing, or new information becomes available for previous non-respondents. The most common revisions are relatively small downward changes, but this can vary from year to year as special exercises are run to validate the survey population.

Information about new mills opening can on occasion cause much larger upward revisions to softwood volumes. Results from the survey of larger mills, which provides more detailed information, may be revised to take account of new information for previous non-respondents.

Figures for 2021 are final; provisional figures were previously released in "UK Wood Production and Trade: 2021 provisional figures". The following figures have been revised since "UK Wood Production and Trade: 2021 provisional figures":

- The production of sawn softwood in 2021 has been revised down by 10 thousand m³.

Information on revisions made since "Forestry Statistics 2021" are provided in "UK Wood Production and Trade: 2021 provisional figures".

Further information

Figures for UK production of sawn softwood have previously been [used alongside data from other sources to assess consumption of sawn softwood in the main end-user markets in the UK](#).

Release schedule

Provisional figures for 2022 will be released on 18 May 2023 in "UK Wood Production and Trade: 2022 provisional figures".

Final figures for 2022 will be released on 28 September 2023 in "Forestry Statistics 2023" and "Forestry Facts & Figures 2023".

11.2.4 Sources: Pulp & paper

Introduction

Data on the pulp and paper sector are obtained from two sources:

- The [Confederation of Forest Industries](#) (Confor) provides figures on inputs to the integrated pulp and paper mills and
- the [Confederation of Paper Industries](#) (CPI) provides figures on total UK pulp and paper production.

Integrated pulp and paper mills are paper mills that use UK roundwood to produce pulp (an intermediate product in the production of paper). Inputs for other paper mills are not covered in the input statistics reported. The figures for production cover all UK paper mills.

Figures are available at a total UK level only.

Data collected

The data collected on inputs cover the type of input (roundwood, sawmill products) and the type of wood (softwood, hardwood).

Production data covers wood pulp (mechanical or semi-chemical), recovered fibre pulp and paper & paperboard. Paper & paperboard production are available for the following categories: sanitary & household papers, packaging materials and other paper & paperboard. The production data produced by the Confederation of Paper Industries no longer includes graphic papers as a separate category. As a result, the "other" paper & paperboard category in table 2.21 now includes graphic papers.

Data are also collected on UK "production" of waste paper, which is the amount recovered from the UK for re-use in the UK or for export.

From 2008, total employment at integrated pulp and paper mills is also requested, to complement the data collected on this topic from other primary wood processors.

From 2018, data was also requested on wood inputs for energy use.

Methodology

The data on inputs to integrated pulp and paper mills are collected by Confor from all such mills in the UK. The number of integrated pulp and paper mills has fallen over recent years and currently stands at 2.

The CPI collects production and raw material data from members and non-members, which accounts for the majority of UK production. The remainder is estimated by CPI using a variety of sources.

Revisions

The statistics on pulp and paper are not normally revised after publication. On occasion, a provisional figure or estimate may be published, and replaced by the actual figure in a subsequent publication.

Figures for 2021 are final; provisional figures were previously released in "UK Wood Production and Trade: 2021 provisional figures".

Figures for 2021 and earlier years have not been revised from those in "UK Wood Production and Trade: 2021 provisional figures". Information on revisions made since "Forestry Statistics 2021" are provided in "UK Wood Production and Trade: 2021 provisional figures".

Release schedule

Provisional figures for 2022 will be released on 18 May 2023 in "UK Wood Production and Trade: 2022 provisional figures".

Final figures for 2022 will be released on 28 September 2023 in "Forestry Statistics 2023" and "Forestry Facts & Figures 2023".

11.2.5 Sources: Wood-based panels

Introduction

Data on the wood-based panel sector are obtained from the [Wood Panel Industries Federation](#) (WPIF) and cover all wood-based panel mills in the UK.

Statistics reported for each year are available at a UK level only.

Data collected

Data are collected on inputs and on production.

The data collected on inputs covers the type of input (roundwood, sawmill products, imports, recycled wood fibre) and the type of wood (softwood, hardwood).

Production data covers all types of wood-based panels made in the UK, which currently comprises particleboard (including oriented strand board) and fibreboard (medium density fibreboard). UK production of hardboard (another type of fibreboard) ended in the UK in 1999 and production of plywood ended in 2000.

From 2008, total employment is also requested, to complement the data being collected on this topic from other primary wood processors.

From 2018, data was also requested on wood inputs for energy use.

Methodology

The data on wood-based panels are collected by the WPIF, which represents all UK wood panel manufacturers. Figures on wood consumption are collected annually. Production data (excluding waste and rejects) are derived from quarterly returns. Response rates in recent years have been 100%.

Revisions

The statistics on wood-based panels are not normally revised after publication. On occasion, a provisional figure or estimate may be published, and replaced by the actual figure in a subsequent publication.

Figures for 2021 are final; provisional figures were previously released in "UK Wood Production and Trade: 2021 provisional figures". Figures for 2021 and earlier years have not been revised from those in "UK Wood Production and Trade: 2021 provisional figures".

Release schedule

Provisional figures for 2022 will be released on 18 May 2023 in "UK Wood Production and Trade: 2021 provisional figures".

Final figures for 2022 will be released on 28 September 2023 in "Forestry Statistics 2023" and "Forestry Facts & Figures 2023".

11.2.6 Sources: Survey of Round Fencing Manufacturers

Introduction

The Survey of Round Fencing Manufacturers is an annual survey conducted by Forest Research (on behalf of the Forestry Commission, Scottish Forestry, Natural Resources Wales and the Northern Ireland Forest Service) of round fencing manufacturers (or mills) in the UK that are believed to consume UK-grown roundwood.

Figures are published as UK totals and by size of mill. [Longer time series, providing data on numbers of mills and on softwood consumption](#) are available.

Data collected

The questionnaire used for the Survey of Round Fencing Manufacturers is issued to around 40 mills, to collect information on the consumption of UK-grown and imported roundwood. In 2008, the survey was extended to cover woodfuel quantities (sales to bioenergy, sales as firewood and internal use for heat/ energy) and total employment. In 2010, the survey was further extended to request data on production of round fencing and other products. A breakdown of the country of origin (England, Wales, Scotland, Northern Ireland) for UK-grown roundwood is also requested. A question on total wood inputs was added for the 2018 survey but has since been dropped. A question on the preservative treatment of round fencing production was included in the 2020 survey.

More [information on the Survey of Round Fencing Manufacturers](#), including copies of the questionnaires sent to businesses in recent years, are available.

Response rates

The questionnaire was issued to 45 mills for the collection of 2021 data, of which 18 responded, giving a response rate of 40%. These respondents accounted for an estimated 40% of roundwood purchased by softwood round fencing manufacturers.

Survey of Round Fencing Manufacturers Response Rates, 2012-2021

Year	Forms issued	Responses received	Response rate ¹	Weighed response rate ²
2012	68	26	38%	53%
2013	67	27	40%	51%
2014	62	26	42%	42%
2015	60	29	48%	54%
2016	55	23	42%	49%
2017	53	21	40%	36%
2018	53	22	42%	37%
2019	50	20	40%	45%
2020	38	15	39%	34%
2021	45	18	40%	40%

Notes:

1. Response rates are calculated as the number of responses received divided by the number of forms issued.
2. Weighted response rates are an estimate of the proportion of total roundwood purchased by softwood round fencing manufacturers that is accounted for by respondents.

Methodology

Each year, figures for non-respondents are estimated by rolling forward data from previous years for these mills. In 2020, this approach was modified to assume that the change from 2019 to 2020 for non-respondents would be similar to that for respondents. This improved methodology was continued for the 2021 survey.

Quality

Detailed information on the survey quality is provided in the ["Quality Report: Survey of Round Fencing Manufacturers"](#).

Revisions

Results from the Survey of Round Fencing Manufacturers may be revised between the provisional figures published in the First Release "UK Wood Production and Trade: provisional figures" and the final data published in "Forestry Facts & Figures" and "Forestry Statistics" to take account of late returns and the results of additional data quality checking procedures.

All figures are subject to revision annually, as information becomes available about mills opening or closing, or new information becomes available for previous non-respondents. Such revisions are generally quite small.

Figures for 2021 are final; provisional figures were previously released in "UK Wood Production and Trade: 2021 provisional figures". Data for 2021 and earlier years have not been revised from those in "UK Wood Production and Trade: 2021 provisional figures". Information on revisions made since "Forestry Statistics 2021" are provided in "UK Wood Production and Trade: 2021 provisional figures".

Release schedule

Provisional figures for 2022 will be released on 18 May 2023 in "UK Wood Production and Trade: 2021 provisional figures".

Final figures for 2022 will be released on 28 September 2023 in "Forestry Statistics 2023" and "Forestry Facts & Figures 2023".

11.2.7 Sources: Other deliveries

Introduction

Data on other deliveries comprise the following:

- shavings - mainly obtained from shavings manufacturers;
- woodfuel - private sector softwood removals survey, woodfuel suppliers and Expert Group on Timber & Trade Statistics estimates;
- hardwood round fencing - Expert Group on Timber & Trade Statistics estimates;
- other miscellaneous products - Expert Group on Timber & Trade Statistics estimates and
- exports of roundwood and chips - companies believed to export roundwood and/or chips, Forest Service (for exports from Northern Ireland) and HM Revenue and Customs.

Statistics reported for each year are available at a UK level only.

Data collected

The data collected on shavings, woodfuel and other miscellaneous products cover the quantity of roundwood only.

Data collected on exports includes the following categories; industrial roundwood (excluding sawlogs), sawlogs and chips.

Methodology

For shavings, data are collected from the main companies known to produce shavings. In addition, a small estimate is made to cover other shavings manufacturers.

There are currently no reliable sources for data on hardwood round fencing and other miscellaneous products. As a result, estimates (that are rarely changed) are made by the Expert Group on Timber & Trade Statistics to attempt to take account of these other uses of UK roundwood.

The estimate for hardwood used for woodfuel was revised in 2017 to reflect a perceived increase in woodfuel, but this should not be interpreted as an increase in a single year. A further increase in 2018 reflects a rise that is believed to have occurred during the year.

For exports, data are requested from companies believed to have exported roundwood or chips in the last year. Forest Service provides data on behalf of companies exporting from Northern Ireland. If required, a small estimate is made for any non respondents or to cover other companies that may have exported roundwood during the year. Exports of hardwood roundwood are estimated from the overseas trade statistics produced by HM Revenue and Customs.

Revisions

Figures for deliveries of softwood for woodfuel may be revised whenever revisions are made to the Private Sector Softwood Removals Survey.

The statistics on other deliveries are not normally revised after publication. On occasion, an estimate may be revised in a subsequent publication, to take account of expert advice on perceived changes in the market for roundwood.

The [quality report on UK Wood Production and Trade](#) provides further information, including details of significant revisions to published statistics.

Figures for 2021 are final; provisional figures were previously released in "UK Wood Production and Trade: 2021 provisional figures". Figures for 2021 and earlier years have not been revised from those in "UK Wood Production and Trade: 2021 provisional figures". Information on revisions made since "Forestry Statistics 2021" are provided in "UK Wood Production and Trade: 2021 provisional figures".

Release schedule

Provisional figures for 2022 will be released on 18 May 2023 in "UK Wood Production and Trade: 2021 provisional figures".

Final figures for 2022 will be released on 28 September 2023 in "Forestry Statistics 2023" and "Forestry Facts & Figures 2023".

11.2.8 Sources: Comparison of removals and deliveries of UK softwood roundwood

The table below provides a comparison between the figures for removals (obtained from Forestry England, Forestry and Land Scotland, Natural Resources Wales, Forest Service and Private Sector Removals Survey) and deliveries (obtained from industry surveys and trade associations) of UK softwood roundwood.

The estimated total for softwood removals in the UK has generally been higher than the estimate for total UK softwood deliveries. At least some of this difference may indicate a possible undercounting of deliveries, particularly for roundwood that is used directly for woodfuel.

A larger discrepancy of 0.7 million green tonnes in 2018 has been offset by a reversal, with the estimate for softwood deliveries in 2019 around 0.4 million green tonnes higher than removals in 2019. Taken together, the total discrepancy for 2018 and 2019 equates to total removals around 0.3 million green tonnes higher than deliveries, suggesting that at least some of the changes in the difference between removals and deliveries during that period may be related to changes in the level of stocks.

Comparison of removals and deliveries of UK softwood roundwood, 2012-2021

thousand green tonnes

Year	FE/FLS/ NRW/FS removals	Private sector removals	Total removals	Deliveries	Balance ¹
2012	4,836	5,259	10,095	9,842	254
2013	5,084	5,852	10,936	10,559	377
2014	4,900	6,627	11,527	10,914	613
2015	4,691	5,968	10,659	10,276	382
2016	5,011	5,734	10,745	10,430	316
2017	4,761	6,075	10,836	10,471	366
2018	4,522	6,827	11,349	10,626	723
2019	3,937	5,884	9,822	10,225	-403
2020	4,616	5,437	10,053	9,904	149
2021	4,009	6,407	10,416	10,366	51

Source: Forestry England, Forestry and Land Scotland, Natural Resources Wales, Forest Service, industry surveys, industry associations

Notes:

1. The difference between reported removals and deliveries can be caused by variations in the level of stocks between harvesting and delivery to the wood processor, and/or by the differences in data sources and methodologies used to compile removals and deliveries statistics.

11.2.9 Sources: Estimation of hardwood removals from private sector woodlands

Figures for hardwood removals from private sector woodlands are derived from total hardwood deliveries (obtained from industry surveys and trade associations) less hardwood removals from FE/FLS/NRW/FS woodlands. The table below provides figures for the last 10 years.

Estimation of hardwood removals from private sector woodlands, 2012-2021

thousand green tonnes

Year	Deliveries	FE/FLS/NRW/FS removals	Private sector removals
2012	532	55	478
2013	530	78	452
2014	535	71	464
2015	564	73	491
2016	595	68	527
2017	736	85	651
2018	834	88	746
2019	868	68	800
2020	829	87	742
2021	823	96	727

Source: Forestry England, Forestry and Land Scotland, Natural Resources Wales, Forest Service, industry surveys, industry associations

11.2.10 Sources: Woodfuel and pellets

Introduction

Data on woodfuel have been obtained from the following sources:

- Sawmill survey and survey of round fencing manufacturers;
- Private sector softwood removals survey and woodfuel suppliers;
- Expert Group on Timber & Trade Statistics estimates.

Estimates of the quantity of recycled wood used for woodfuel are produced by the [Wood Recyclers' Association](#).

Data on UK pellet production and feedstock are obtained from the survey of UK pellet and briquette production.

For details on roundwood deliveries for woodfuel, see the Sources: other deliveries page.

Figures are published as UK totals.

Data collected

The sawmill survey and survey of round fencing manufacturers included questions asking for the quantity of woodfuel:

- sold to bioenergy,
- sold as firewood and
- used internally for heat/energy.

The survey of UK pellet and briquette production was run for the first time for the collection of 2009 data. The questionnaire asks for data on the total quantity of pellets and briquettes produced, the source of fibres used, the origin of wood used and product markets.

More [information on the survey of UK pellet and briquette production](#), including copies of the questionnaires sent to businesses in recent years, can be found online.

Response rates

Response rates for the sawmill survey and survey of round fencing manufacturers are available on the relevant sources pages.

The 2021 survey of UK pellet and briquette production was sent to a total of 11 companies that were believed to manufacture pellets or briquettes. A total of 6 responded, giving a response rate of 55%. The respondents to the survey are estimated to account for around 92% of the total production of pellets and briquettes in the UK in 2021.

Whilst the low response rates to this survey are of some concern, it is believed that many of the non-respondents are not (currently) producing pellets or briquettes. This is reflected in the much higher weighted response rates and the figures produced are believed to give a reasonable estimate of the true level of UK pellet production.

Survey of UK Pellet & Briquette Production Response Rates, 2012-2021

Year	Forms issued	Response received	Response rate ¹	Weighted Response rate ²
2012	21	5	24%	75%
2013	18	8	44%	91%
2014	18	6	33%	91%
2015	18	5	28%	45%
2016	18	5	28%	68%
2017	17	4	24%	56%
2018	14	5	36%	89%
2019	14	5	36%	89%
2020	11	5	45%	91%
2021	11	6	55%	92%

Notes:

1. Response rates are calculated as the number of responses received divided by the number of forms issued.
2. Weighted response rates are an estimate of the proportion of total UK pellet and briquette production that is accounted for by respondents.

Methodology

Details of the methodology used for the sawmill survey and survey of round fencing manufacturers are available on the relevant sources pages.

For the survey of UK pellet and briquette production, estimates were made for non-respondents using results from previous surveys and expert advice.

Quality

Detailed information on the pellet survey quality is available in the ["Quality Report: Survey of UK Pellet & Briquette Production"](#).

Revisions

All figures are subject to revision annually, as new information becomes available.

Figures for 2021 are final; provisional figures were previously released in "UK Wood Production and Trade: 2021 provisional figures". The figures for 2021 and earlier years have not been revised since "UK Wood Production and Trade: 2021 provisional figures". Information on revisions made since "Forestry Statistics 2021" are provided in "UK Wood Production and Trade: 2021 provisional figures".

Further information

[Figures for Woodfuel Demand and Usage in Scotland](#), covering actual and potential use of woodfuel in the commercial, industrial and electrical energy sectors, are produced annually by Scottish Forestry.

The Department for Business, Energy and Industrial Strategy (previously the Department of Energy and Climate Change) publishes [an annual Digest of UK Energy Statistics](#). Chapter 7 of this digest covers renewable sources of energy including wood. Figures for wood use in renewable energy statistics take into account wood from all sources (including processed wood, recycled wood and imports), not just UK-grown roundwood.

Release schedule

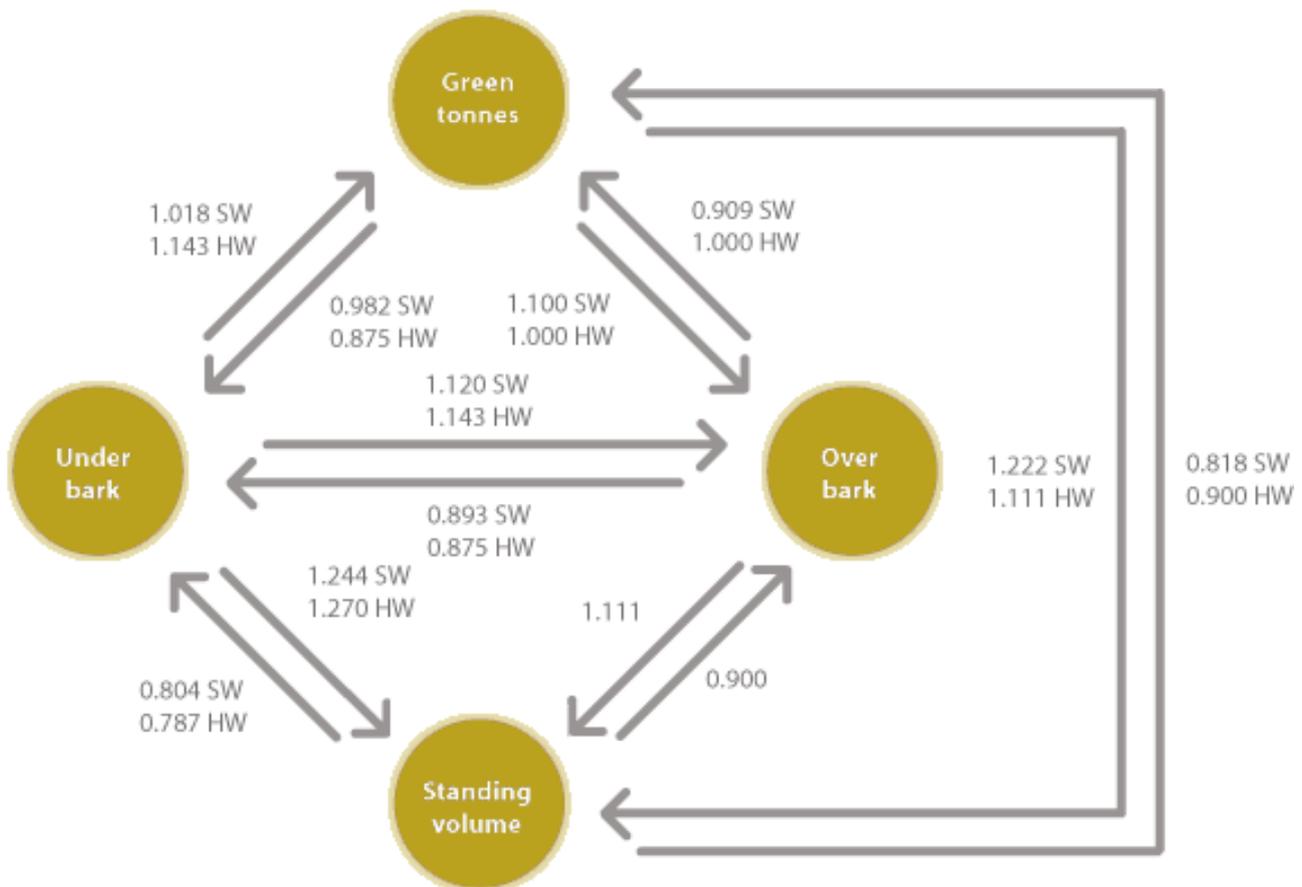
Provisional figures for 2022 will be released on 18 May 2023 in "UK Wood Production and Trade: 2021 provisional figures".

Final figures for 2022 will be released on 28 September 2023 in "Forestry Statistics 2023" and "Forestry Facts & Figures 2023".

11.2.11 Sources: Conversion factors

Conversion factors between cubic metres and green tonnes

The following factors have been used in Chapter 2 (Timber) to convert between cubic metres (m³) and green tonnes:



The diagram shows separate conversion factors to use when converting softwood (SW) and hardwood (HW) with arrows to indicate the direction of conversion. For example, to convert 1,000 green tonnes of SW into an under bark volume, the 1,000 green tonnes should be multiplied by the conversion factor of 0.982 to give 982m³ underbark. There is no difference between the softwood and hardwood conversion factors for converting between standing volume and overbark volumes.

The following factors have been used in Chapter 3 (Trade) to convert between cubic metres (m³) and metric tonnes:

In this case, all the factors are expressed as volumes (in m³) per weight (in tonnes). Therefore, to convert 1,000 tonnes of sawn softwood into a volume, the 1,000 tonnes should be multiplied by 1.82 to give 1,820 m³.

Conversion factors between cubic metres and metric tonnes

Product	m ³ / tonne
Fuelwood, including wood for charcoal	1.38
Wood chips, sawdust, etc	1.48
Industrial roundwood (wood in the rough) - softwood	1.43
Industrial roundwood (wood in the rough) - hardwood	1.25
Sawnwood - softwood	1.82
Sawnwood - hardwood	1.43
Veneer sheets	1.33
Plywood, particleboard	1.54
Hardboard	1.053
MDF (medium density fibreboard)	1.667
Insulating board - density 0.35-0.5 g/cm ³	1.667
Insulating board - other	4.00

The following factors have been used in Chapter 3 (Trade) where required to convert to wood raw material equivalent, which indicates the volume of wood (in m³ underbark) needed to produce one unit of a final product:

Conversion factors to Wood Raw Material Equivalent (wrme) underbark

Product	Measurement unit	Factor to wrme underbark
Fuelwood	tonnes	1.20
Wood charcoal	tonnes	6.00
Chips, sawdust, etc	tonnes	1.20
Industrial roundwood (rough, treated)	m ³	1.10
Industrial roundwood (in the rough)	m ³	1.00
Sleepers	m ³	1.58
Softwood sawnwood	m ³	2.00
Hardwood sawnwood	m ³	2.50
Wastepaper	tonnes	2.80
Mechanical pulp	tonnes	2.50
Chemical dissolving pulp	tonnes	2.50
Sulphate pulp, unbleached	tonnes	6.00
Sulphate pulp, bleached	tonnes	4.50
Sulphite pulp	tonnes	5.00
Semi-chemical woodpulp	tonnes	2.75
Veneer (< 6mm)	tonnes	3.45
Other wood-based panels	tonnes	2.50
Woodwool, woodflour	tonnes	1.70
Packing cases, pallets	tonnes	2.00
Other manufactured wood	tonnes	2.50
Newsprint	tonnes	2.80
Writing & printing paper, uncoated	tonnes	3.50
Other paper & paperboard	tonnes	2.50

Notes:

1. A revised set of figures was produced in FC Technical Paper 19, "Revised Forecasts of the Supply and Demand for Wood in the UK" (Forestry Commission, 1996), but these have not been used in this publication.

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