



Chapter 3

SAWN HARDWOOD

Authors: Matthew Bumgardner, Diego Benedetti

Highlights

European sawn hardwood production, except for France and Belgium, recovered from COVID-19 with a 11% increase in 2021 due to high demand to levels last seen in 2015.

Consumption of sawn hardwood exceeded production in Europe, leading to depletion of stocks.

European production of wooden flooring – a major consumer of oak sawnwood – recorded the second-best result since 1991, with a production of 97,900 m³ of wood parquet in 2021.

Exports of sawn hardwood from Europe increased by 20% to over 3.2 million m³ in 2021. China imported 29% or 950,000 m³ of those volumes.

Member States are considering measures to reduce the volumes of oak logs exported outside Europe.

Increasing cost for electricity are a big challenge for sawn hardwood producers in Europe.

In the United States, hardwood demand from the furniture industry continues to decline, as net imports reached nearly 80% market share of the wood household furniture market.

Imports of temperate sawn hardwood by the United States increased by 8.1% in 2021. This increase was driven largely by increased imports of beech (mostly from Germany) and birch (mostly from Canada).

Canada accounted for nearly 48% of total sawn hardwood imports by the United States in 2021.

The United States imported 593,000 m³ of temperate and tropical sawn hardwood in 2021 – the lowest total import volume since 2009.

Aggregate sawn hardwood prices in the United States reversed a declining trend and exceeded the long-term average for the first time since 2005.

Europe

The trends and developments in the European subregion this year are based on data and intelligence available at the European Organization of the Sawmill Industry (EOS). Their data cover about two thirds of European sawnwood production and are used as a proxy for the trend in the subregion in 2021 and early 2022.

■ PRODUCTION

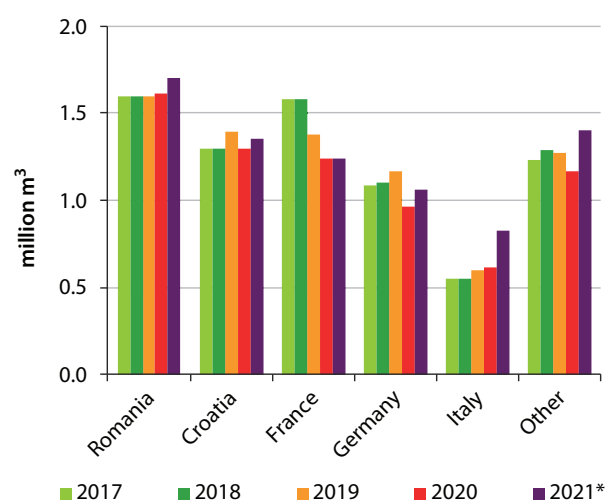
European sawn hardwood production was significantly impacted by the COVID-19 crisis in 2020, with a strong decline particularly in France and Germany. The situation dramatically improved in 2021, with a double-digit increase (+11%) on the back of a strong recovery in demand. Production in the member countries reporting to the EOS reached 6.2 million m³ in 2021, the highest value since 2015.

Production in 2021 grew across most member countries in the subregion. Among the largest producers, Croatia, Germany and Romania performed particularly well, with production in Germany increasing by 10% to 1.06 million m³ and in Romania by over 5% to 1.7 million m³. A shortage of domestically available oak logs constrained production in France, with stable production of about 1.24 million m³ and a further drop of production by 10% in Belgium (graph 3.1).

The European sawn hardwood industry is hampered by international competition for raw material, that causes direct export of mostly unprocessed oak logs, primarily to China.

GRAPH 3.1

Top five sawn hardwood producers, Europe (2017-2021)



Note: *Estimate.

Source: EOS, 2022.

Small and medium sawmills, namely in France and in Belgium, are suffering the most. A study from Wallonia (Belgium) indicates that about 26% of hardwood sawmills went out of business between 2010 and 2020 (Defays V. and Saerens A., 2022).

Chinese imports of European oak logs increased by over 25% in 2021 to over 700,000 m³. This trend accelerated further in the first five months of 2022, with imports of oak logs from France increasing by a further 30% year-over-year. Imports of oak logs from Slovakia grew by 70% (China customs, 2022).

This situation is not deemed sustainable by many sawmills across Europe that cannot afford the prices paid by foreign buyers. The problem is further compounded by the log export ban introduced by the Russian Federation at the beginning of 2022. The Russian Federation accounted for slightly less than a fifth of the total Chinese import of oak logs, which are substituted for by European logs.

Similar developments, not yet recorded by official statistics, were taking place in the Western Balkans, namely Bosnia and Herzegovina, Croatia and Serbia. These three member States introduced temporary 60-90 day export bans on various assortments of wood products, including oak logs (ANSA, 2022; Sarajevo Times, 2022; SEENEWS, 2022).

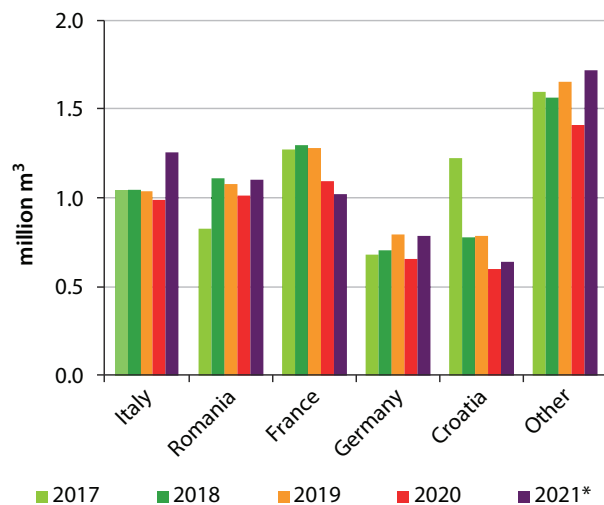
Beech is the most important species by volume for sawn hardwood in the European subregion and is confronted with the fallout of the very hot and dry summers in 2018-2020 and 2022 in Central Europe. Many beech trees either died, are in the process of dying, have been weakened or are now prone to attacks by biotic agents (BMEL, 2022).

European sawn hardwood producers expect that legislative measures as part of the European Union Green Deal package may significantly reduce log availability in the coming years (see chapter 1).

The EOS expects that sawn hardwood production in Europe may decline by 3% in 2022. This estimate is subject to high variability due to the significant uncertainty amid global geopolitical and economic tensions. One of the first tangible effects of those tensions are higher electricity prices, which further reduce the global competitiveness of the sawmill sector – as well as downstream sectors such as the flooring and the furniture industry in the sub-region.

■ CONSUMPTION

Consumption of sawn hardwood was very strong in the subregion and the lack of oak logs has pushed most hardwood sawmills in the region to reduce their inventory to a minimum. In the EOS member countries, consumption of sawn hardwood increased by 14% to almost 5.9 million m³. Graph 3.2 indicates that almost every major market in Europe, except for France and Croatia, recovered from COVID-19 and reached at least

GRAPH 3.2
Top five sawn hardwood consumers, Europe


Note: *Estimate.

Source: EOS, 2022.

pre-COVID-19 consumption levels. France consumed about 1 million m³ of sawn hardwood in 2021, about 260,000 m³ less than in 2019.

While the first few months of 2022 saw satisfying consumption of sawn hardwood, the outlook for the second half is slightly more pessimistic. Overall EOS anticipates consumption to decline by about 8% in 2022.

The parquet (wooden flooring) industry in Europe remains an important consumer of European hardwoods. The sector recorded the second-best result since 1991, with a production of 97,900 m³ of wood parquet in 2021. After a stable year in 2020, European consumption of parquet rose by an estimated 5.8% in 2021. Consumption of parquet has increased in all European markets, especially during the first semester of 2021, when compared to the same period in 2020. Demand continued to grow throughout 2021 but at a slower pace, as consumers dedicated their spendings to areas such as leisure and travel. Nevertheless, renovation, and adaptation of homes to “post-COVID-19” life remains the driver of the parquet consumption growth.

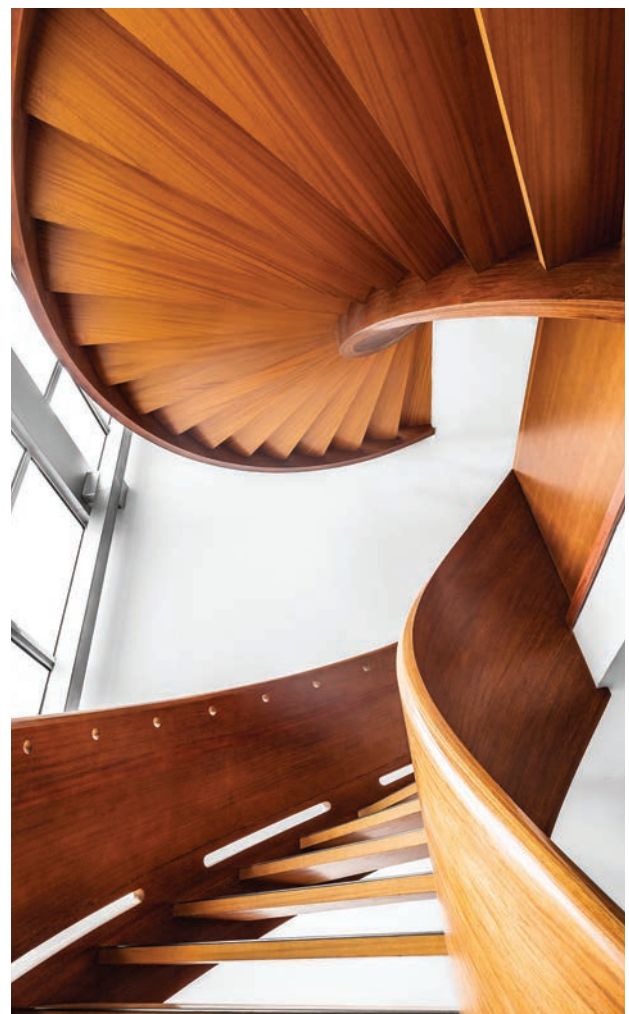
The use of wood species for wooden flooring in 2020 indicates that the share of oak increased slightly and reached 81.8% compared to 80.6% in 2019. Tropical wood species represent 3.0% of used wood. Ash and beech are still the two other most common chosen species with 5.6% and 2.8% (compared to 7.2% and 2.0% in 2019) respectively.

The European parquet markets showed heterogeneous developments at the beginning of 2022. While Italy, Scandinavia and Spain report still significant increases in demand, Benelux, France, and Switzerland present flat evolutions. Austria and Germany are already experiencing decreases in output, reflecting the difficulty to fill orders (FEP, 2022).

Another important driver for European hardwood consumption is the furniture market. After contracting in 2020, furniture consumption fully rebounded in 2021 by about 10%, reaching almost euro 140 billion (at retail prices). In 2021, all segments of the furniture market surpassed their 2019 market size, thus fully rebounding from the pandemic.

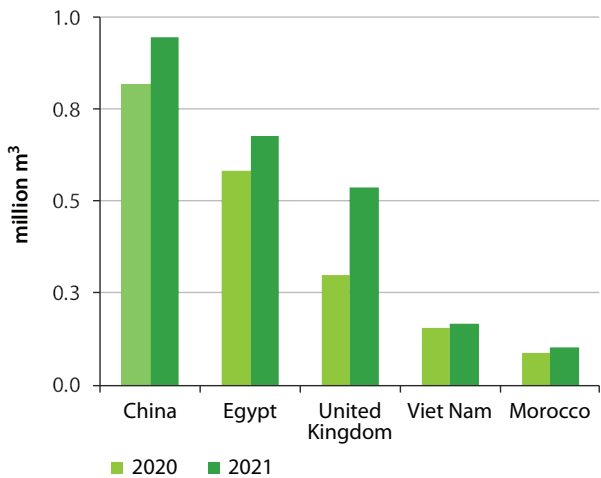
The lockdown experience highlighted the importance of home, which acquired a new centrality both for living and working. Spending more time at home highlighted the usefulness of having functional spaces for the whole family.

Consumers invested in improving their living spaces, often allocating substantial portions of available income to furniture because of decreased expenditure for other leisure activities.



GRAPH 3.3

Top 5 importers of EU27 sawn hardwood, 2020-2021



Source: Eurostat, 2022c.

For this reason, the worldwide pandemic-induced contraction in furniture consumption in 2020 was limited in size, affecting the different products of the furniture aggregate in different ways.

The prospects for 2022 are favourable, but uncertainties deriving from supply constraints, transport problems, and the geopolitical and economic situation could alter the positive outlook significantly (CSIL, 2022).

TRADE

In 2021 and 2022 exports of sawn hardwood from Europe have been lively both in the beech and in the oak sectors, by far the two most important sawn hardwood species of the subregion. Sawn hardwood companies that rely on foreign trade are negatively affected by the geopolitical situation: long-distance exports are hampered by unstable (often high) freight rates, COVID-19 induced logistical challenges mainly in China and increased fuel prices.

Exports of sawn hardwood from the EU to the rest of the world increased by 20% to over 3.2 million m³ in 2021. 950,000 m³ (29%) of European exports were destined to China, followed by Egypt with 675,000 m³, and the United Kingdom with over 500,000 m³. Viet Nam is another relevant importer, with a market share of slightly over 5% (graph 3.3).

Eastern Europe, Caucasus and Central Asia

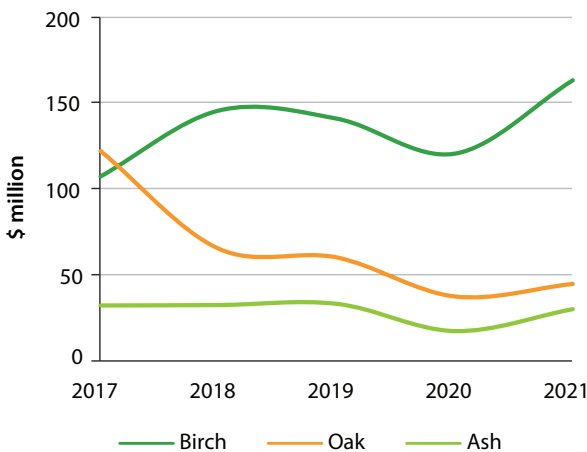
The Russian Federation was the number four exporter of sawn hardwood exporter in the world in 2021 behind Thailand, the United States of America. The Russian Federation exported sawn hardwood with a total value of \$300 million in 2021. Exports recovered strongly to pre-COVID-levels and increased by 35% over 2020. Birch, with a total value of \$163 million, accounted for half of the value of sawn hardwood exported in 2021. The second biggest value in exported sawn hardwood was oak, which has decreased significantly since 2017 (graph 3.4).

More than two third of both birch and oak sawn hardwood were exported from the Russian Federation to China in 2021 (Comtrade, 2022).

Ukraine remained the second biggest producer of sawn hardwood in the EECCA subregion. However, after ranking 13th in the list of top global sawn hardwood exporters in 2016 it dropped to 18th rank in 2020, where it remained also in 2021. Ukrainian sawn hardwood production dropped by 50% since 2018 and reached only 287,000 m³ in 2021. Almost none of the sawn hardwood produced in Ukraine was consumed domestically. The country exported 300,000 m³ which is only 57% of the pre-Covid volumes.

GRAPH 3.4

Top three sawn hardwood exports from the Russian Federation (2017-2021)



Source: Comtrade, 2022.

North America

■ PRODUCTION

United States sawn hardwood production increased by 640,000 m³ or 3.9% from 2020 to 2021, while Canadian production declined by 12% (Statistics Canada, 2022b). United States apparent consumption increased by 810,000 m³ or 5.9% in 2021.

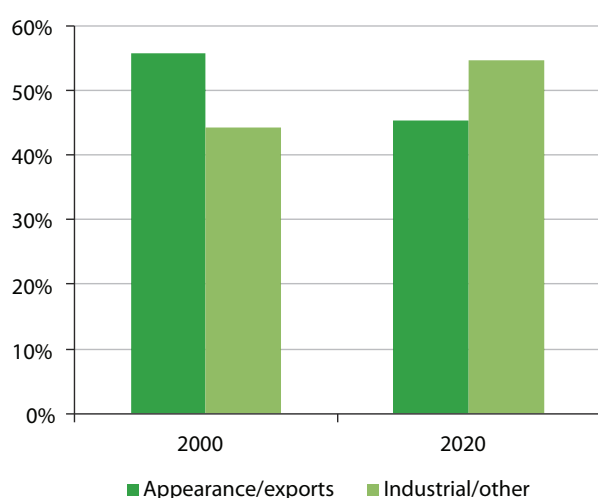
These increases were associated with sharp rises in the prices of higher quality hardwood sawn products used in appearance applications (cabinets, furniture, millwork and flooring) in 2021.

These appearance applications (including exports) accounted for 45% of the consumption of sawn hardwood in the United States in 2020, while industrial uses (pallets, sleepers, etc.) and other uses accounted for the remaining 55%. This is a reversal from earlier in the century; in 2000, appearance applications were the main uses accounting for 56% of consumption of sawn hardwood in the United States (graph 3.5).

The housing market was relatively strong toward the end of 2021 heading into early 2022 (See chapter 1). Conversely, hardwood demand from the furniture industry continued to decline, as net imports were calculated to have reached nearly 80% market share of the wooden household furniture market in the United States in 2019. In 2021, employment in the furniture industry was estimated to be below 29,000 units (US Bureau of Labor Statistics, 2022). At the same time,

GRAPH 3.5

Sawn hardwood consumption in the United States by major user groups, 2000 and 2020



Note: Appearance/exports includes cabinets, furniture, millwork, and flooring, etc.; Industrial/other includes pallets, sleepers, etc.

Source: Luppold and Bumgardner, 2021.

domestic consumption of wood furniture also has declined (Luppold and Bumgardner, 2022).

■ CONSUMPTION

Sawn hardwood consumption increased by 5.9% in 2021 (table 3.1).

TABLE 3.1

Sawn hardwood balance, United States, 2017-2021 (million m³)

	2017	2018	2019	2020	2021	2021-2022
	Million m ³					Change (%)
Production	22.77	22.65	22.43	16.69	17.33	3.9
Imports	0.72	0.95	0.77	0.63	0.59	-6.3
Exports	4.50	4.47	3.71	3.51	3.30	-6.0
Apparent consumption	18.99	19.14	19.49	13.81	14.62	5.9

Source: UNECE/FAO, 2021; USDA FAS 2022b.

Increased sawn hardwood consumption was accompanied by small increases in employment in the United States cabinet and millwork sectors in 2021. Employment in the United States cabinet⁵ and millwork⁶ industries generally track well with single family housing starts (US Bureau of Labor Statistics, 2022, US Census Bureau, 2022d). However, in the last couple of years, employment in these sectors has declined while single family housing starts continued to increase. Employment in these sectors reversed this trend in 2021 to meet increased demand from housing and remodeling markets (graph 3.6).

Similarly, employment in the United States pallet and container industry⁷ increased slightly (by 1.4%) in 2021 after declining by 2.9% in 2020, suggesting increased activity in industrial hardwood markets as well. This was consistent with improvement in overall United States industrial production through much of 2021 to reach near pre-COVID levels (US Federal Reserve Bank of St. Louis, 2022).

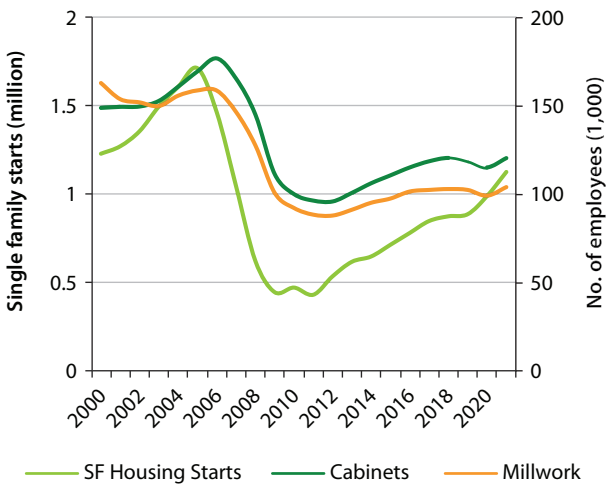
5 North American Industry Classification System (NAICS); 337110.

6 NAICS: 32191.

7 NAICS: 321920.

GRAPH 3.6

Single family housing starts and employment in the cabinet and millwork industries in the United States, 2000 to 2021



Notes: Cabinet: NAICS 337110; millwork: NAICS 32191.

Sources: US Census Bureau, 2022e, US Bureau of Labor Statistics, 2022.

TRADE

Imports of temperate sawn hardwood by the United States increased by 8% in 2021. This increase was driven largely by increased imports of beech (mostly from Germany), birch (mostly from Canada), and “other temperate” species (USDA FAS, 2022b). Intraregional trade remained important, as Canada accounted for nearly 48% of total sawn hardwood imports by the United States in 2021.

Imports of tropical sawn hardwood declined further by 37% in 2021, after already declining by 34% in the United States in 2020. At a volume of 593,000 m³, 2021 was the lowest year for total imports (temperate and tropical) since 2009.

The largest increases in trade of sawn hardwood by the United States were intraregional (North America) in 2021, including a 46% gain in exports to Canada and a 35% increase in exports to Mexico (USDA FAS, 2022b). Meanwhile, exports from the United States to China and Viet Nam declined by 11% and 23%, respectively. These changes resulted in Canada moving from 14% of total exports from the United States in 2020 to 19% in 2021, second only to China, which accounted for 33% of sawn hardwood exports by the United States in 2021.

PRICES

The inflation-adjusted aggregate price index (1982=100) for sawn hardwood in the United States is shown in graph 3.7, derived from the sawn hardwood price series adjusted for inflation using the producer price index (U.S. Bureau of Labor Statistics 2022).

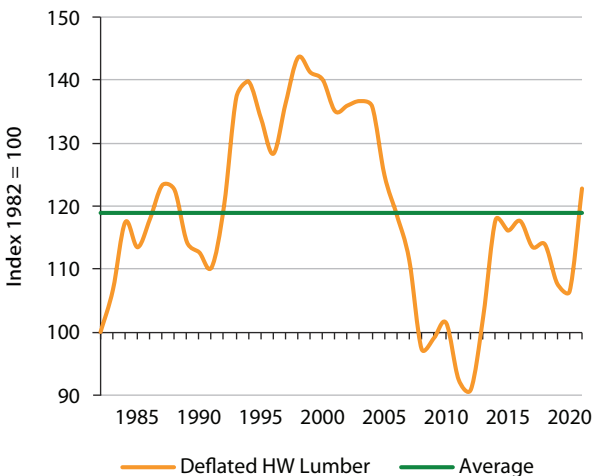
The loss of domestic furniture manufacturing, the Great Recession and housing crisis in 2008 and after, and the associated shifts to industrial markets noted earlier have impacted the sawn hardwood market and its prices in North America since the early part of the 21st century (Luppold and Bumgardner, 2021).

The aggregate price index was sharply higher in 2021; this increase moved the 2021 price above the long-term average for the first time since 2005 and reversed a declining trend since 2016 (graph 3.7).

The increase was driven in part by improved demand for higher-value hardwoods deriving from relatively strong housing and remodeling markets. At the same time, COVID-19-related production and supply chain disruptions continued to impact sawn hardwood supply in 2021, causing further pricing pressures. Prices for industrial products also increased in 2022. For example, the price of Appalachian green pallet cants rose over 70% in 2021, with most of the increase occurring in the middle of the year (Hardwood Market Report, 2021).

GRAPH 3.7

Annual inflation-adjusted sawn hardwood price index and average in the United States, 1982 to 2021



Note: Index 1982 = 100.

Source: US Bureau of Labor Statistics 2022.

■ TRENDS IN 2022

Early observations for 2022 suggest a cooling housing market due in part to increased borrowing rates, which could affect demand from appearance-based markets. At the same time, sawn hardwood production has been increasing, causing prices to moderate. Exports of sawn hardwood from the United States are ahead of their 2021 pace, with Mexico experiencing the fastest growth among major markets



References

- AF&PA. 2022. American Forest & Paper Association. Available at www.afandpa.org
- AFRY Management Consulting. 2022. Internal databases
- Agency for Statistics of Bosnia and Herzegovina. 2022. Databases. Available at: <http://www.bhas.ba/?lang=en>
- ANSA. 2022. Bosnia: temporary ban on wood export introduced Due to massive increase in prices. Available at: https://www.ansa.it/nuova_europa/en/news/countries/bosnia/2022/06/15/bosnia-temporary-ban-on-wood-export-introduced_f30a2f37-c902-442c-9dbd-57c8dba70850.html
- APA (The Engineered Wood Association). 2022a. Structural panel and engineered wood yearbook. Available at: www.apawood.org.
- APA (The Engineered Wood Association). 2022b. Market outlook and regional production. Economic report. Available at: www.apawood.org.
- Argus Media. 2022. Japan's January wood pellet imports rise. Available at: <https://www.argusmedia.com/en/news/2311333-japans-january-wood-pellet-imports-rise>
- Baltpool. 2021. Biomass exchange. Available at: <https://www.baltpool.eu/en/biomass-exchange/>
- BIS (Bank of International Settlements). 2022. BIS residential property price statistics, Q1 2022. Available at: https://www.bis.org/statistics/pp_residential_2208.htm
- BMEL. 2022. Massive Schäden - Einsatz für die Wälder Stürme, die extreme Dürre der Jahre 2018-2020 und der Borkenkäferbefall – das hat den Wäldern in Deutschland in den vergangenen Jahren immens zugesetzt. Available at: <https://www.bmel.de/DE/themen/wald/wald-in-deutschland/wald-trockenheit-klimawandel.html>
- BMO (Bank of Montreal). 2022. Canadian economic outlook. Available at: <https://economics.bmocapitalmarkets.com/economics/forecast/ca/cdamodel.pdf>
- Canadian Biomass. 2022. Pellet map 2022. Ottawa, Canada, <https://www.canadianbiomassmagazine.ca/canadian-biomass-pellet-mill-map/>
- CCA. 2022. Canadian Corrugated and Containerboard Association. Personal communication
- CEPI. 2022a. Confederation of European Paper Industries. Press release: EU Commission proposals on mandatory reductions risk causing greater uncertainty for industry in case of gas supply disruptions. Available at: <https://www.cepi.org/press-release-eu-commission-proposals-on-mandatory-reductions-risk-causing-greater-uncertainty-for-industry-in-case-of-gas-supply-disruptions/>
- CEPI. 2022b. Confederation of European Paper Industries. Available at: www.cepi.org
- Chamber of Commerce of the Republic of Srpska. 2022. ZABRANA IZVOZA OBLOVINE, OGREVNOSTI DRVETA I PELETA DO KRAJA SEPTEMBRA. Available at: <https://komorars.ba/zabrana-izvoza-oblovine-ogrevnosti-drвета-i-peleta-do-kraja-septembra/>
- China Customs Bureau. 2022. Available at: <http://43.248.49.97/indexEn>
- China Paper Association. 2022. Available at: <http://en.chinappi.org>
- CMHC (Canada Mortgage and Housing Corporation). 2022. Housing market outlook. Available at: www.cmhc-schl.gc.ca/en/data-and-research/publications-and-reports/preliminary-housing-start-data
- COMTRADE. 2022. Trade database of the United Nations Statistics Division (Comtrade). Available at: <https://comtrade.un.org/data>
- CPA (Composite Panel Association). 2022a. 2021 North American capacity report. Available at: www.compositepanel.org.
- CPA (Composite Panel Association). 2022b. Industry snapshot. Available at: www.compositepanel.org.
- CREA (Canadian Real Estate Association). 2022. Quarterly forecasts. Available at: www.crea.ca/housing-market-stats/quarterly-forecasts

- Croatian Bureau of Statistics. 2022. Databases. Available at: <https://www.dzs.hr/defaulte.htm>
- CRS (Congressional Research Service). 2022. Inflation Reduction Act: Agricultural, Conservation, Renewable Energy, and Forestry. August 3, 2022. Available at: <https://crsreports.congress.gov/product/pdf/IN/IN11978>
- CSIL. Centre for Industrial Studies. 2022. 'Furniture retailing in Europe'. Available at: <https://www.csilmilano.com/project/furniture-retailing/>
- Defays V. and Saerens A. 2021. Le secteur du sciage. État du secteur du sciage en Belgique en 2020. Available at: https://www.houtinfo Bois.be/wp-content/uploads/2021/09/FNS-Sciage2021_FR_VF.pdf
- Drax. 2022a. Annual report and accounts 2021. Available at: https://www.drax.com/wp-content/uploads/2022/03/Drax_AR2021_Strategic_Report.pdf
- Drax. 2022b. Hundreds of millions of pounds worth of contracts available to build world's biggest carbon capture project at Drax. Available at: https://www.drax.com/press_release/hundreds-of-millions-of-pounds-worth-of-contracts-available-to-build-worlds-biggest-carbon-capture-project-at-drax/
- Dugan, R. 2022. The road ahead for the economy and housing. Available at: <https://www.cmhc-schl.gc.ca/en/blog/2022/road-ahead-economy-housing>
- ECB (European Central Bank). 2022. Economic Bulletin, Issue 5, 2022. Available at: <https://www.ecb.europa.eu/pub/economic-bulletin/html/eb202205.en.html>
- EIA. 2022a. The United States Department of Energy, Energy Information Administration (EIA). 2022a. Total Energy, Annual Energy Review. Available at: <https://www.eia.gov/totalenergy/data/annual/>
- EIA. 2022b. The United States Department of Energy, Energy Information Administration (EIA). 2022b. Monthly densified biomass fuel report (EIA 63C). Available at: <https://www.eia.gov/biofuels/biomass/>
- Ellson, J. 2022. Canada officially launches challenge on U.S. duties on softwood lumber. Available at: <https://www.woodbusiness.ca/canada-officially-launches-challenge-on-u-s-duties-on-softwood-lumber>
- EN plus. 2022. Databases. Available at: <https://enplus-pellets.eu/en-in/certifications-en-in/producer-en-in.html>
- Enerkem. 2021. Enerkem achieves a major breakthrough by producing sustainable aviation fuel from local forest biomass. Available at: <https://enerkem.com/news-release/enerkem-achieves-a-major-breakthrough-by-producing-sustainable-aviation-fuel-from-local-forest-biomass/>
- Environment and Climate Change, Canada (ECCC). 2022. Clean Fuel Standard: proposed regulatory approach. Ottawa, Canada: Environment and Climate Change Canada. Available at: <https://www.canada.ca/content/dam/eccc/documents/pdf/climate-change/pricing-pollution/Clean-fuel-standard-proposed-regulatory-approach.pdf>
- EPF (European Panel Federation). 2022. European Panel Federation annual report 2021-2022.
- Euroconstruct. 2013. 75th Euroconstruct Summer Report, Summer 2022. June. Copenhagen, Denmark. Euroconstruct.
- Euroconstruct. 2022a. 93rd Euroconstruct Summer Report, Summer 2022. June. Warsaw, Poland. Euroconstruct.
- EUROCONSTRUCT. 2022b. Press release. Available at https://euroconstruct.org/ec/press/pr2022_93
- European Commission Expert Group. 2020. 2nd Meeting of the "expert group/multi-stakeholder platform on protecting and restoring the world's forests (EUTR/FLEGT)". Available at: <https://ec.europa.eu/transparency/expert-groups-register/screen/meetings/consult?lang=en&fromExpertGroups=true&meetingId=23097>
- European Commission. 2020. A Renovation Wave for Europe - greening our buildings, creating jobs, improving lives. Accessed 16 August 2022. EUR-Lex: Access to European Union Law. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1603122220757&uri=CELEX:52020DC0662>
- European Commission. 2021a. New EU forest strategy for 2030. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52021DC0572&from=EN>
- European Commission. 2021b. Biodiversity strategy for 2030. Accessed 15 August 2022. European Commission - Environment. Available at: https://environment.ec.europa.eu/strategy/biodiversity-strategy-2030_en

- European Commission. 2021c. Land use and forestry regulation for 2021-2030. Climate Action. Accessed 16 August 2022. Available at: https://ec.europa.eu/clima/eu-action/forests-and-agriculture/land-use-and-forestry-regulation-2021-2030_en
- European Commission. 2022a. A European Green Deal. Accessed 15 August 2022. Available at: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en
- European Commission. 2022b. Recovery plan for Europe. Accessed 15 August 2022. European Commission. Available at: https://ec.europa.eu/info/strategy/recovery-plan-europe_en
- European Commission. 2022c. REPowerEU: Joint European action for more affordable, secure and sustainable energy. Accessed 16 August 2022. Available at: https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1511
- European Commission. 2022d. Renovation wave. Available at: https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficient-buildings/renovation-wave_en
- European Council. 2022. Council Regulation (EU) 2022/576 of 8 April 2022 amending Regulation (EU) No 833/2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2022.111.01.0001.01.ENG&toc=OJ%3AL%3A2022%3A111%3ATOC
- European Council. 2022. Council Regulation (EU) 2022/576 of 8 April 2022 amending Regulation (EU) No 833/2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2022.111.01.0001.01.ENG&toc=OJ%3AL%3A2022%3A111%3ATOC
- European Organisation of the Sawmill Industry. 2022. Annual Report of the European Sawmill Industry 2021-2022 Available at https://www.eos-oes.eu/en/sawmill_industry_annual_reports.php
- European Parliament. 2022a. Compromise Amendments 2021/0218(COD). Available at: https://www.europarl.europa.eu/meetdocs/2014_2019/plmrep/COMMITTEES/ENVI/DV/2022/05-16/CAs_RED_FINAL_EN.pdf
- European Parliament. 2022a. REPORT on the proposal for a directive of the European Parliament and of the Council amending Directive (EU) 2018/2001 of the European Parliament and of the Council, Regulation (EU) 2018/1999 of the European Parliament and of the Council and Directive 98/70/EC of the European Parliament and of the Council as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652. Available at: www.europarl.europa.eu/doceo/document/A-9-2022-0208_EN.html
- European Union. 2022. New European Bauhaus. Accessed 16 August 2022. About the initiative. Available at: https://europa.eu/new-european-bauhaus/about/about-initiative_en
- Eurostat. 2022a. House sales index of number of transactions (2015=100) - annual data. Available at: https://ec.europa.eu/eurostat/web/products-datasets/-/prc_hpi_hsna
- Eurostat. 2022b. Eurostat euroindicators. August. Available at: <https://ec.europa.eu/eurostat/documents/2995521/14675412/4-18082022-BP-EN.pdf>
- Eurostat. 2022c. Easy Comext Database of International Trade at CN8 level. Available at <https://ec.europa.eu/eurostat/web/main/data/database>
- FAOSTAT. 2021. Forest data. Available at: www.fao.org/faostat/en/#data/FO.
- Federal Register, 2022. Notices. Vol. 87, No. 152. August 9. Available at: <https://www.govinfo.gov/content/pkg/FR-2022-08-09/pdf/2022-17066.pdf>
- FEP. 2022. European Federation of the Parquet Industry. The European parquet market progressed significantly in 2021 and reached level not seen since 10 years. Available at: https://drive.google.com/file/d/14BCDwVF1_J_PQ3VA-Eqj9OHNQwWDe05Y/view
- Flach, B., Bolla, S. 2022. EU Wood Pellet Annual. US Department of Agriculture, Foreign Agricultural Service Report E42022-0049. Available at: https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=EU%20Wood%20Pellet%20Annual_The%20Hague_European%20Union_E42022-0049.pdf
- Forest2Market. 2022. Paper-Polymer-Plastic: A New 'Rock Paper Scissors' Game For the Packaging Sector. 14 July 2022. Available at: <https://www.forest2market.com/blog/paper-polymer-plastics-a-new-rock-paper-scissors-game-for-packaging-professionals>

- Forisk Wood Fiber Review, FAO, APA, Forisk North American Capacity Database. Available at: <https://forisk.com/blog/2022/04/17/pulpwood-cost-drivers-in-north-america-a-primer/>
- FSC (Forest Stewardship Council). 2022a. Facts and figures. Available at: <https://fsc.org/en/facts-figures>
- FSC (Forest Stewardship Council). 2022b. Available at: <https://fsc.org/en/newsfeed/no-fsc-material-from-russia-and-belarus-until-the-invasion-ends>
- Glavonjić B. 2022. Personal communication
- Global Affairs Canada. 2021. Statement on WTO panel ruling against U.S. duties on Canadian softwood lumber. Available at: www.canada.ca/en/global-affairs/news/2021.html
- Hardwood Market Report. 2021. Various issues. Hardwood Market Report. Memphis, TN.
- Hogue, R. 2022. Bottom still a ways away for Canada's housing market. Available at: <https://thoughtleadership.rbc.com/bottom-still-a-ways-away-for-canadas-housing-market>
- Ibá. 2022 Associação Brasileira de Celulose e Papel (Ibá). Available at: www.iba.org/pt/dados-e-estatisticas/cenarios-iba
- IMF (International Monetary Fund). 2022. International Monetary Fund data exchange rates. Available at: <https://data.imf.org/?sk=388DFA60-1D26-4ADE-B505-A05A558D9A42>
- Infor (Chilean Customs data). 2022. Available at: www.infor.cl
- Institute for Statistics of Albania (INSTAT). 2022. Databases. Available at: <http://www.instat.gov.al/en/>
- Investopedia. 2022. Basis Point (BPS) Explained for Interest Rates and Investments. Available at: <https://www.investopedia.com/terms/b/basispoint.asp>
- Joint Research Centre. 2021. JRC Science for Policy Report. Forest reference levels under Regulation (EU) 2018/841 for the period 2021–2025 Overview and main findings of the technical assessment. Available at: file:///C:/Users/steierer/Downloads/frl_assessment_jrc_science-to-policy_topublication_1_1.pdf
- Lang, A. 2021. Recent Pulp Mill Expansions and Closures. 3 August 2021. Available at: <https://forisk.com/blog/2021/08/03/recent-pulp-mill-expansions-and-closures/>
- Lang, A. 2022. Sawmill Investment Update: Map of U.S. South Expansions. 22 June 2022. Available at: <https://forisk.com/blog/2022/06/22/sawmill-investment-update-map-of-u-s-south-expansions/>
- LUKE/Natural Resources Institute Finland. 2022. Forest statistics. Available at <https://www.luke.fi/en/statistics>
- Luppold, W and M Bumgardner. 2021. The northern hardwood resource: a market perspective. Presentation at the Northern Hardwood Conference. Virtual. June 15, 2021.
- Luppold, WG and MS Bumgardner. 2022. Analyzing changes in the U.S. wood furniture industry from 1997 to 2019: production, net imports, and consumption. *BioResources*. 17(1):939-951.
- MBA (Mortgage Bankers Association). 2022a. MBA mortgage finance forecast. July. Available at: www.mba.org
- MBA (Mortgage Bankers Association). 2022b. MBA mortgage finance forecast. August. Available at: www.mba.org
- Ministry of the National Economy of the Republic of Kazakhstan Committee on Statistics. 2022. About housing stock Republic of Kazakhstan. Available at: <http://stat.gov.kz>
- NAHB. 2022. June Inflation Reading the Highest since 1981. 13 July 2022. Available at: <https://eyeonhousing.org/2022/07/june-inflation-reading-the-highest-since-1981/>
- National Bureau of Statistics of the Republic of Moldova. 2022. Social statistics, dwelling stock. Available at: https://statistica.gov.md/public/files/publicatii_electronice/Anuar_Statistic/2021/Anuar_statistic_editia_2021.pdf
- National Statistical Committee of the Kyrgyz Republic. 2022. Kyrgyzstan brief statistical handbook 2019-2021. Available at: <http://www.stat.kg/media/publicationarchive/672efdec-dda1-400c-96b4-f0508d24d220.pdf>
- National Statistics Office of Georgia Statistical Committee of Georgia. 2022. Statistical yearbook of Georgia 2021. Available at: https://geostat.ge/media/42476/Yearbook_2021.pdf

- New Economy Journal, 2022. List of wood products whose export is prohibited for the next 60 days; Available at: <https://novaekonomija.rs/vesti-iz-zemlje/lista-proizvoda-od-drвета-%C4%8Dje-je-izvoz-zabranjen-narednih-60-dana>
- PEFC (Programme for the Endorsement of Forest Certification). 2021. Public consultation: Dutch forest certification system. Accessed 5 August 2022. Available at: <https://www.pefc.org/news/public-consultation-dutch-forest-certification-system>
- PEFC (Programme for the Endorsement of Forest Certification). 2022a. PEFC global statistics. Data: December 2021. Available at: <https://cdn.pefc.org/pefc.org/media/2022-03/b33a1b64-6d71-4dd1-a3dc-ed164221d2a/eaba7ece-0afd-56fa-bce9-b5ab265c95a4.pdf>
- PEFC (Programme for the Endorsement of Forest Certification). 2022b. Press release with FSC. Double certification FSC and PEFC – 2021 estimation. March 2022. Available at: <https://cdn.pefc.org/pefc.org/media/2022-03/e8c7aab3-8ead-4290-ad20-16f53de0a3f1/6d51e062-7233-53e3-9da0-a63ef63f99a1.pdf>
- PEFC (Programme for the Endorsement of Forest Certification). 2022c. Timber from Russia and Belarus considered 'conflict timber'. Accessed 3 August 2022. Available at: <https://pefc.org/news/timber-from-russia-and-belarus-considered-conflict-timber>
- PEFC (Programme for the Endorsement of Forest Certification). 2022d. UK Forest Certification System submitted for assessment. Accessed 5 August 2022. Available at: <https://www.pefc.org/news/uk-forest-certification-system-submitted-for-assessment>
- PPPC (Pulp and Paper Products Council). 2022. PPPC's Monthly Flash Reports on the market pulp, printing and writing, and newsprint sectors. Available at: <https://www.pppc.org/info/index.html>
- PwC. 2022. Emerging trends in real estate 2022*: Europe 2022, road to recovery. Available at: <https://www.pwc.com/gx/en/industries/financial-services/asset-management/emerging-trends-real-estate/europe-2022.html>
- Random Lengths. 2022a. Random Lengths Weekly Report. Available at: www.randomlengths.com
- Random Lengths. 2022b. Random Lengths yearbook 2021. Available at: www.randomlengths.com
- RBC (Royal Bank of Canada). 2022. Quarterly economic update. Available at: www.rbc.com/economics/economic-reports/pdf
- Reuters. 2022. WTO awards Canada future right to impose duties on U.S. goods. Available at: <https://www.reuters.com/markets/wto-awards-canada-future-right-impose-duties-us-goods-2022-07-13/>
- Russ Taylor Global. 2022. Internal databases.
- Sarajevo Times. 2022. BiH temporarily bans the Export of Firewood. Available at: <https://sarajevotimes.com/bih-temporarily-bans-the-export-of-firewood/>
- Scotia Bank. 2022. Global real estate trends. Available at: www.scotiabank.com
- SEENEWS. 2022. Serbia suspends firewood exports to ensure stable supply. <https://seenews.com/news/serbia-suspends-firewood-exports-to-ensure-stable-supply-786158>
- SFI (Sustainable Forestry Initiative). 2022. SFI URBAN AND COMMUNITY FOREST SUSTAINABILITY STANDARD DEVELOPMENT. Accessed 5 August 2022. Available at: <https://forests.org/standard-development-process/>
- Slovenian Forestry Institute; Ljubljana. 2022. Databases. Available at: <https://www.gozdis.si/en/>
- Softwood Lumber Board. 2022. 2022 Q1 Quarterly Investment Update. Available at: <https://softwoodlumberboard.org/slb-programs-generated-487-million-board-feet-of-demand-in-q1-2022-slb-q1-report-now-available/>
- State Statistical Committee of the Republic of Azerbaijan. 2022. Construction. Available at: <https://stat.gov.az/source/construction/?lang=en>
- State Statistical Office of the Republic of North Macedonia. 2022. Databases. Available at: http://www.stat.gov.mk/Default_en.aspx
- State Statistics Service of Ukraine. 2021. Housing stock by regions in 2019 and 2020. Available at: <https://ukrstat.gov.ua/>
- Statistical Committee of the Republic of Armenia. 2022. Construction. Available at: <https://www.armstat.am/file/doc/99526853.pdf>
- Statistical Office of Montenegro. 2022. Databases. Available at: <https://www.monstat.org/eng/>

- Statistical Office of the Republic of Serbia.2022. Databases. Available at: <https://www.stat.gov.rs/en-US/>
- Statistical Office of the Republic of Slovenia.2022. Databases. Available at: <https://www.stat.si/StatWeb/en>
- Statistics Canada. 2022a. Canadian International Merchandise Trade Web Application. Ottawa, Canada, Available at: <https://www150.statcan.gc.ca/n1/pub/71-607-x/71-607-x2021004-eng.htm>
- Statistics Canada. 2022b. Lumber production, shipments, and stocks by species. <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1610001701>
- Statistics Canada. 2022c. Table 25-10-0031-01 - Consumption of solid wood waste and spent pulping liquor for energy production, annual. Ottawa, Canada. Available at: <https://doi.org/10.25318/2510003101-eng>
- Statistics Canada. 2022d. Canadian International Merchandise Trade Database Table 980-0044. Available at: www.statcan.gc.ca.
- Swedish Energy Agency. 2022. Årskrönika 2021 summerar svängig energimarknad Available at: <http://www.energimyndigheten.se/om-oss/press/prenumerera/laget-pa-energimarknaderna/de-globala-energimarknaderna/arskronika-2021-summarar-svangig-energimarknad/>
- TD Bank. 2022. Long-term forecast. Available at: <https://economics.td.com/us-long-term-forecast>
- The State Committee of the Republic of Uzbekistan on Statistics. 2022. Quarterly reports 2021, 2022. Available at: <https://stat.uz/en/quarterly-reports>
- Trade Data Monitor 2022. <https://www.tdmlogin.com/tdm/index.html>
- TwoSides. 2022. Paper or Plastic? In a Circular Economy, the Answer is Clear. 11 July 2022. Available at: <https://twosidesna.org/US/paper-or-plastic-in-a-circular-economy-the-answer-is-clear/>
- UK Forest Research. 2022. UK Wood Production and Trade: provisional figures. Available at: <https://www.forestresearch.gov.uk/tools-and-resources/statistics/statistics-by-topic/timber-statistics/uk-wood-production-and-trade-provisional-figures>
- UN Comtrade. 2021. UN Comtrade database. Available at: <https://comtrade.un.org/db>.
- UN Comtrade. 2022. UN Comtrade database. New York. Available at: <http://comtrade.un.org/db>
- UNECE/FAO database. 2021. Available at: www.unece.org/forests/fpm/onlinedata.html
- UNECE/FAO. 2021. Forest products annual market review 2020-2021. Available at: <https://unece.org/forests/fpamr2021>
- United Nations (UN). 2022. Resolution adopted by the General Assembly on 2 March 2022. A/RES/ES-11/1. Available at: https://digitallibrary.un.org/record/3965290/files/A_RES_ES-11_1-EN.pdf
- University of Belgrade-Faculty of Forestry. 2022. Timber Trade Centre internal database. Belgrade
- US Bureau of Labor Statistics. 2022. Databases, tables & calculators by subject, prices-producer, commodity data. <https://www.bls.gov/data>
- US Census Bureau. 2022a. New residential construction in July 2022. Available at: <https://www.census.gov/construction/nrc/pdf/newresconst.pdf>
- US Census Bureau. 2022b. Value of construction put in place at a glance, monthly construction spending, July 2022. Available at: <https://www.census.gov/construction/c30/pdf/release.pdf>
- US Census Bureau. 2022c. US housing starts. Available at: www.census.gov
- US Census Bureau. 2022da. New residential construction. <https://www.census.gov/construction/nrc/index>
- US Census Bureau. 2022eb. Construction spending. https://www.census.gov/construction/c30/historical_data.html
- US Federal Reserve Bank of St. Louis. 2022. Industrial production, total index. <https://fred.stlouisfed.org/series/INDPROs>
- US Securities and Exchange Commission (SEC). 2022. SEC Proposes to Enhance Disclosures by Certain Investment Advisers and Investment Companies About ESG Investment Practices. 25 May 2022. Available at: <https://www.sec.gov/news/press-release/2022-92>
- USDA- FAS. 2022a. USDA Foreign Agricultural Service. Global agricultural trade system. Available at: <https://apps.fas.usda.gov/gats>

- USDA.FAS. 2022b. Global agricultural trade system. <https://apps.fas.usda.gov/gats/default.aspx>
- USDA. 2022. USDA Foreign Agricultural Service. The United States Department of Agriculture. Secretary's Memorandum 1077-004: Climate Resilience and Carbon Stewardship of America's National Forests and Grasslands. Available at: <https://www.usda.gov/directives/sm-1077-004>
- USITC (the United States International Trade Commission, DataWeb). 2022. Using data retrieved from the United States Bureau of the Census. Available at: <https://dataweb.usitc.gov/>
- Vitner, M. Dougherty, C., and P. Barley. 2022. Housing Chartbook: Midyear outlook, the housing market at a turning point. Available at: <https://wellsfargo.bluematrix.com/links2/html/045ea67d-15c5-4e87-8b18-df929d2b0b04>
- Voegele, Erin. 2022. EU Wood Pellet Demand to Set a New Record in 2022. Biomass Magazine. Available at: <https://biomassmagazine.com/articles/19198/eu-wood-pellet-demand-to-set-a-new-record-in-2022>
- VVM, 2022. Valois Vision Marketing. Available at: www.valoisvision.com
- Watters A. 2021. Wood pellets for heat and power. USDA Foreign Agricultural Service Report Number CA2021-0044. https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Wood%20Pellets%20for%20Heat%20and%20Power%20%20_Ottawa_Canada_07-08-2021.pdf
- Western Wood Products Association (WWPA). 2022a. 2022b. Western Lumber Facts. Available at: <https://www.wwpa.org>
- Whatwood. 2022. "Announcing publication of Russian Forest Industry Review 2021-2022 annual analytical review". Available at: <https://whatwood.ru/english/announcing-publication-of-russian-forest-industry-review-2021-2022-annual-analytical-review>
- Wikipedia. 2022. Papers recycling Available at: https://en.wikipedia.org/wiki/Paper_recycling
- Woodstat AB. 2022. Woodstat Market News , various issues. Available at <https://www.woodstat.com/>
- World Bank. 2022. Global Economic Prospects. Available at: <https://www.worldbank.org/en/publication/global-economic-prospects>
- Wulff S. and Roberge C. 2021. Swedish University of Agricultural Sciences Nationell Riktad Skogsskadeinventering (NRS) Inventering av Granbarkborreangrepp i Götaland och Svealand 2021. Available at: [granbarkborre_nationell-riktad-skadeinventering-2021-211210.pdf](https://www.slu.se/publikationer/granbarkborre_nationell-riktad-skadeinventering-2021-211210.pdf)

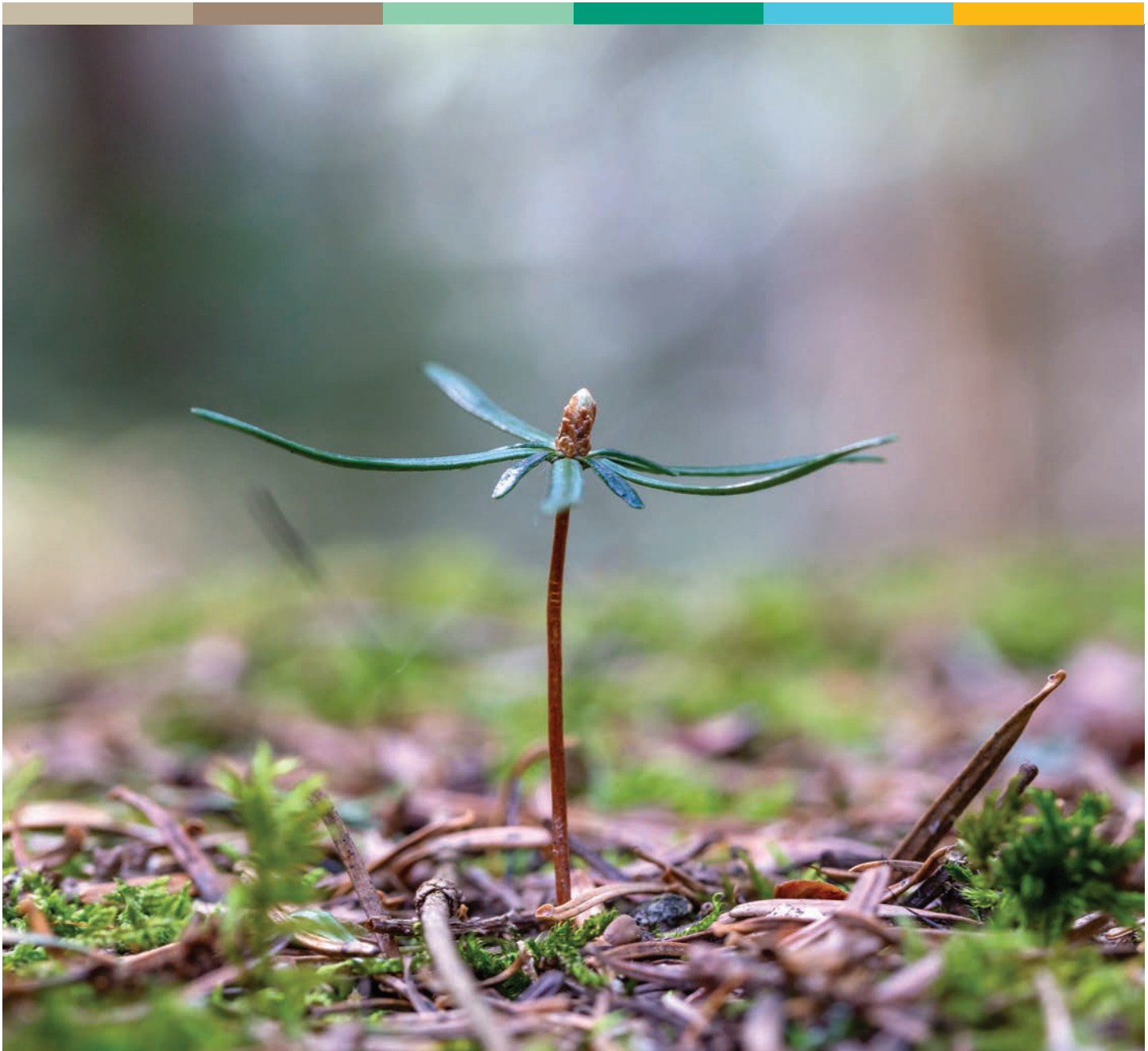


Food and Agriculture
Organization of the
United Nations

UNECE

Forest Products

Annual Market Review 2021-2022



UNITED NATIONS

Geneva, 2022

COPYRIGHT AND DISCLAIMER

Copyright © 2022 United Nations and the Food and Agriculture Organization of the United Nations.

All rights reserved worldwide.

The designations employed in publications of the United Nations Economic Commission for Europe (UNECE) and the Food and Agriculture Organization of the United Nations (FAO), which are in conformity with United Nations practice, and the presentation of material therein do not imply the expression of any opinion whatsoever on the part of the UNECE or FAO concerning the legal status of any country, area or territory or of its authorities, or concerning the delimitation of its frontiers. The responsibility for opinions expressed in studies and other contributions rests solely with their authors, and publication does not constitute an endorsement by the UNECE or FAO of the opinions expressed. Reference to names of firms and commercial products and processes, whether or not these have been patented, does not imply their endorsement by UNECE or FAO, and any failure to mention a particular firm, commercial product or process is not a sign of disapproval.

This work is copublished by the United Nations (UNECE) and FAO.

Photo credits: Adobe Stock (cover page, 27, 28, 34, 37, 62), www.pexels.com (pages ix, 4, 6, 24, 39, 40, 41, 48)

ABSTRACT

The *Forest Products Annual Market Review 2021-2022* provides a comprehensive analysis of markets in the UNECE region and reports on the main market influences beyond the region. It covers products from the forest to the end user and from roundwood and primary processed products to value-added, housing and wood energy. Statistics-based chapters analyse the markets for wood raw materials, sawnwood, wood-based panels, paper, paperboard and woodpulp. Underlying the analysis is a comprehensive collection of data. The *Review* highlights the role of sustainable forest products in international markets, discusses policies concerning forests and forest products, assesses the main trends and drivers, and analyses the effects of the current economic situation on forest product markets.

ECE/TIM/SP/54

UNITED NATIONS PUBLICATION

Sales No. E.22.II.E.33

ISBN 978-92-1-117318-5

eISBN 978-92-1-002367-2

ISSN 1020-2269

eISSN 2518-6450
