

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

Measuring global exports of industrial hemp products

Insights from national product
classifications



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Notes

The data for China do not include those for Hong Kong (Special Administrative Region), Macao (Special Administrative Region) and Taiwan Province of China. Reference to the European Union is to all 27 Member States of the European Union. The term “dollar” or the \$ symbol refers to the United States dollar unless otherwise stated. The term “billion” signifies 1,000 million; the term “tons” refers to metric tons. Exports are valued FOB (free on board) and imports CIF (cost, insurance and freight) unless otherwise specified. Use of an n-dash (–) between years signifies the full period involved, including the initial and final years.

Acronyms

FIHO	Federation of international hemp organizations
HS.....	Harmonized System (Harmonized Commodity Description and Coding System, in full) (World Customs Organization)
NTM.....	Non-tariff measure
THC	Tetrahydrocannabinol
UN COMTRADE.....	United Nations Commodity Trade Statistics (database)
UNCTAD	United Nations Conference on Trade and Development

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1. Introduction

The incomplete coverage of hemp products in trade statistics poses a challenge to gaining a thorough understanding of existing industrial hemp markets, including the valuation of global exports for each specific hemp product. In international trade statistics, particularly in the UN COMTRADE¹ database using the six-digit level of the Harmonized System (HS) classification, only three hemp-related products are included. Other recognized hemp products, such as hemp seeds, lack dedicated six-digit HS codes. This implies that a substantial portion of hemp product trade, the extent of which is unknown, remains unaccounted for in international product classifications.

To obtain a more comprehensive understanding of the scale and composition of international trade in hemp products, this study explored national sources of trade statistics in addition to the information provided by UN COMTRADE. However, national classifications, though aligned with the World Customs Organization HS classification up to six digits, diverge beyond that level. This discrepancy in product definitions among various national trade statistics complicates comparisons, necessitating aggregation at the 6-digit level to estimate global values. Based on the information gathered from these sources, 12 additional HS 6-digit product categories were identified, corresponding to 20 new product definitions beyond the six digits categories available in UN COMTRADE.

The estimated value of global exports of hemp seeds and related products from national sources was approximately US\$ 122 million in 2022, while the global exports value for processed hemp textiles products nearly reached US\$ 50 million. For comparison, global exports of hemp fibers and yarn recorded in UN COMTRADE amounted to approximately US\$ 50 million. This suggests that the magnitude of global exports of hemp products is significantly underestimated by the data available in the latter source.

In total, by combining information from both UN COMTRADE and national trade statistics sources, it is approximated that around 60 countries engaged in the export of various industrial hemp products from 2019 to 2022. Approximately one-third of these exporting nations are classified as developing countries. North America and Europe are the regions most prominently involved in hemp product exports followed by Asia and South America. China stands out as the most diversified country in terms of hemp product exports,² followed by India, the United States, Canada, and several European nations.

This Note is organized as follows. Section 2 discusses hemp products coverage in national and the international HS classifications. Section 3 provides selected yearly and quarterly information about exports of hemp products across three categories: seeds, fibers and processed textiles. Section 4 provides some concluding remarks.

2. Hemp products in international and national product classifications

The Harmonized System (HS) is a standardized numerical method for classifying traded products, assigning specific six-digit codes to various classifications and commodities. Adopted by 212 countries, territories, customs unions, or economic unions, it serves as the

¹ See <https://comtradeplus.un.org/>

² China exports all hemp products included in national and international classifications discussed below.

foundation for their Customs tariffs and the compilation of international trade statistics.³ The most recent edition of the HS classification, implemented in 2022, encompasses 5,613 HS codes.⁴ This classification is fundamental to all national product classifications. Countries have the flexibility to extend the initial six digits by adding longer codes for more detailed classification purposes.

2.1 Hemp versus cannabis

As discussed extensively in UNCTAD (2022)⁵ industrial hemp and cannabis are the same plant (i.e. the *Cannabis Sativa* L.) except for the content in their flowering tops⁶ in Tetrahydrocannabinol (THC) a cannabinoid with psychotropic properties. Cannabis refers to varieties of the plant with a relatively high THC content and are in most countries subject to specific regulations defining their legally authorized uses. Such distinction also appears in product classifications. The HS classification includes only one product at the 6-digit level with an explicit reference to THC. It belongs to the *Heterocyclic compounds with oxygen hetero-atom(s) only* HS 4-digit category (i.e. 29.32) and corresponds to HS code 2932.95 defined as Tetrahydrocannabinols (all isomers). In countries classifications, different qualifications of the *Cannabis Sativa* L. plant are adopted depending on whether the varieties under consideration have psychotropic properties or not. When psychotropic effects can be expected by the consumption of the described product then the word cannabis is used alone. China for instance, uses the word hemp in the 12.11 category to define the 1211.90.3930 product and the word cannabis to define the product 1301.90.9020 in the lacs, gums and resins subcategory. The legal status of the *Cannabis sativa* L. plant variety under consideration can also be mentioned explicitly. It can be associated with other references such as marijuana or hashish. Argentina classification includes *Cannabis sativa* L. products in the group of lac, natural gums, resins, gum-resins and oleoresins which are clearly identified as narcotic, namely the products belonging to the 1301.90.90.1 subgroup and coded 1301.90.90.110W. Uruguay, for its part, mentions explicitly the THC content in dry weight. The classification distinguishes between products with a content below 1 per cent from products with a content above 1 per cent. When products have no psychotropic properties, by essence, the words hemp or true hemp or true hemp (*Cannabis sativa* L.) are used. In the HS classification hemp products are defined as hemp (*Cannabis sativa* L.) products.

2.2 Hemp in the HS classification

The HS classification encompasses only three hemp products as reported in Table A.1 of the annex, each associated with a distinct level of processing. The first product (HS code 530210), defined as *raw or retted but not spun hemp*, corresponds to raw hemp fibers. The second product (HS code 530290) categorized as *processed hemp (other than retted) but not spun, true hemp tow and waste (including yarn waste and garnetted stock)*, can be linked to semi-processed hemp fibers. The inclusion of tow and waste may not be entirely justified,

³ WCO Members are responsible for managing more than 98% of world trade. The full membership is available at https://www.wcoomd.org/-/media/wco/public/global/pdf/topics/nomenclature/overview/hs-contracting-parties/list-of-countries/countries_applying_hs.pdf?db=web.

⁴ Its first edition (i.e. the HS 1988/92) counted 5228 HS codes.

⁵ UNCTAD, 2022. Commodity at-a-glance: Special issue on industrial hemp. Geneva and New York.

⁶ Leaves can also contain cannabinoids although to a much lesser extent than flowering tops. See UNCTAD (2022) *ibid.* for a detailed discussion.

as they might be considered by-products rather than semi-processed products. The Republic of Korea national classification makes a clear distinction between three subproducts of the HS 5302.90 product. Hemp tow is separated from hemp waste and from other processed hemp (but not spun). The last hemp product appearing in the HS classification (HS code 530820), is *hemp yarn* and represents the most processed product among the three included in the HS classification. The EU-27 considers two different types of hemp yarn (coded 5308.20), namely yarn put up for retail sale and yarn put up for wholesale.

2.3 Hemp in national classifications

Overall, about 20 hemp products are added to the ones included in the HS classification as shown in Table A.2. The Canadian classification encompasses the most extensive range of hemp products, spanning from seeds to carpets. Similarly, the United States classification includes a relatively extensive array of hemp products, covering everything from seeds to woven fabrics. Notably, both countries utilize distinct product descriptions and codes, whether dealing with imports or exports.

As shown in Table A.2, most countries that include hemp products in their national classification other than those defined in the HS classification, include some hemp oil seeds products under the 12.07 category (oil seeds). Some subcategories of oil seeds are also considered. Canada differentiates between seeds for sowing and seeds for other purposes. The United States have adopted the same type of distinction since 2021. Both countries consider two subcategories for their imports but not for their exports. Despite both countries applying a similar product description, product codes vary beyond six digits. For instance, seeds for sowing are coded 1207.99.0011 in Canada and 1207.99.0340 in the United States. The same distinction between uses exists in Argentina and Morocco national classifications. Product codes are different again. Seeds for sowing are coded 1207.99.10.100B in Argentina and 1207.99.1100 in Morocco. Classifying seeds from sowing and seeds for other uses differently can be motivated by the fact that different regulations apply depending on the final use. In most cases, seeds for sowing must belong to a predetermined set of plant varieties in accordance with prevailing regulations. Another type of distinction is made by New Zealand. Three subcategories are considered: whole seeds (coded 1207.99.0014L), hulled seeds (coded 1207.99.0017E), and others (coded 1207.99.0024H). It can be argued that if no distinction is made between seeds for sowing and seeds for other uses, applied regulations may be perceived as too restrictive. Seeds do not contain any cannabinoids even though some traces due to contamination can still be found. Consequently, hulled seeds or whole seeds not for sowing should not be considered as potentially violating narcotics regulations. This also applies to hemp oils classified under the 15.15 (vegetable fats and oils) product category and oil by-product such as oilcake classified under the 23.06. Amongst the reviewed classifications only those of the United States and Canada include both types of products, again with different codes beyond the six-digit level (2306.90).

The second most represented hemp product in national classification is woven fabrics. Several countries such Japan, the US, the Republic of Korea and China include that product beyond the 6-digit HS level within the 53.11 (non-cotton woven fabrics) category. Both the product definition and the associated product code differ across national classifications.

The additional hemp products appearing in national classifications are country specific. For instance, New Zealand is the only country reported here to include hemp flour (coded 1208.90.0010E) and hemp meal (coded 1208.90.0015F). China is the only country considering hemp in the 12.11 HS 4-digit category (plants and parts of plants used in

pharmacy). Twine, cordages and ropes of hemp are included in the United Kingdom classifications (coded 5607.90.9010), narrow woven fabrics of hemp are included by Australia (coded 5806.39.10). Argentina includes several codes related to accessories in the 65.02 (Hat-shapes) and 65.04 (hats and other headgear) HS 4-digit categories.

In certain instances, product subcategories that extend beyond the six-digit level do not solely consist of hemp-based products. An example is the category of carpets and other textile floor coverings (57.02), as specified in the Canadian national classification. Indeed, this subcategory encompasses not only hemp products but also those made from flax tow or jute. A similar observation holds true for sacks and bags (63.05) as defined in New Zealand, where the subcategory encompasses items crafted from both hemp and phormium tenax (New Zealand flax).

Although the focus of this note is on hemp products, cannabis products found in national classifications are shown in Table A.3. The latter essentially relate to products retrieved from cannabis flowers and refer to either medical or adult use. Such products are introduced by several countries in seven different HS 4-digit categories: 06.02 (Uruguay), 12.09 (Uruguay, Canada), 12.11 (Canada, Japan, Indonesia, Viet Nam), 13.01 (Argentina, Canada, China, Indonesia, Viet Nam), 13.02 (Argentina, Canada, Japan, Indonesia, Viet Nam), and 30.04 (Japan, Canada). The most represented products in national product classifications are resins, that belong to the HS 4-digit 13.01 category, and vegetable saps and extracts, that belong to the HS 4-digit 13.02 category.

3. Calculating world exports of hemp products

The following analysis delves into three categories of hemp products, presented in descending order based on their global export values. The export values presented result from a thorough examination of both international and national classifications, as outlined in section 2. All estimates based on national classifications involve aggregating any information beyond six digits to the six-digit level to align with the international Harmonized System (HS) classification.

As Table A.2 shows, the aggregation of exports of hemp products based on information provided by different national statistics may obscure varying product descriptions across national classifications at the tariff line level, suggesting that only partial and incomplete perspectives on global exports may be obtained with existing data. Moreover, some countries, such as Canada and the United States, employ distinct codes in their national statistics for exported and imported products. This may also complicate the generation of comparable statistics on global exports of hemp products.

In most cases, global values are estimated using import information, as it is generally more precisely reported than export information. However, when products are introduced by a limited number of countries, both import and export information are retained for estimation purposes.

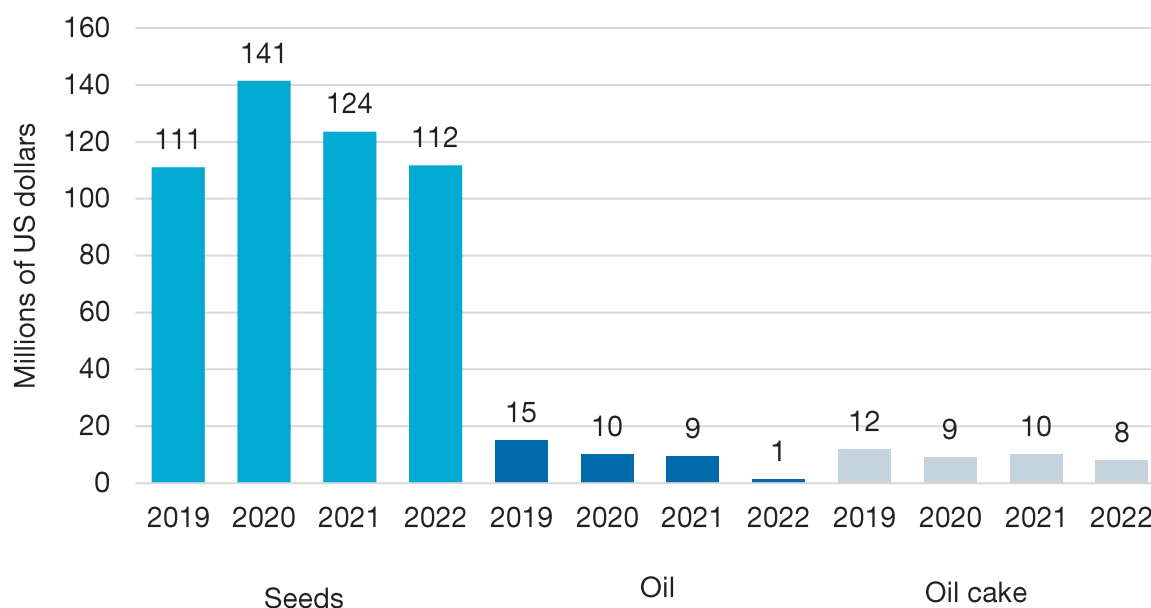
3.1 Hems seeds and by-products

Hemp seeds do not have any specific HS code but are categorized in various national classifications as discussed in section 2. The values presented in Figures 1 to 3 are derived from import information provided by EU-27 countries, the United Kingdom, Japan, the United States, Canada, Argentina, Morocco, and New Zealand. By analyzing the intersection of

information about export and import flows, the global values obtained can serve as a reliable indicator of global exports at the six-digit level.

As shown in Figure 1, the global value amounted to about US\$ 111 million in both 2019 and 2022, reaching a peak in 2020 with over US\$ 140 million exported globally. Quarterly data can be used to identify potential cycles associated with the hemp plant's botanical and agricultural characteristics. Figure A.1 indicates that, within a year, the first two quarters are characterized by the highest volumes of global exports in hemp oil seeds.

Figure 1 Annual global exports of hemp seeds and by-products
(millions of United States dollars)

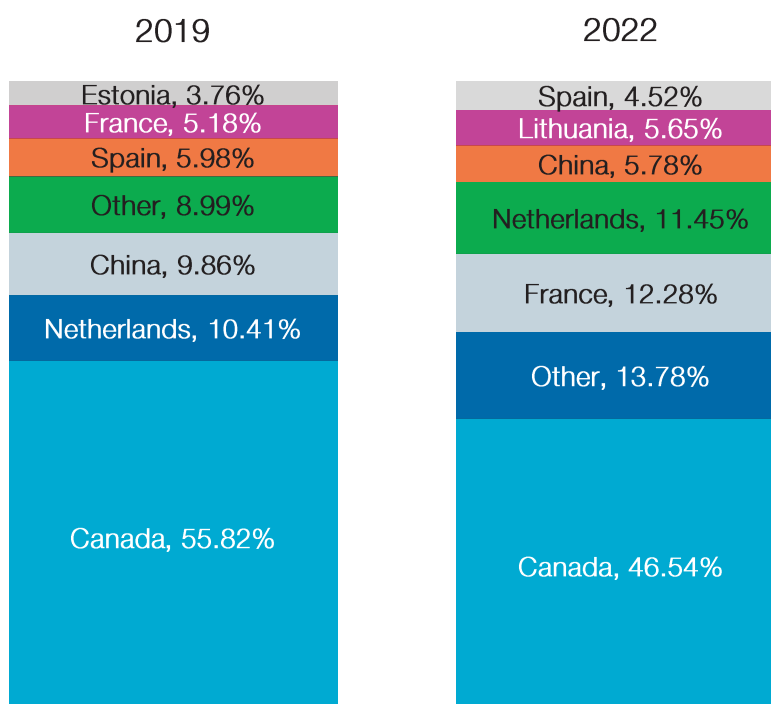


Source: UN COMTRADE and ITC Trade Map.

Note: Values reported on the bars are rounded to the nearest integer.

Figure 2 demonstrates a significant increase in the number of countries with a share in global exports above 1 per cent between 2019 and 2022, despite a decline in exported value during the 2019-22 period. Part of the explanation for this decline in the value of hemp seed exports may be a readjustment following regulatory reforms in North America and the impact of COVID-19. Canada's exports have been significantly reduced since 2019. Although Canada still plays a major role in global hemp seeds exports, its share has decreased from about 56 per cent in 2019 to 47 per cent in 2022. Notably, France's share more than doubled during the same period, moving from 5.2 per cent to 12.3 per cent. In 2019, the Netherlands were the second-largest exporter, accounting for 10.4 per cent of the reported global value. However, by 2022, they were surpassed by France, although their share increased to 11.4 per cent. New entrants in 2022 include Paraguay, the United States and Lithuania.

Figure 2 Share in global exports: hemp seeds
(percentage)



Source: UN COMTRADE and ITC Trade Map.

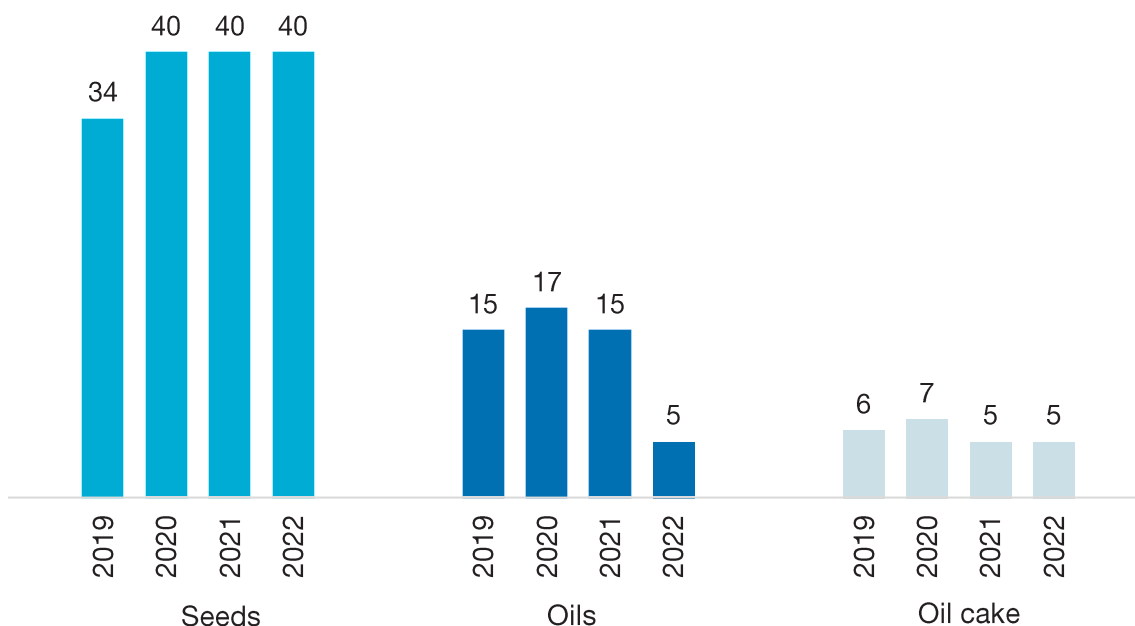
Note: The “Other” group includes all countries with a share in global exports smaller than 3 per cent. In 2019 countries included in the “Other” group with shares larger than 1 per cent are Romania (1.3 per cent) and Lithuania (1.2 per cent). In 2022 those countries are Estonia (1.9 per cent), the USA (1.5 per cent), Romania (1.4 per cent) and Paraguay (1.3 per cent) in 2022.

Details regarding hemp seed-related products, including oil (extracted from hemp seeds) and oil cake (a by-product of oil extraction), are limited, with only Canada recording exports and the US reporting imports for such products. Consequently, values reported in Figures 1 and 2 must be interpreted as lower bounds of the value of global exports. The value of exported hemp oils decreased significantly between 2019 and 2022 dropping from US\$ 15 million in 2019 to US\$ 1.4 million in 2022. During the 2019–2022 period the value of oil cake exported annually shown in Figure 1 fluctuated around US\$ 10 million with a slight downward tendency.

Overall, 41 countries exported hemp seeds or hemp seeds by-products in 2022. This is the largest number of countries obtained for industrial uses. Amongst those countries, 8 are developing countries, of which 4 are in Asia and another 4 in Latin America, namely: Chile, China, Colombia, India, Kazakhstan, Lebanon, Paraguay and Peru.

Figure 3 suggests that global export values reflect to a large extent the increase in the number of countries exporting hemp seeds, rather than an increase in the average size of exports of existing exporters. Indeed, fluctuations in global values closely relate to the number of exporting countries. The number of countries exporting hemp oil seeds was 34 in 2019, reached 40 in 2020 and then remain steady in both 2021 and 2022. The number of countries exporting oils culminated at 17 in 2020 to collapse to 5 in 2022. The number of countries exporting oil cake fluctuated between 5 and 7 during the 2019–2022 period.

Figure 3 Number of exporting countries: hemp seeds and by-products



Source: UN COMTRADE and ITC Trade Map.

3.2 Hemp fibers and yarn

The three hemp products discussed in this section fall under the HS classification. The estimates provided are derived directly from import information obtained at the six-digit level. It is assumed that country coverage is comprehensive, presuming that all countries accurately report the value of their trade flows. This enables us to examine countries involved in both importing and exporting.

Figure 4 presents both yearly and quarterly export data⁷ for hemp products associated with fibers. All fiber products showed an upward tendency until 2021. In that year, exports of raw fibers amounted to US\$ 14 million, semi-processed fibers reached US\$ 23.5 million, and yarn exports totaled US\$ 15 million. However, for all products, this upward tendency was followed by either a decline or stagnation in 2022, as depicted in Figure 4.

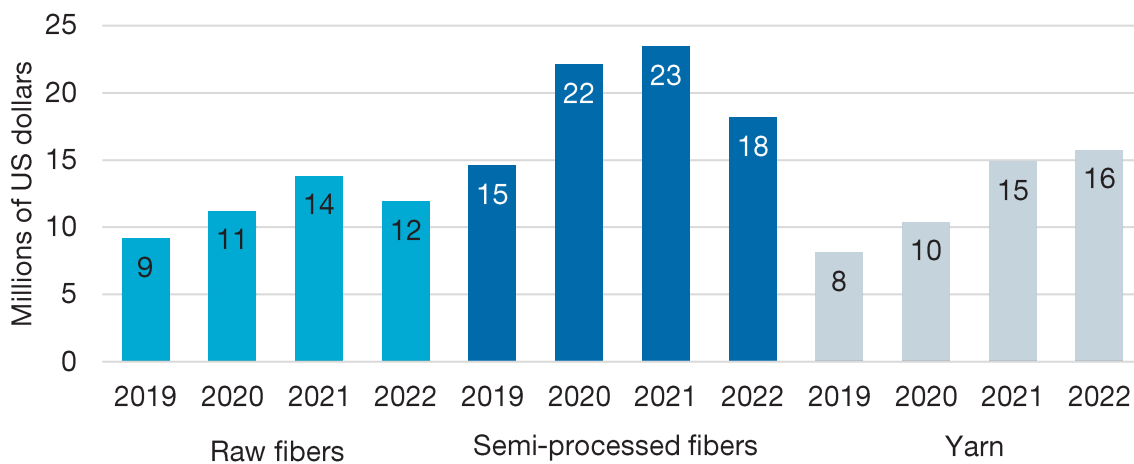
As in the case of hemp oil seeds exports, quarterly data can help identify production cycles related to the hemp plant agricultural specificities. In Figure A.2, cyclicity is evident in all fiber products, with peaks observed during the last quarter of the year, coinciding with the post-harvest period. This cyclicity is particularly pronounced for semi-processed fibers and hemp by-products, defined as "Hemp (*cannabis sativa* L.); processed (other than retted) (but not spun), true hemp tow and waste (including yarn waste and garneted stock)" in the HS classification.

Figure 5 shows the number of countries importing and exporting hemp fiber products. The number of countries importing raw fibers has been oscillating around 30 between 2019 and 2022. The number of countries exporting such products has remained below 30. The number

⁷ If exporting countries are exhaustively identified, global exports can be construed as indicative of worldwide trade.

of countries importing semi-processed fibers is the largest amongst the three products, reaching 49 in 2022. The number of exporting countries reached 31 in 2020. Regarding hemp yarn, approximately 40 countries imported it, and about 20 countries exported it during the period from 2019 to 2022. The relatively small number of exporting countries may reflect some specialization driven by a higher degree of technological capacity required to produce yarn as compared to raw or semi-processed products.

Figure 4 Annual global exports of hemp fibers and yarn
(millions of United States dollars)



Source: UN COMTRADE.

Note: Values reported on the bars are rounded to the nearest integer.

Out of the 39 countries exporting some fiber products in 2022 nine are classified as developing economies or administrative regions, namely: China, China, Hong Kong SAR, India, Nepal, Pakistan, Singapore, South-Africa, Türkiye, and Uganda. Most developing countries export either raw and/or semi-processed products. Only China exports the three classified products.

Figure 5 Number of importing and exporting countries: hemp fibers and yarn

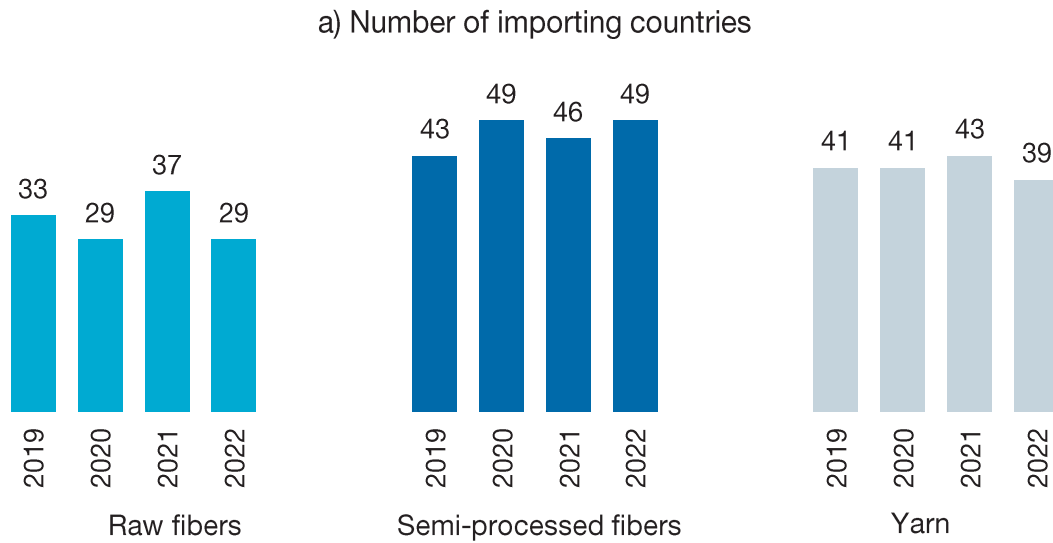
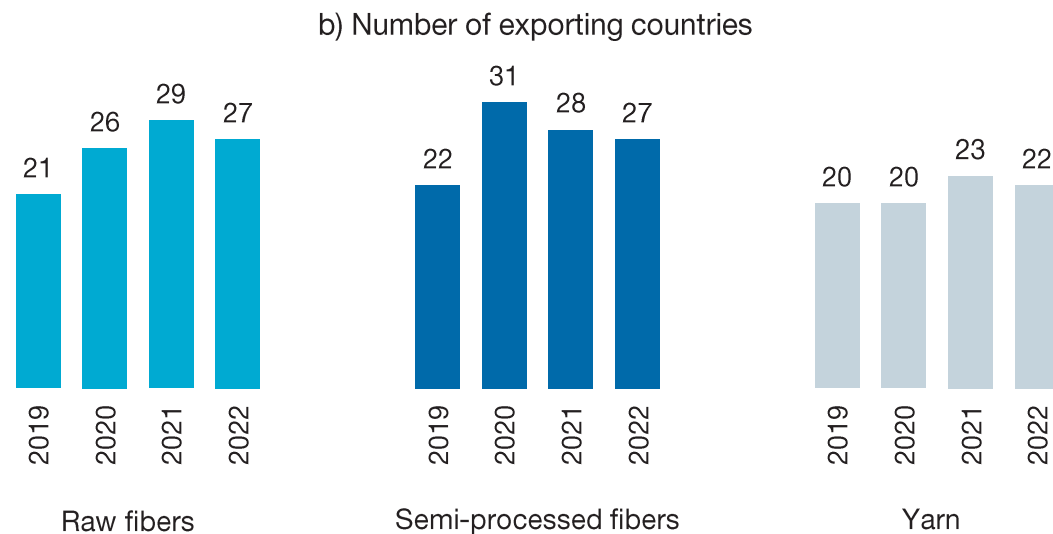


Figure 5 Number of importing and exporting countries: hemp fibers and yarn (cont.)



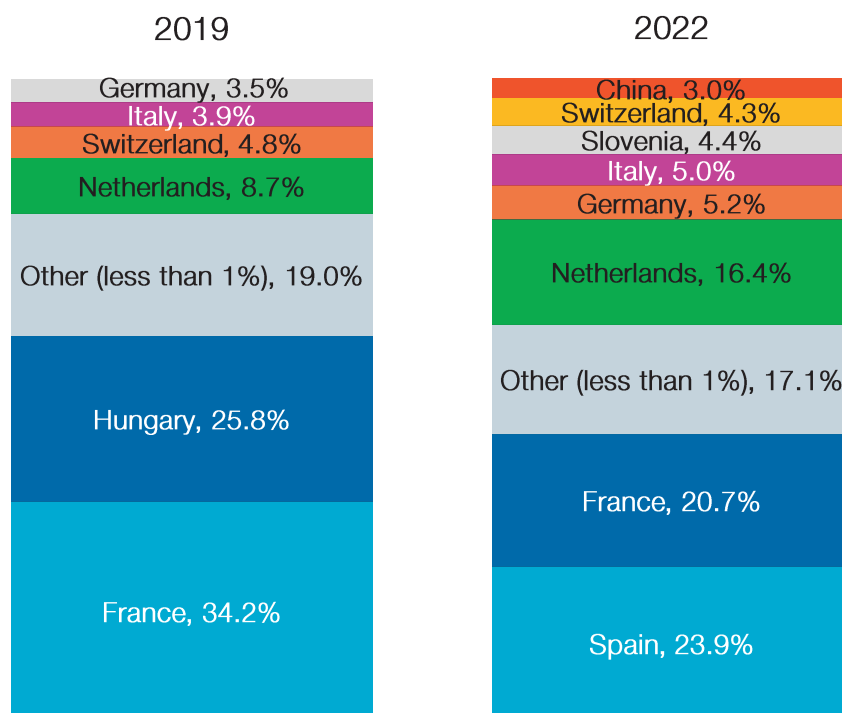
Source: UN COMTRADE. Export information is retrieved from mirror information.

Figure 6 to 8 depict the primary exporters of the three hemp products in the years 2019 and 2022. In general, there is a notable turnover, particularly involving new participants in the global exports of hemp fiber products, following an unpredictable trajectory.

European countries dominate global exports of raw fibers as shown in Figure 6, with France playing a leading role, despite a notable decline in its exports from US\$ 3.27 million in 2019 to US\$ 2.7 million in 2022. Spain, on the other hand, has exhibited a remarkable increase in its exports and emerged as the largest exporter in 2022, covering one-fourth of global exports. The Netherlands maintained its position as the third-largest exporter in both 2019 and 2022, with its share nearly doubling from 8.7 per cent to 16.4 per cent during the 2019-2022 period. In 2022, Spain, France, and the Netherlands collectively accounted for two-

thirds of global exports in raw hemp fibers. However, the number of countries with exports representing more than 1 per cent of global exports increased from 9 in 2019 to 16 in 2022, with new entrants outside the EU27, such as the Russian Federation and Nepal.

Figure 6 Share in global exports: raw fibers
(percentage)

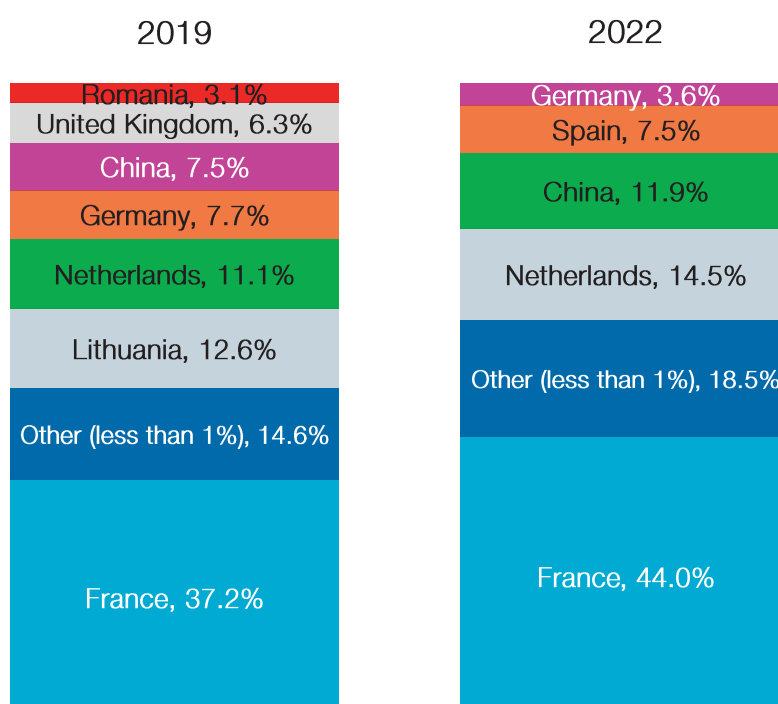


Source: UN COMTRADE.

Note: The “Other” group includes all countries with a share in global exports smaller than 3 per cent. In 2019 countries included in the “Other” group with shares larger than 1 per cent are Poland (2.7 per cent) and Belgium (1.8 per cent). In 2022 those countries are Romania (2.7 per cent), the Russian Federation (2.2 per cent), Nepal (2.1 per cent), Belgium (1.8 per cent) and Croatia (1.4 per cent).

As reported in Figure 7, France, and the Netherlands collectively represented almost 60 per cent of semi-processed hemp fibers, with France taking a significant lead, covering almost half of the global exports on its own. Meanwhile, China's role in global exports of semi-processed fibers has steadily increased, growing from 7.5 per cent in 2019 to approximately 12 per cent in 2022. It is worth mentioning the emergence of Colombia in the 2022 country set, contributing to global exports with a share of 1.6 per cent, equivalent to an export value of US\$ 277,000.

Figure 7 Share in global exports: semi-processed fibers
(percentage)

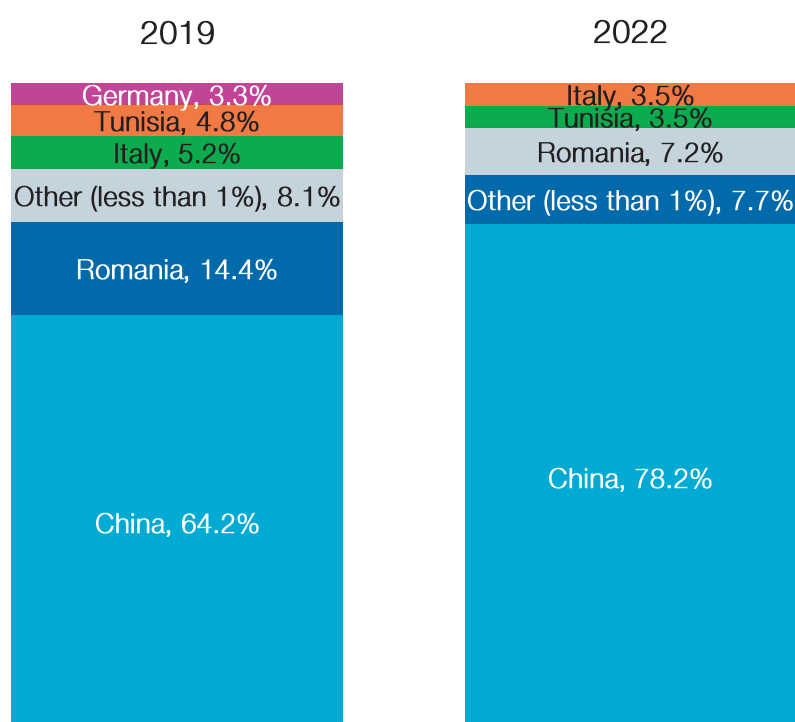


Source: UN COMTRADE.

Note: The “Other” group includes all countries with a share in global exports smaller than 3 per cent. In 2019 countries included in the “Other” group with shares larger than 1 per cent are Poland (1.7 per cent), Italy (1.4 per cent), Egypt (1.4 per cent), the United States (1.4 per cent), Switzerland (1.4 per cent) and the United Arab Emirates (1.2 per cent). In 2022 those countries are Canada (2.3 per cent), Estonia (1.9 per cent), Ukraine (1.7 per cent), Colombia (1.6 per cent), the United States (1.4 per cent) and Italy (1.1 per cent).

As evidently shown in Figure 8, China dominates the global hemp yarn exports, commanding 64 per cent in 2019 and witnessing a significant surge to 78 per cent in 2022. China's yarn exports experienced a remarkable 144 per cent growth from \$5.2 million in 2019 to \$12.7 million in 2022. Only Belgium demonstrated a comparable relative progression, with exports increasing from \$93,000 in 2019 to \$233,000 in 2022, implying a growth rate of 150 per cent during the same period. All other countries with a global export share above 1 per cent in 2022 saw their exports increase between 12 per cent for Germany and 47 per cent for Tunisia during the 2019-2022 period. The sole exception is Romania, whose exports in 2022 exhibited a value comparable to that observed in 2019.

Figure 8 Share in global exports: yarn
(percentage)



Source: UN COMTRADE.

Note: The “Other” group includes all countries with a share in global exports smaller than 3 per cent. In 2019 countries included in the “Other” group with shares larger than 1 per cent are the Netherlands (1.9 per cent) and Belgium (1.2 per cent). In 2022 those countries are Germany (1.9 per cent) and Belgium (1.5 per cent) in 2022.

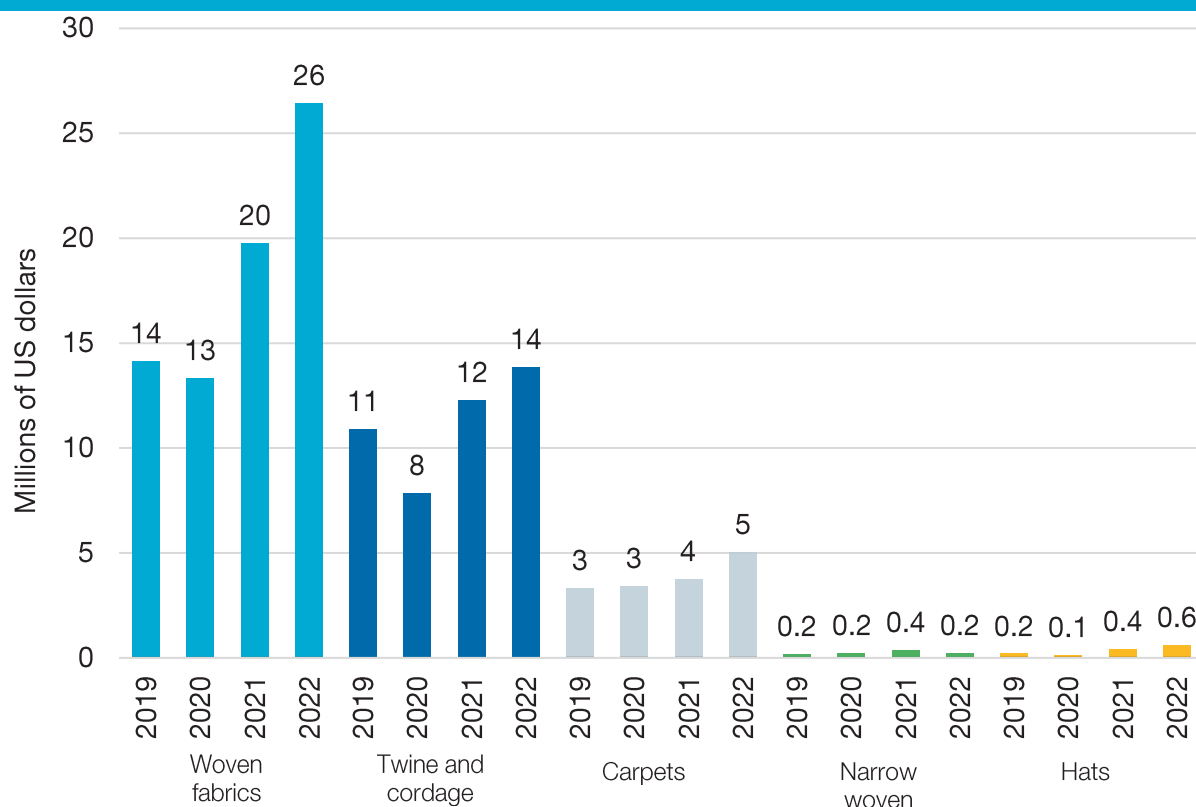
3.3 Processed textiles

Some processed textile products can be found in national classifications through 8 to 10-digit definitions. However, Figures 9 and 10 are based on import (and export) data gathered from a restricted group of countries. Global information is compiled by amalgamating export values with import values whenever possible and relevant. Nevertheless, it is crucial to acknowledge that the values presented in Figures 9 and 10 should be considered a conservative estimate, providing only a partial view of the reported hemp products market.

Figure 9 indicates a slight increase in exports of both twine and cordage and woven fabrics. Twine and cordage exports amounted to approximately US\$ 14 million in 2022, compared to about US\$ 11 million in 2019. The market characteristics are challenging to discern as the information relies solely on trade data from the United Kingdom. Major destinations include Brazil, the Dominican Republic, Saudi Arabia, the United States, and Türkiye. Besides the United Kingdom, other significant exporters are China and India. Figure A.3 reveals a notable surge in woven fabrics exports during the second quarter of 2022, primarily driven by exports from China. Major destinations for woven fabrics include Asian countries such as Cambodia, the Republic of Korea, and Sri Lanka. The United States and Canada also serve as important export destinations. This has resulted in a substantial annual increase in global exports, rising from about US\$ 14 million in 2019 to approximately US\$ 26 million in 2022. The carpet group reached almost US\$ 5 million in 2022, but it is important to note that these products are not

exclusively made of hemp, as the category also encompasses other materials such as flax. Information is derived solely from Canadian imports, suggesting that the largest exporters are India and Bangladesh. However, the actual share of carpets made of hemp remains unknown.

Figure 9 Annual global exports in processed textiles products
(millions of United States dollars)



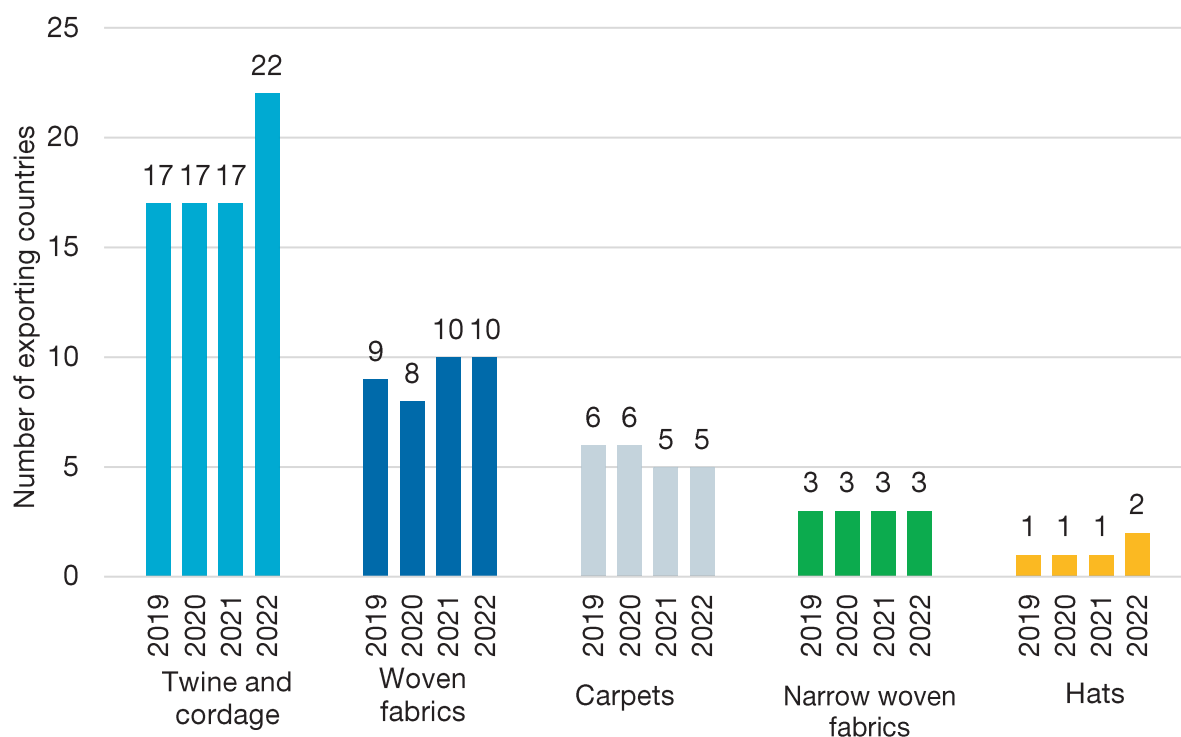
Source: UN COMTRADE and ITC Trade Map.

Note: Values reported on the bars are rounded to the nearest integer or decimal.

Figure 10 depicts the expansion in the number of countries exporting processed textiles from 2019 to 2022. In 2022, 23 economies exported some processed textiles products and 7 were developing ones. The latter were Bangladesh, China, China, Hong Kong SAR, Taiwan, Province of China, India, Indonesia, and Türkiye. Amongst all exporting countries, China and India show the most diversified basket of goods.

The notable surge is evident in the case of twine and cordage woven fabrics, with exporting countries increasing from 17 in 2019 to 22 in 2022. The export of woven fabrics reached 10 countries in both 2021 and 2022. The number of countries exporting other products remains relatively small, possibly owing to the limited inclusion of such products in national classifications. For instance, only Argentina records trade flows of hemp hats. It is again imperative to interpret these figures as conservative estimates, representing lower bounds.

Figure 10 Number of exporting countries: processed fiber products



Source: UN COMTRADE and ITC Trade Map.

4. Concluding remarks

In general, trade data indicates that about 60 countries reported exports of industrial hemp products during the 2019-2022 period. However, the international trade statistics, such as those in UN COMTRADE, encompass a limited set of industrial hemp products, leading to recorded trade flows that may not truly reflect the actual scale of the global industrial hemp market. The global exports, as reported in these international datasets, amount to less than US\$ 50 million per year. Information derived from national tariff schemes with broader product coverage suggests that a more representative figure could be at least four times larger. Estimating the overall value and composition of international trade in these products based on national trade statistics is challenging, as mentioned earlier, and serves as a highly imperfect substitute for comprehensive international trade statistics with extended product coverage.

The examination of international and national classifications indicates that, despite national classifications encompassing a broader array of hemp products compared to the set defined in the HS classification, the coverage of hemp products remains restricted and is not an exhaustive representation of tradable hemp products. For example, national classifications do not account for items with high sustainability potential, such as insulation or construction materials like hempcrete. These products, which may not necessarily require advanced transformation technologies, could prove important for developing countries in the years to come because of the energy transition and the trend towards the use worldwide of more

sustainable construction materials. Additional items like hemp-char⁸ might also play a significant role in countries striving to promote sustainable agricultural development.

Moreover, the codes utilized in the various national classifications examined here (as seen in the last column of Table A.1) do not align across countries. This discrepancy may pose an additional challenge for companies seeking to engage in international markets. A more harmonized coding approach beyond six digits should be considered for any additional products introduced in national classifications.

Therefore, there is a necessity to enhance the information regarding international trade in hemp products, focusing on both its availability and accessibility. Ideally, the HS classification should encompass a broader range of hemp products to incorporate results derived from national classifications and address sustainability concerns. Simultaneously, countries desiring to incorporate additional hemp products beyond the HS six digits should collaboratively define the corresponding codes. This approach aims to uphold transparency and facilitate international exchanges.

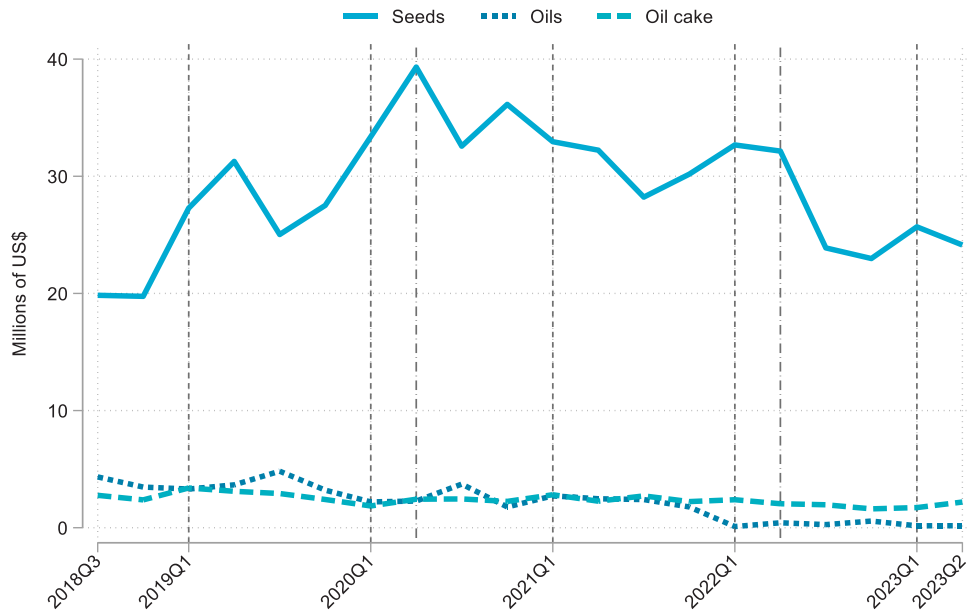
Export estimates for the identified set of hemp products in both international and national product classifications indicate that the global markets for these products are dominated by certain EU-27 countries, Canada, and China. Canada takes the lead in global exports of oil seeds, while France, Spain, and the Netherlands dominate exports of raw and semi-processed hemp products. Additionally, China emerges as a major player in the hemp yarn market.

This suggests that developing countries with existent but incipient industrial hemp exports, like those in South America and Asia, have an important potential to develop their exports of industrial hemp products. A globally coordinated effort to enhance the measurement of trade flows in hemp products could prove beneficial for these nations. More comprehensive and coordinated product coverage would enhance accessibility to international markets for producers worldwide and potentially prevent the establishment of detrimental dominant positions in the global marketplace.

⁸ Bio char from hemp plants to be used as a soil ameliorate for both carbon sequestration and soil health benefits.

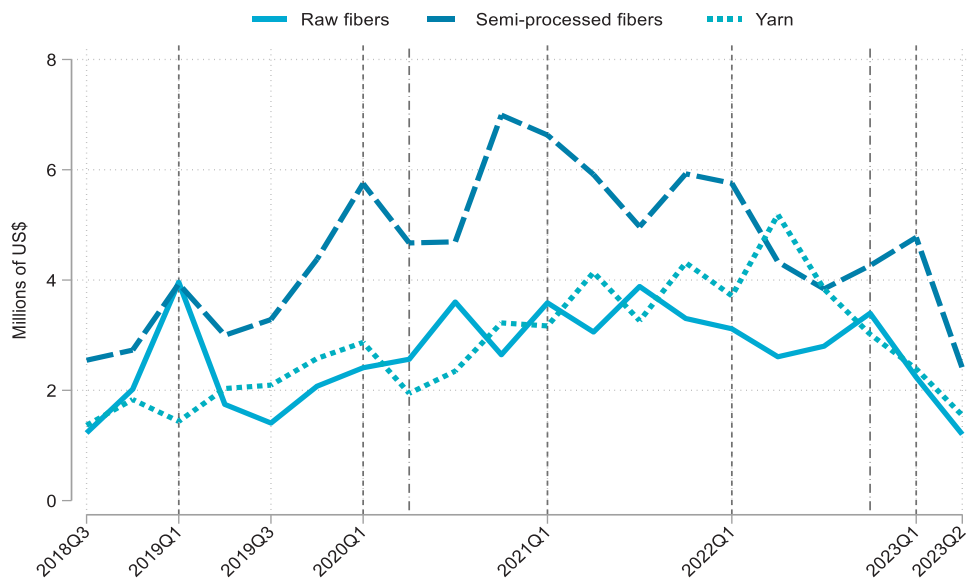
Annex

Figure A.1 Quarterly global exports of hemp seeds and by-products
(millions of United States dollars)



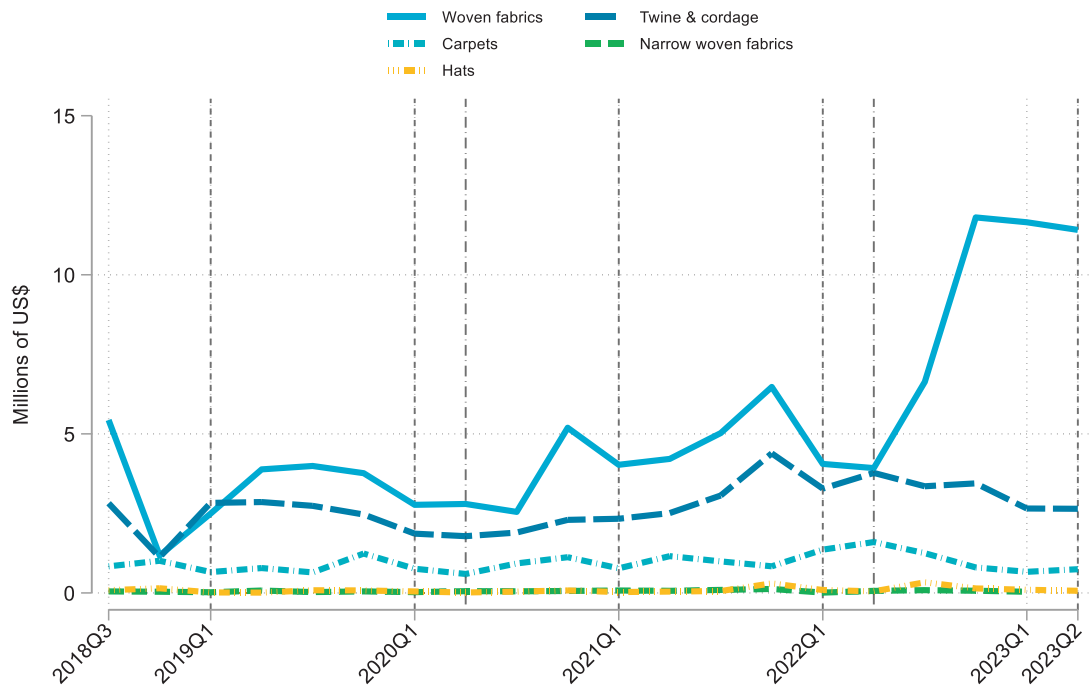
Source: UN COMTRADE and ITC Trade Map.

Figure A.2 Annual global exports of hemp fibers and yarn
(millions of United States dollars)



Source: UN COMTRADE and ITC Trade Map.

Figure A.3 Annual Global exports in processed textiles products
(millions of United States dollars)



Source: UN COMTRADE and ITC Trade Map.

Table A.1 Cannabis Sativa L. Plant: Industrial uses in the HS classification

HS 4 digits	HS 6 digits	Description	Countries
53.02	5302.10	Hemp (<i>Cannabis sativa L.</i>); raw or retted, but not spun	All
True hemp (<i>Cannabis sativa L.</i>), raw or processed but not spun; tow and waste of true hemp (including yarn waste and garnetted stock)	5302.90	Hemp (<i>Cannabis sativa L.</i>); processed (other than retted) (but not spun), true hemp tow and waste (including yarn waste and garnetted stock)	All
53.08	5308.20	Yarn; of hemp (<i>Cannabis sativa L.</i>)	All
Yarn of other vegetable textile fibers; paper yarn			

Source: HS international classification as accessible at <https://www.wcoomd.org/en/topics/nomenclature/instrument-and-tools/hs-nomenclature-2022-edition/hs-nomenclature-2022-edition.aspx>

Table A.2 Cannabis Sativa L. Plant: Industrial uses in national classifications

HS 4 digits	HS 6 digits	Description	Countries	National Codes
12.07 Other oil seeds and oleaginous fruits, whether or not broken	1207.99 Other	Hemp seeds whether or not broken	Japan EU-27 USA (exports) Canada (exports) UK	1207.99.010 1207.99.91 1207.99.0320 1207.99.10 1207.99.9100
		Hemp seeds: for sowing	USA (imports since 2021) Canada (imports) Morocco Argentina	1207.99.0340 1207.99.0011 1207.99.1100 1207.99.10.100B
		Hemp seeds: other		1207.99.0360 1207.99.0019 1207.99.9001 1207.99.10.200K
12.08 Flours and meals of oil seeds or oleaginous fruits, other than those of mustard	1208.90 Other	Hemp seeds: whole	New Zealand	1207.99.0014L
		Hemp seeds: hulled		1207.99.0017E
		Hemp seeds: other		1207.99.0024H
12.11 Plants and parts of plants (including seeds and fruits), of a kind used primarily in perfumery, in pharmacy or for insecticidal, fungicidal or similar purposes, fresh or dried, whether or not cut, crushed or powdered	1211.90 Other	Of hemp (cannabis) seeds: flour	New Zealand	1208.90.0010E
		Of hemp (cannabis) seeds: meal		1208.90.0015F
		Hemp (<i>Cannabis sativa</i> L.)	China	121190.90.11

HS 4 digits	HS 6 digits	Description	Countries	National Codes
15.15 Other fixed vegetable fats and oils (including jojoba oil) and their fractions, whether or not refined, but not chemically modified	1515.90 Other	Hemp oil	USA (imports)	1515.90.8010
23.06 Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting from the extraction of vegetable fats or oils, other than those of heading 23.04 or 23.05	2306.90 Other	Hemp oil and its fractions, whether or not refined, but not chemically modified	Canada (imports)	1515.90.0010
			Canada (exports)	1515.90.20
53.02 True hemp "Cannabis sativa L.", raw or processed, but not spun; tow and waste of true hemp, inclu. Yarn waste and garneted stock.	5302.90 True hemp Cannabis sativa L., processed but not spun	Of hemp seeds	USA (imports)	2306.90.0130
			Canada (exports)	2306.90.10
53.02 True hemp "Cannabis sativa L.", raw or processed, but not spun; tow and waste of true hemp, inclu. Yarn waste and garneted stock.	5302.90 True hemp Cannabis sativa L., processed but not spun	True hemp, broken, scutched, hackled or otherwise processed, but not spun Tow of true hemp Waste of true hemp	Republic of Korea	5302.90.1000
				5302.90.2010
				5302.90.2020

HS 4 digits	HS 6 digits	Description	Countries	National Codes
53.08 Yarn of vegetable textile fibres; paper yarn (excl. flax yarn, yarn of jute or of other textile	5308.20 Hemp Yarn	Not put up for retail sale Put up for retail sale	EU-27	5308.20.10 5308.20.90
53.11 Woven fabrics of other vegetable textile fibres; woven fabrics of paper yarn (excluding those of flax, jute, other textile bast fibres of heading 5303 and cotton yarn)	5311.00	Woven fabrics of true hemp or paper yarn Of true hemp fibers Of true hemp Woven fabrics of true hemp	Japan USA (imports) Republic of Korea China	5311.00.020 5311.00.4010 5311.00.2000 5311.00.3000
56.07 Twine, cordage, ropes and cables, whether or not plaited or braided and whether or not impregnated, coated, covered or sheathed with rubber or plastics.	5607.90 Other	Of true hemp	United Kingdom	5607.90.9010
57.02 Carpets and other textile floor coverings, woven, not tufted or flopped, whether or not made up, including "Kelem", "Schumacks", "Karamanie" and similar hand-woven rugs	5702.99 Of other textile materials	Of straw, hemp, flax tow or jute	Canada (imports and exports)	5702.99.1000
58.06 Narrow woven fabrics, other than goods of heading No 5807; narrow fabrics consisting of warp without weft assembled by means of an adhesive (bolducs)	5806.39 Of other textile materials	Narrow woven fabrics of hemp	Australia	5806.39.10
63.05 Sacks and bags, of a kind used for the packing of goods	6305.90 Other	Hemp or Phormium tenax	New Zealand	6305.90.0901B
65.02	6502.00	Of hemp: tinted	Argentina	6502.00.90.151J

HS 4 digits	HS 6 digits	Description	Countries	National Codes
Hat-shapes, plaited or made by assembling strips of any material, neither blocked to shape, nor with made brims, nor lined, nor trimmed	Hat-shapes, plaited or made by assembling strips of any material, neither blocked to shape, nor with made brims, nor lined, nor trimmed	Of hemp: other		6502.00.90.159B
65.04 Hats and other headgear, plaited or made by assembling strips of any material, neither blocked to shape, nor with made brims, nor lined, nor trimmed	6504.00 Hats and other headgear, plaited or made by assembling strips of any material, neither blocked to shape, nor with made brims, nor lined, nor trimmed	Of hemp: without ornament	Argentina	6504.00.90.151W
		Of hemp: other		6504.00.90.159N

Source: National classifications as accessible at https://www.wto.org/english/tratop_e/markacc_e/tariffandimpofwebsites_e.htm and the Harmonized System classification as accessible at <https://www.wcoomd.org/en/topics/nomenclature.aspx>.

Table A.3 Cannabis Sativa L. Plant: Non-industrial uses in international and national classifications

HS 4 digits	HS 6 digits	Description	Countries	National Codes
06.02 Other live plants (including their roots), cuttings and slips; mushroom spawn.	0602.10 Unrooted cuttings and slips	From Cannabis (Cannabis spp.) with a natural tetrahydrocannabinol (THC) content equal to or greater than 1% by weight.	Uruguay	0602.10.00.10
	0602.90 Other	From Cannabis (Cannabis spp.) with a natural tetrahydrocannabinol (THC) content less than 1% by weight.	Uruguay	0602.10.00.20 0602.90.89.10
		From Cannabis (Cannabis spp.) with a natural tetrahydrocannabinol (THC) content equal to or greater than 1% by weight.		
12.09 Seeds, fruit and spores, of a kind used for sowing	1209.99 Other	Cannabis seeds for sowing	Canada (imports and exports)	0602.90.89.20 1209.99.1029
		Cannabis seeds with a content of natural tetrahydrocannabinol (THC) equal to or greater than 0.5% in weight	Uruguay	1209.99.00.10
		Cannabis seeds with a content of natural tetrahydrocannabinol (THC) less than 0.5% in weight		1209.99.00.20

HS 4 digits	HS 6 digits	Description	Countries	National Codes
12.11 Plants and parts of plants (including seeds and fruits), of a kind used primarily in perfumery, in pharmacy or for insecticidal, fungicidal or similar purposes, fresh or dried, whether or not cut, crushed or powdered.	1211.90 Other	Cannabis plant	Japan	1211.90.600
		Of a kind used primarily in pharmacy: cannabis, in cut, crushed or powdered for Of a kind used primarily in pharmacy: cannabis, other forms	Viet Nam Indonesia	1211.90.11 1211.90.12
13.01 Lac; natural gums, resins, gum-resins and oleoresins (for example, balsams)	1301.90 Other	Cannabis	Canada (imports) Canada (exports) Argentina	1301.90.0010 1301.90.10 1301.90.90.110W
		Cannabis resins	Viet Nam Indonesia	1301.90.30
	1302.19 Other	Extracts or tincture of cannabis and crude cocaine	China Japan	1301.90.9020 1302.19.220
		Cannabis oil, extracts, and tinctures	Canada (imports) Canada (exports) Argentina	1302.19.0010 1302.19.10 1302.19.99.111E
13.02 Vegetable saps and extracts; pectic substances, pectinates and pectates; agar-agar and other mucilages and thickeners, whether or not modified, derived from vegetable products.		Cannabis (Marihuana) extracts and tinctures	Argentina	1302.19.99.112G
		Cannabis (Marihuana) oil	Viet Nam Indonesia	1302.19.20
		Extracts and tinctures of cannabis		

HS 4 digits	HS 6 digits	Description	Countries	National Codes
29.32 Heterocyclic compounds with oxygen hetero-atom(s) only	2932.95 Tetrahydrocannabinols (all isomers)	Tetrahydrocannabinol (all isomers)	All	
30.04 Medicaments (excluding goods of heading 30.02, 30.05 or 30.06) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses (including those in the form of transdermal administration systems) or in forms or packings for retail sale	3004.90 Other	Containing alkaloids or derivatives thereof: Of narcotics, of cannabis or of awakening-amines	Japan	3004.90.010
		Medicaments for retail sale, containing cannabis or cannabinoids	Canada (imports) Canada (exports)	3004.90.0021 3004.90.10

Source: National classifications as accessible at https://www.wto.org/english/tratop_e/markacc_e/tariffandimpofwebsites_e.htm and the Harmonized System classification as accessible at <https://www.wcoomd.org/en/topics/nomenclature.aspx>.

