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FAOSTAT ANALYTICAL BRIEF 29

Pesticides use, pesticides trade and pesticides indicators

1990–2019

>> FAO Statistics Division

HIGHLIGHTS

- → **Global pesticides use in agriculture remained stable in 2019 at 4.2 million tonnes, equivalent to 0.6 kg/person.**
- → **Pesticides use increased in the 2010s by more than 50 percent compared to the 1990s, with pesticides use per area of cropland increasing from 1.8 to 2.7 kg/ha.**
- → **Pesticides use in agriculture in Europe increased by just 3 percent between the 1990s and the 2010s.**
- → **Total pesticides trade reached approximately 5.6 million tonnes of formulated products in 2019, with a value of USD 35.5 billion.**
- → **Trade in hazardous pesticides decreased between 2007 and 2019. A detailed analysis on specific substances covered by the Rotterdam Convention is provided based on available data.**

BACKGROUND

When applied responsibly, pesticides can help to protect seeds and safeguard crops from unwanted plants, insects, bacteria, fungi, and rodents. At the same time, pesticides can have negative impacts on human health and on the environment through contamination of soil, water and non-target plants, decrease biodiversity and, in some cases, also reduce crop yield. Pesticides use in agriculture as an input and the agri-environmental indicator measuring use by cropland area serve to monitor the use of pesticides across the globe as well as at the regional and country levels. These two domains have been updated with figures through 2019. The 2021 update of the pesticides use domain features improved imputation methods for countries that have historically used imports as a proxy for use in the past.

Statistics of pesticides trade are relevant for monitoring of sustainable agriculture. In particular, they can help assess the global movement of pesticides and identify shortcomings in access to the global market of this agricultural input. The FAOSTAT Pesticides trade database contains data on internationally traded pesticides over the period 1961–2019. Data for 1961–1989 cover only monetary values, while data for 1990–2019 also include physical quantities. The 2021 update of the domain features data updates to 2019, while implementing improved imputation methods that include the use of mirror trade statistics, as well as of trade information to assess pesticide use at the national level.

Figures for pesticides trade can exceed those of pesticides use for a combination of the following reasons: non-agricultural uses for imported pesticides such as those in the public health sector, storage of pesticides that are imported for use in subsequent years, and the importation of pesticide formulations including adjuvants to increase efficacy and shelf-life.

This analytical brief includes a special analysis of trends in total trade of hazardous pesticides for which data are available in FAOSTAT. This includes examples of 12 hazardous pesticides listed under the Rotterdam Convention. The Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (http://www.pic.int/) entered into force in 2004 and, as of July 2021, has 164 parties. It aims at protecting human health and the environment through shared responsibility and structured information exchange on safe use and risk management for hazardous chemicals under the scope of the Convention. As of July 2021, Annex III to the Convention lists 35 pesticides (including three severely hazardous pesticide formulations), 16 industrial chemicals, and 1 chemical listed in both categories (see Appendix I). Due to separate reporting chapters in COMTRADE, from which the trade information is sourced (see explanatory notes), it should be noted that traded quantities in total hazardous pesticides may not correspond to the sum of component substances. Furthermore, the 12 pesticides listed under the Rotterdam Convention, for which data were available and disseminated in FAOSTAT, were grouped for this analysis as follows (see Annex II for trade status of each):

- Group I – aggregated pesticides;
- Group II – pesticides with data available for 2007–2019; and
- Group III – pesticides with data covering shorter periods, either 2012–2019 or 2017–2019.

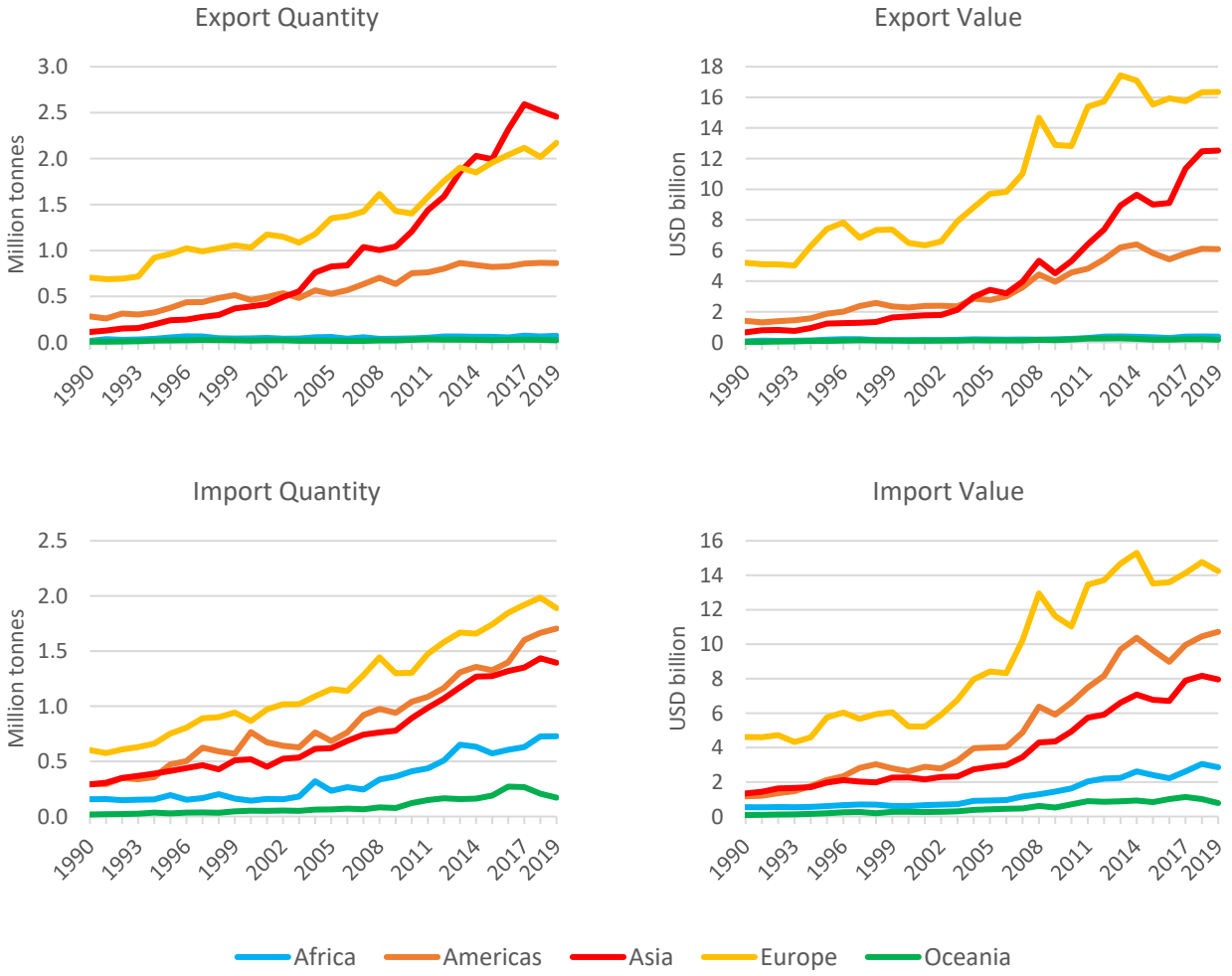
The aim of the additional analysis is for information purposes only. Current data coverage in FAOSTAT is rather incomplete, and not all countries covered in FAOSTAT are Parties to the Rotterdam Convention. The FAOSTAT data therefore do not allow currently for monitoring individual chemicals listed under the Convention.

GLOBAL

At the global level, total pesticides use in agriculture remained stable in 2019, at 4.2 million tonnes (Mt) of active ingredients. The worldwide application of pesticides per area of cropland was 2.7 kg/ha. Total pesticides trade reached approximately 5.6 Mt of formulated products in 2019, with a value of USD 35.5 billion.

Despite a plateau reached in recent years, total pesticides use increased in the 2010s by more than 50 percent compared to the 1990s, with pesticides use per area of cropland increasing from 1.8 to 2.7 kg/ha. The global application of pesticides increased across these two periods for herbicides, fungicides and bactericides, and insecticides, with increases in the share of herbicides (from 40 to 53 percent of total pesticides) and reductions in the shares of fungicides (from 25 to 22 percent) and insecticides (from 23 to 17 percent). Traded quantities of total pesticides tripled between the 1990s and the 2010s.

Figure 1: Total pesticides export and import quantities and values by region

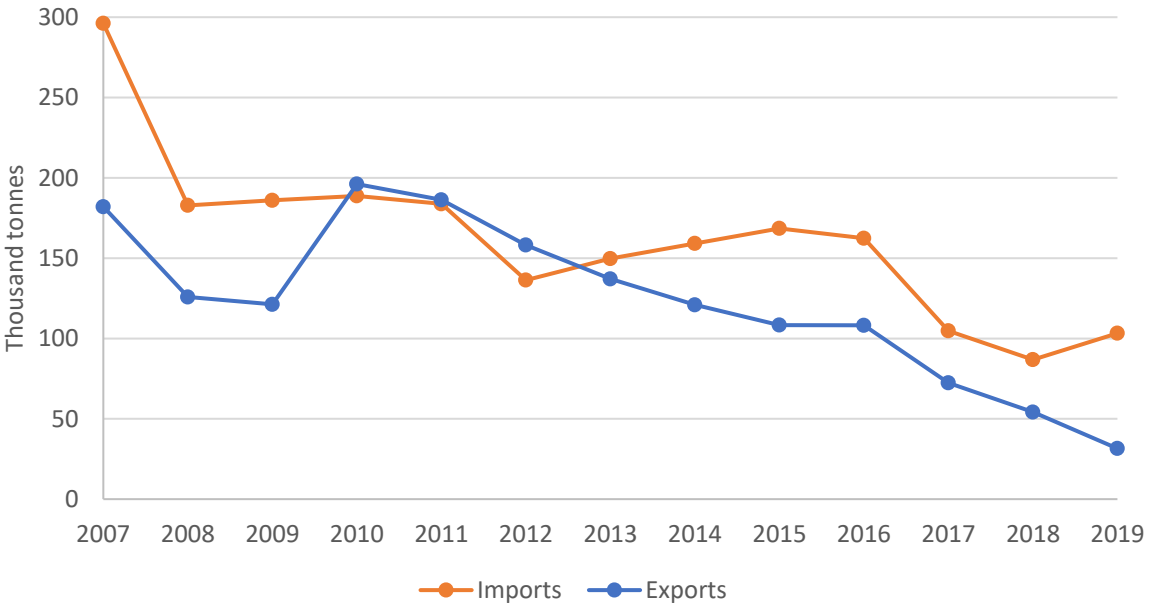


Source: FAO, 2021c.

GLOBAL TRENDS IN HAZARDOUS PESTICIDES

As displayed in Figure 2, the FAOSTAT data suggest a reduction in traded hazardous pesticides globally over the period 2007–2019, with imported quantities reduced from about 300 to 100 kilotonnes (kt). In terms of the 12 hazardous pesticides substances included in this analysis, and within the limitations of data quality mentioned earlier, there was seemingly a decrease in trade during the periods covered for each substance (Figures 3 to 5).

Figure 2: Global export and import quantities for hazardous pesticides

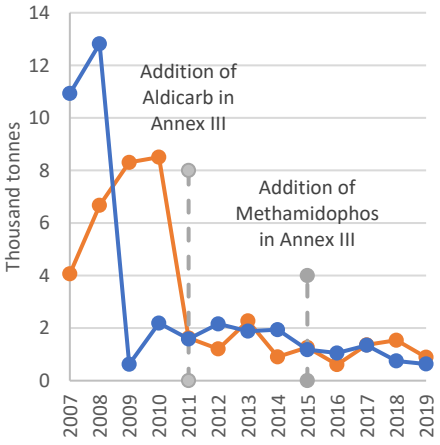


Source: FAO, 2021c.

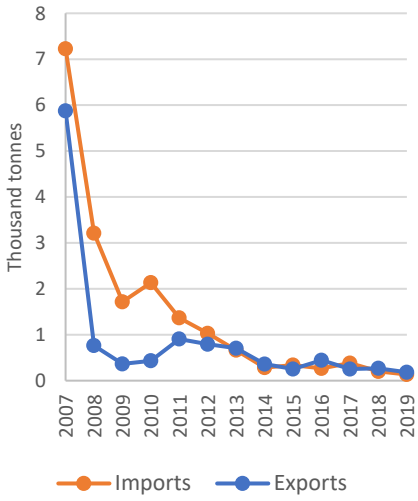
More specifically, for Group I (Figure 3), during the period 2007–2019, the aggregated data for aldicarb and methamidophos combined with captafol show an 80 percent decrease in import quantities, from 4.1 kt in 2007 to 0.9 kt in 2019. Export quantities decreased by more than 90 percent, from 10.9 kt to 0.6 kt in 2019. Trade in other Group I substances decreased by more than 95 percent.

Figure 3: World total import and export quantities of selected hazardous pesticides listed under the Rotterdam Convention – Group I

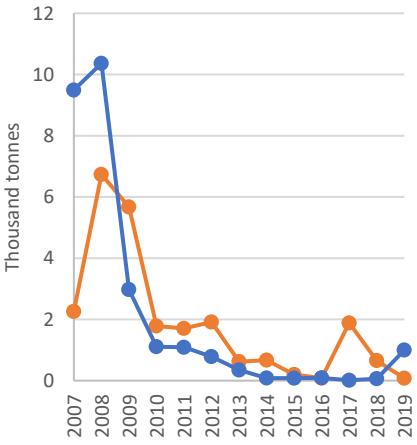
Aldicarb, captafol & methamidophos



Fluoroacetamide, monocrotophos & phosphamidon



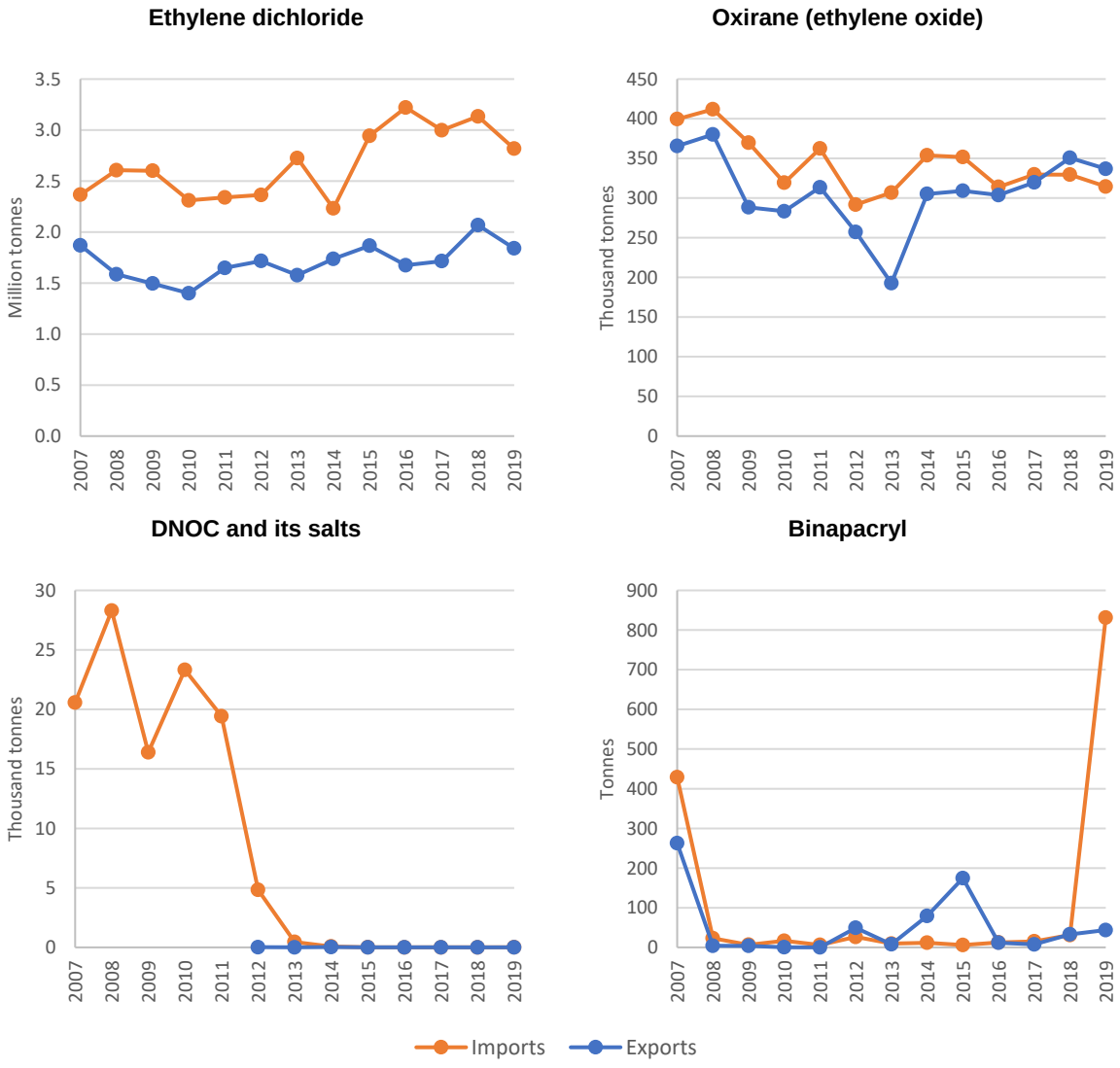
Parathion & parathion-methyl



Source: FAO, 2021c.

For Group II (Figure 4), imports for DNOC and its salts decreased by more than 95 percent from 2007 to 2019, from 20.6 kt to 0.01 kt. At the same time, export quantities of the same substance decreased by nearly 75 percent. The FAOSTAT data also show decreases in ethylene oxide during 2007–2019, by roughly 20 percent, whereas exports decreased by less than 10 percent. Imports of ethylene oxide decreased from nearly 400 kt to 315 kt. This substance is the only hazardous pesticide for which a third of the Parties to the Convention still allow imports (Appendix II). Ethylene dichloride and binapacryl were the two analysed traded hazardous pesticides with increased imports, respectively of about 20 percent, from 2.4 Mt to 2.8 Mt for the former, and of about 95 percent from 0.4 kt to 0.8 kt for the latter.

Figure 4: World total import and export quantities of selected hazardous pesticides listed under the Rotterdam Convention – Group II

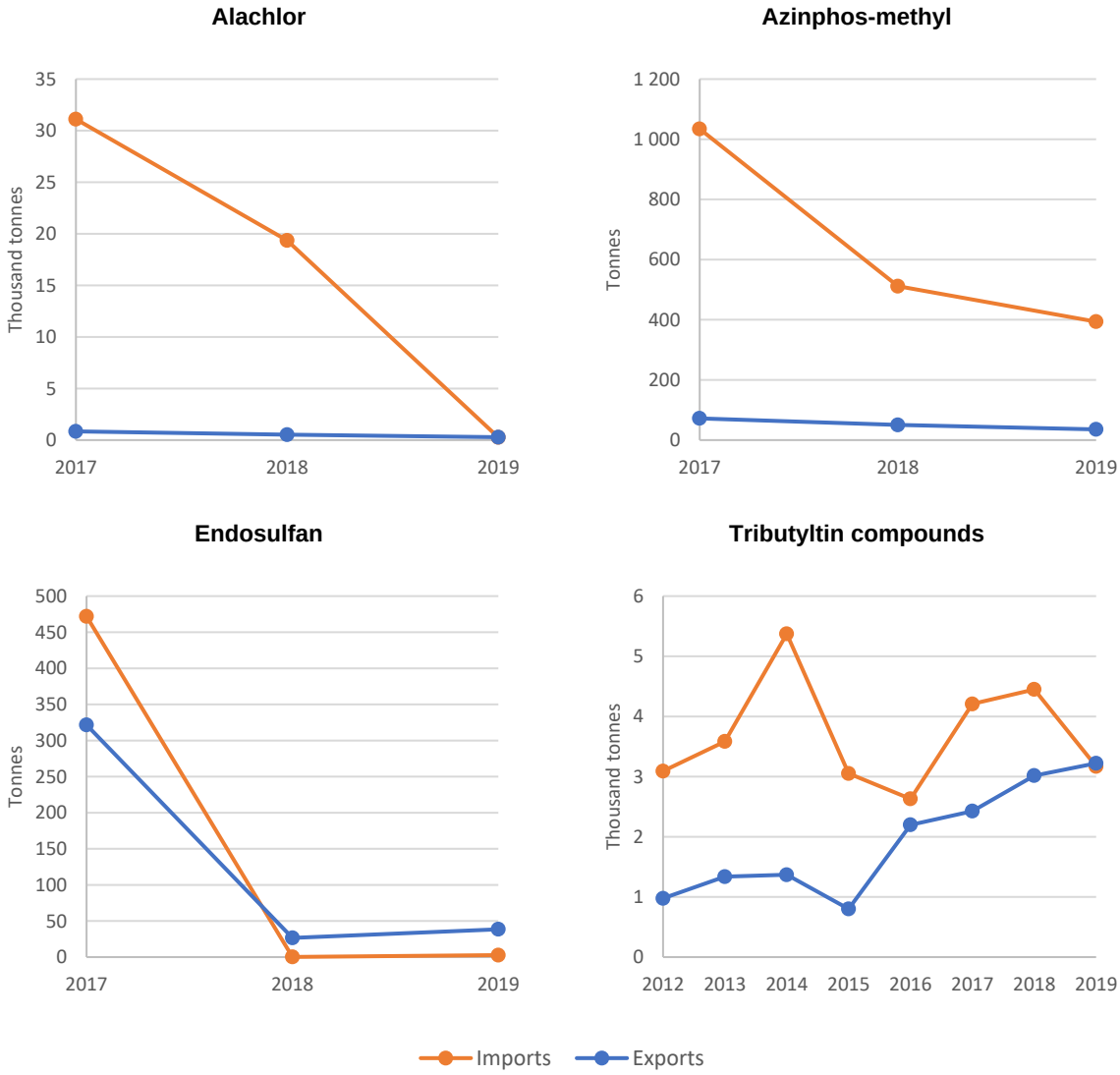


Source: FAO, 2021c.

Finally, Group III substances showed a similar overall declining trade pattern (Figure 5). This was apparent in data for alachlor, azinphos-methyl and endosulfan, although the period covered was very

limited (2017–2019). Conversely, exports of tributyltin compounds increased by almost 70 percent, from 976 to 3 221 tonnes over the period 2012–2019, whereas imports remained roughly at the same level.

Figure 5: World total import and export quantities of selected hazardous pesticides listed under the Rotterdam Convention – Group III



Source: FAO, 2021c.

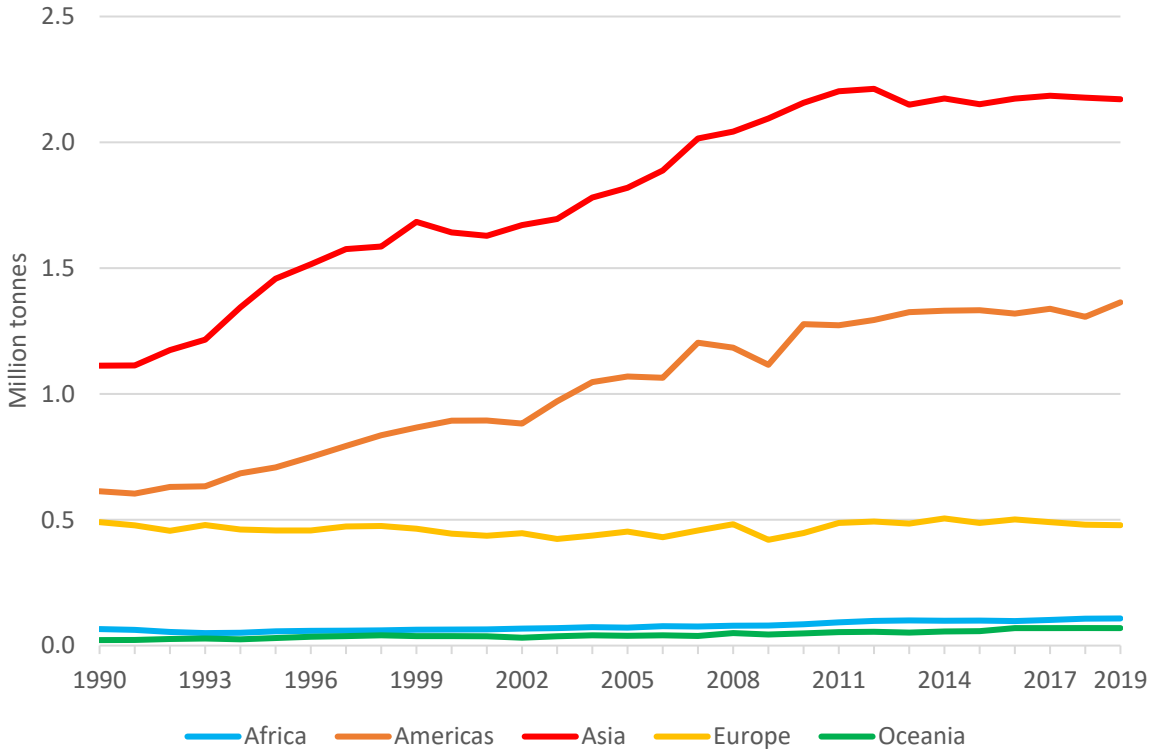
REGIONAL

It is important to highlight that the regional trade figures presented here include intra-regional trade – for example, the trade statistics for Europe include trade of European countries with other European countries as well as with countries outside of Europe. In 2019, Asia had the highest levels of pesticides exports (2.5 Mt at a value of USD 12.5 billion) and used the most pesticides in the agricultural sector (2.2 Mt), both in terms of totals and per ha of cropland (3.7 kg/ha). Figure 1 shows the regional import and export quantities and values for the period 1990–2019, and Figure 6 displays the regional total

pesticide use for the same period, in particular the recent stabilization in Asia. Pesticides exports from Asia decreased in the most recent years from 2.6 Mt in 2017 to 2.5 Mt in 2019. The region is responsible for about 60 percent of global insecticides use in the 2010s.

Pesticides use in agriculture in Europe increased by just 3 percent between the 1990s and the 2010s, most likely due to the stringent European Common Agricultural Policy put in place, which monitors and controls the use of pesticides. The region has the lowest proportion of pesticides use derived from insecticides (12 percent), as seen in Figure 8. European countries exported nearly 1.4 Mt of pesticides per year during the period 1990–2019, representing more than one-third of the global total. The region's pesticides use per area of cropland was approximately 1.7 kg/ha in 2019, below the world average.

Figure 6: Total pesticides use by region



Source: FAO, 2021a.

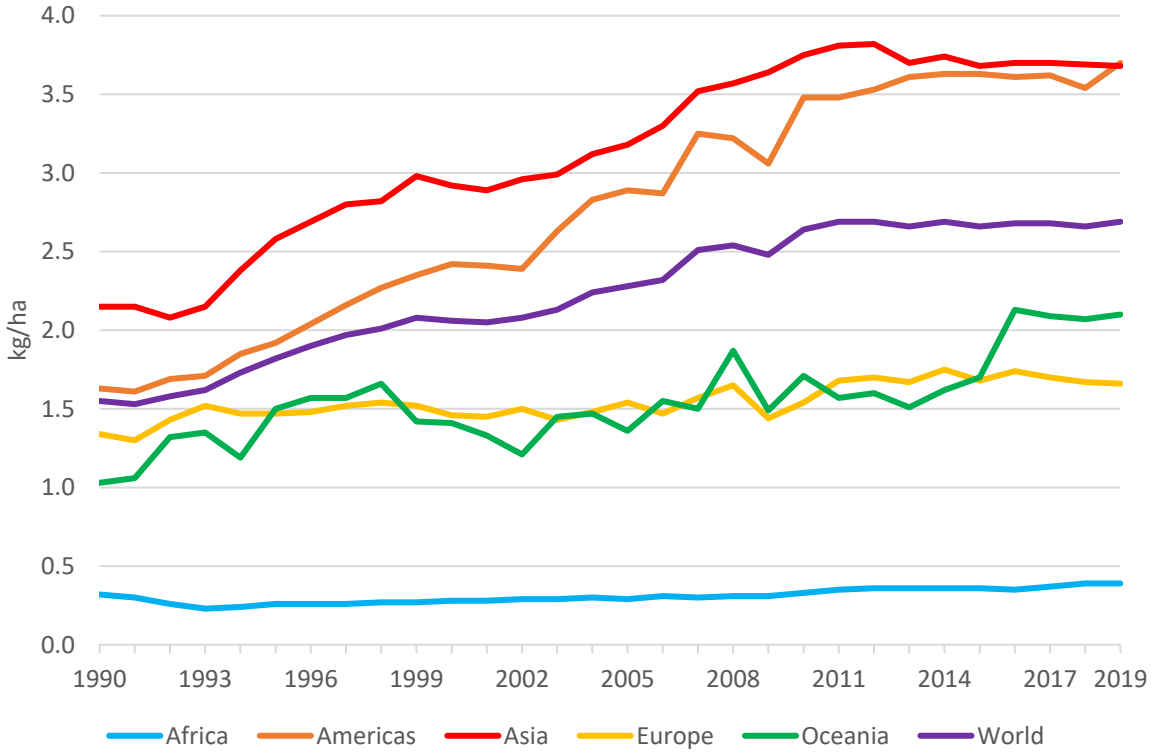
The Americas had a high growth rate of 80 percent in pesticides use from the 1990s to the 2010s. The region applies high levels of pesticides, contributing nearly one-third to the global total in 2019. The Americas applied approximately 3.6 kg of pesticides per hectare of cropland each year in the 2010s, up from a mean application rate of 1.9 kg/ha in the 1990s. The region augmented herbicides use from 353 to 840 kt, fungicides use from 90 to 178 kt, and insecticides use from 157 to 183 kt per year in the 2010s compared to the 1990s. It was the third largest exporter of total pesticides (averaging approximately 830 kt the 2010s, or 17 percent of the global total) and second in terms of imports (averaging approximately 1.3 Mt per year in the 2010s, or 27 percent of the global total).

Although Oceania had the highest growth rate of all regions between the 1990s and the 2010s, with a doubling of 1990 values, the region applies the lowest levels, averaging approximately 60 kt of pesticides per year in the 2010s, and represents less than 2 percent of the global use in 2019. Oceania

applied 1.8 kg/ha of pesticides in the 2010s compared to 1.4 kg/ha in the 1990s. The region increased herbicides use from 20 to 41 kt, fungicides use from 3 to 5 kt, and insecticides use from 7 to 13 kt per year over the same period.

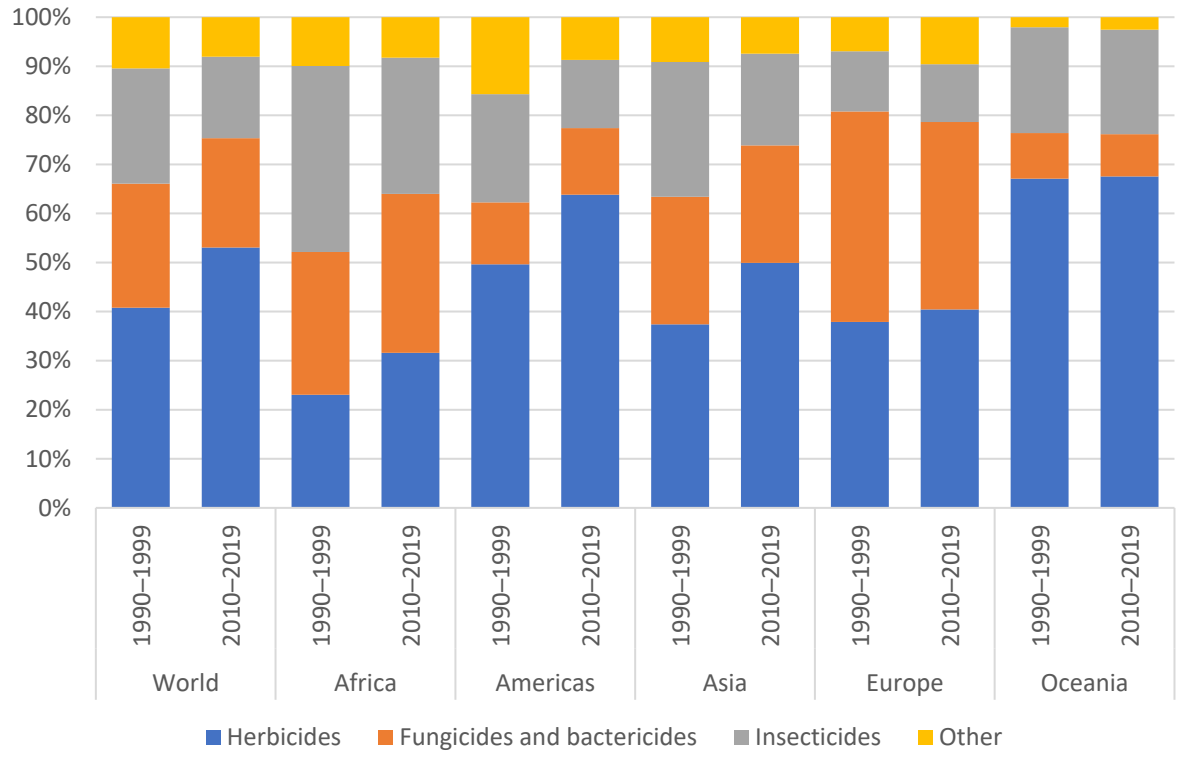
Africa increased total pesticides use in agriculture by 70 percent over the period analysed and maintained low pesticides use per area of cropland, averaging just 0.3 kg/ha in the 1990s and 0.4 kg/ha in the 2010s. In 2019, the region contributed just 3 percent to the global pesticides use. It has the largest share of insecticides in total pesticides use – approximately one-third. Africa had high growth rates for traded pesticides, with approximately a 3.5-fold increase in imports from the 1990s to the 2010s.

Figure 7: Pesticides use per area of cropland



Source: FAO, 2021b.

Figure 8: Regional pesticides use by region and category, 1990–1999 and 2010–2019



Source: FAO, 2021a.

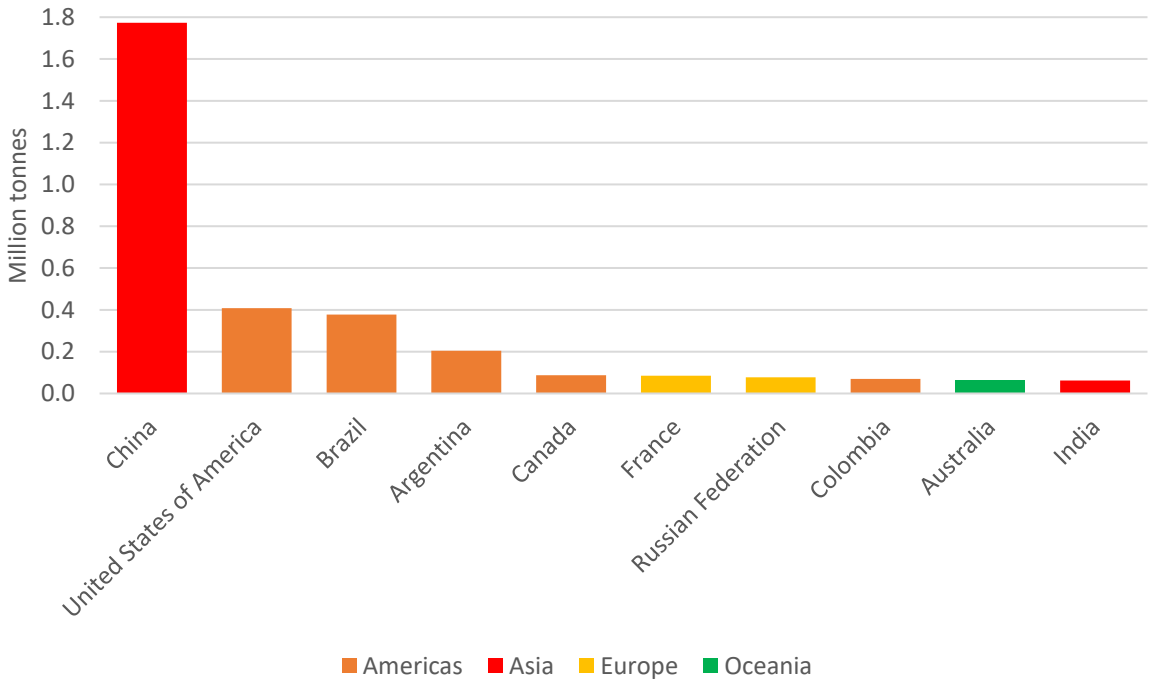
COUNTRY

Figure 9 shows that China is by far the largest user of pesticides in 2019, with 1 774 kt of pesticides applications for agricultural use. Next in the top 10 are the United States of America (408 kt), Brazil (377 kt), Argentina (205 kt), Canada (88 kt), France (85 kt), the Russian Federation (77 kt), Colombia (70 kt), Australia (63 kt) and India (62 kt).

Figure 10 displays the top 10 countries for pesticides use per area of cropland for 2019, which are Trinidad and Tobago (25 kg/ha), Saint Lucia (20 kg/ha), Ecuador (14 kg/ha), China (13 kg/ha), Israel (13 kg/ha), the Seychelles (12 kg/ha), Japan (12 kg/ha), Belize (11 kg/ha), the Republic of Korea (11 kg/ha) and Mauritius (10 kg/ha). Five of these countries are Small Island Developing States; China is also notable for being the largest pesticides user in absolute quantities and among the largest users per hectare of cropland.

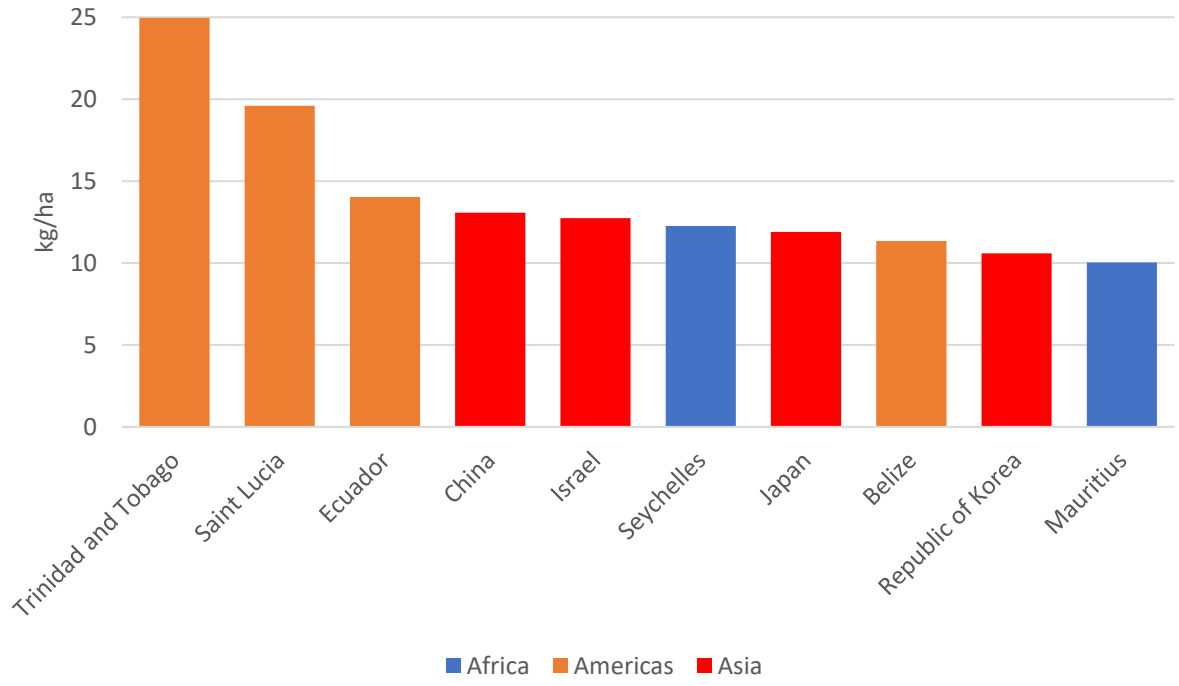
Map 1 shows wide disparities between the pesticides application rates within regions: for example, China, Japan and the Republic of Korea have application rates above 10 kg/ha while the majority of other Asian countries are below 1 kg/ha. Europe has a similar divide between the Nordic and the Eastern European countries, with low pesticides use per hectare and the rest of the continent, where pesticides use per hectare is in general more than the world average of 2.7 kg/ha.

Figure 9: Top 10 countries for pesticides use, 2019



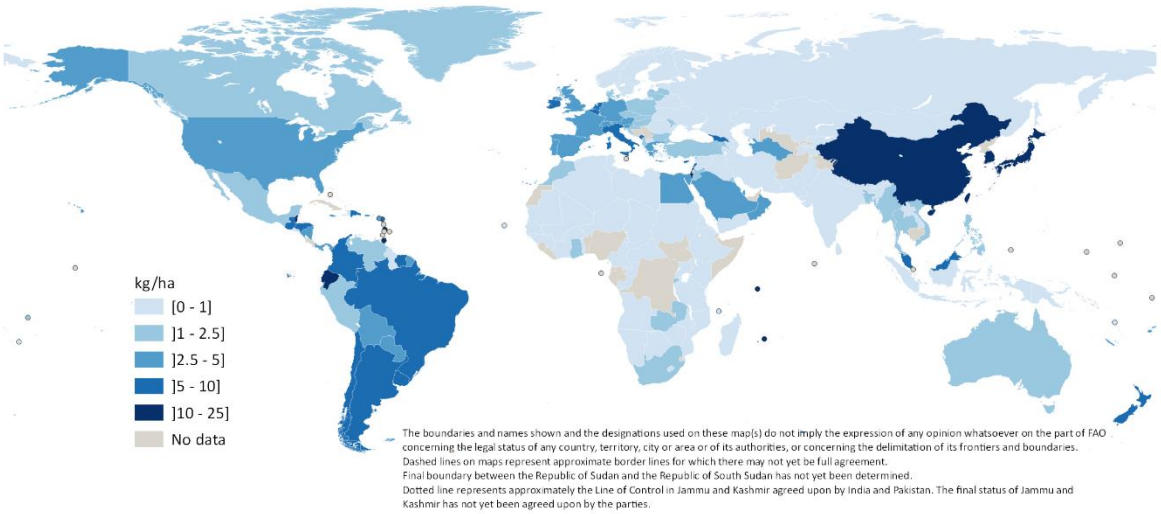
Source: FAO, 2021a.

Figure 10: Top 10 countries for pesticides use per cropland area, 2019



Source: FAO, 2021b.

Map 1: Pesticides use per cropland area, 2019



Source: FAO, 2021a based on UN Geospatial, 2020.

EXPLANATORY NOTES

- The FAOSTAT Pesticides use domain contains information on the use of major pesticide groups:
- 1. Insecticides (Chlorinated hydrocarbons, Organo–phosphates, Carbamates–insecticides, Pyrethroids, Botanical and biological products and Others not elsewhere classified);
- 2. Mineral Oils;
- 3. Herbicides (Phenoxy hormone products, Triazines, Amides, Carbamates–herbicides, Dinitroanilines, Urea derivatives, Sulfonyl urea, Bipiridils, Uracil, Others not elsewhere classified);
- 4. Fungicides and Bactericides (Inorganic, Dithiocarbamates, Benzimidazoles, Triazoles Diazoles, Diazines Morpholines, Others not elsewhere classified);
- 5. Seed Treatment-Fungicides (Dithiocarbamates, Benzimidazoles, Triazoles Diazoles, Diazines Morpholines, Botanical products and biological, Others not elsewhere classified);
- 6. Seed Treatment-Insecticides (Organo-phosphates, Carbamates–insecticides, Pyrethroids, Others not elsewhere classified);
- 7. Plant Growth Regulators;
- 8. Rodenticides (Anti–coagulants, Cyanide Generators, Hypercalcaemics, Narcotics, Others not elsewhere classified);
- 9. Other Pesticides NES (not elsewhere specified);
- 10. Disinfectants.
- Conversion Factors were used to convert data in formulated products to active ingredients in those cases where only data in formulated products were reported. Because the subset of countries where data repair into AI was performed could not be considered representative of their regions, we used global Conversion Factors only, by pesticides type where possible, and a global generic Conversion Factor when not possible (see country notes for actual values used).
- New addition with the 2020 update: Gap-filled Pesticides sub categories for the 10 categories listed above are now disseminated along with the Pesticides (total) category.
- Response Rate and Imputations:

The Pesticides use domain has as a primary source of data questionnaires annually dispatched by FAO to the focal points indicated by the governments of the different countries and territories. Data are supplemented with international sources such as Eurostat pesticides sales data.

The FAOSTAT Pesticides trade domain contains information on the trade of pesticides in either: a) finished forms and/or packaged products; or b) active ingredients.

The FAOSTAT Pesticides trade domain contains information on the trade of pesticides classified under code 38.08 of the International Convention on the Harmonized Commodity Description and Coding System, including: insecticides; fungicides; herbicides; disinfectants; and others, with time series for 1961–2019; hazardous pesticides, with time series for 2007–2019; DDT (clofenotane (INN)) and antimalarial insecticides, with time series for 2017–2019.

Pesticides listed in Annex III of the Rotterdam Convention (excluding industrial chemicals), subject to the Prior Informed Consent (PIC) procedure. Information on the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade is available at: http://www.pic.int. The correspondence with the Harmonized System Nomenclature (HS Nomenclature) is shown in Table 1 below.

Table 1: FAOSTAT Item codes and corresponding HS and PIC codes

FAOSTAT item code	FAOSTAT item name	HS code	Prior Informed Consent (PIC)
Pesticides			
1357	Pesticides (total)	3808	Not applicable
1416	Insecticides	380810 (HS 92 – 02)	Not applicable
1417	Fungicides	380820 (HS 92 – 02)	Not applicable
1418	Herbicides	380830 (HS 92 – 02)	Not applicable
1419	Disinfectants, etc.	380840 (HS 92 – 02)	Not applicable
		380890 (HS 92 – 02)	Not applicable
1443	Insecticides (excl. Haz. pest.)	380891 (HS 07 – 17)	Not applicable
1444	Fungicides (excl. Haz. pest.)	380892 (HS 07 – 17)	Not applicable
1445	Herbicides (excl. Haz. pest.)	380893 (HS 07 – 17)	Not applicable
1446	Disinfectants, etc. (excl Haz. pesticides)	380894 (HS 07 – 17)	Not applicable
		380899 (HS 07 – 17)	Not applicable
1442	Hazardous pesticides	380850 (HS 07 – 12)	See below under Rotterdam Convention
		380859 (HS 17)	
1449	DDT (clofenotane (INN))	380852 (HS 17)	Not applicable
1450	Antimalarial insecticides	380861 (HS 17)	Not applicable
		380862 (HS 17)	Not applicable
		380869 (HS 17)	Not applicable
Pesticide chemicals listed in Rotterdam Convention			
1437	2,4,5-T and its salts and esters	291891	2,4,5-T and its salts and esters
1452	Alachlor	292425	Alachlor
1441	Aldicarb, captafol & methamidophos	293050 (HS 07 – 12)	Aldicarb, captafol, methamidophos (Soluble liquid formulations of the substance that exceed 600 g active ingredient/l)
		293080 (HS 17)	
1426	Aldrin, chlordane, heptachlor	290352 (HS 07)	Aldrin, chlordane, heptachlor
		290382 (HS 12 – 17)	
1453	Azinphos-methyl	293392	Azinphos-methyl
1435	Binapacryl	291636 (HS 07)	Binapacryl
		291616 (HS 12 – 17)	
1440	Chlordimeform	292521	Chlordimeform
1436	Chlorobenzilate	291818	Chlorobenzilate
1422	Mercury compounds etc. excl. amalgams	2852	Mercury compounds including inorganic mercury compounds, alkyl mercury compounds and alkyloxyalkyl and aryl mercury compounds
1448	Compounds of mercury chemically defined, excluding amalgams	285210	
1427	DDT, hexachlorobenzene	290362 (HS 92 – 07)	DDT, hexachlorobenzene
		290392 (HS 12 – 17)	

1433	Dieldrin	291040	Dieldrin
1434	Dinoseb acetate	291536	Dinoseb acetate
1430	Dinoseb and its salts	290891	Dinoseb and its salts
1431	DNOC and its salts	290899 (HS 07 version only)	DNOC and its salts (such as ammonium salt, potassium salt and sodium salt)
		290892 (HS 12 – 17)	
1451	Endosulfan	292030	Endosulfan
1424	Ethylene dibromide (1,2-dibromoethane)	290331	1,2-dibromoethane (EDB)
1423	Ethylene dichloride	290315	Ethylene dichloride
1439	Fluoroacetamide, monocrotophos & phosphamidon	292412	Fluoroacetamide / monocrotophos / phosphamidon (Soluble liquid formulations of the substance that exceed 1000 g active ingredient/l)
1425	HCH (mixed isomers) / lindane	290351 (HS 92 – 07)	HCH (mixed isomers) / Lindane
		290381 (HS 12)	
1432	Oxirane (ethylene oxide)	291010	Ethylene oxide
1438	Parathion & parathion-methyl	292011	Parathion / methyl-parathion (emulsifiable concentrates (EC) with 19.5%, 40%, 50%, 60% active ingredient and dusts containing 1.5%, 2% and 3% active ingredient)
1428	Pentachlorophenol	290811	Pentachlorophenol
1429	Salts of pentachlorophenol	290819	Salts of pentachlorophenol
1447	Tributyltin compounds	293120	Tributyltin compounds

Information on the (HS) Nomenclature is available at:

http://www.wcoomd.org/en/topics/nomenclature/instrument-and-tools/hs_convention.aspx.

Information on calculation of USD values in the UN COMTRADE database is available at:

http://unstats.un.org/unsd/tradekb/Knowledgebase/Calculation-of-dollar-value-in-trade-statistics-Current-value-or-constant-dollar-value.

The primary source of data is the UN COMTRADE database. A disclaimer about the coverage and limitations of UN COMTRADE data is available at: http://comtrade.un.org/db/help/uReadMeFirst.aspx. The data may be supplemented with data sourced from official publications of national statistical authorities, where available. For the period 1990–2019, an imputation methodology is applied to gap-fill the imports and exports of Pesticides Total (FAOSTAT item code 1357). To this end, imputation of traded quantities by country and year is performed by using the corresponding trade values (from UN COMTRADE), divided by average unit values computed at the sub-regional, regional, or global level, as available.

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APPENDIX I

Annex III chemicals subject to the PIC procedure

Chemical name	CAS No.	Category	Date of first dispatch of decision guidance document
2,4,5-T and its salts and esters	93-76-5	Pesticide	Prior to adoption of the Convention
Alachlor	15972-60-8	Pesticide	24 October 2011
Aldicarb	116-06-3	Pesticide	24 October 2011
Aldrin	309-00-2	Pesticide	Prior to adoption of the Convention
Azinphos-methyl	86-50-0	Pesticide	10 August 2013
Binapacryl	485-31-4	Pesticide	1 February 2005
Captafol	2425-06-1	Pesticide	Prior to adoption of the Convention
Carbofuran	1563-66-2	Pesticide	15 September 2017
Chlordane	57-74-9	Pesticide	Prior to adoption of the Convention
Chlordimeform	6164-98-3	Pesticide	Prior to adoption of the Convention
Chlorobenzilate	510-15-6	Pesticide	Prior to adoption of the Convention
DDT	50-29-3	Pesticide	Prior to adoption of the Convention
Dieldrin	60-57-1	Pesticide	Prior to adoption of the Convention
Dinitro-*ortho*-cresol (DNOC) and its salts (such as ammonium salt, potassium salt and sodium salt)	534-52-1 2980-64-5 5787-96-2 2312-76-7	Pesticide	1 February 2005
Dinoseb and its salts and esters	88-85-7	Pesticide	Prior to adoption of the Convention
1,2-Dibromoethane (EDB)	106-93-4	Pesticide	Prior to adoption of the Convention
Endosulfan	115-29-7	Pesticide	24 October 2011
Ethylene dichloride	107-06-2	Pesticide	1 February 2005
Ethylene oxide	75-21-8	Pesticide	1 February 2005
Fluoroacetamide	640-19-7	Pesticide	Prior to adoption of the Convention
HCH (mixed isomers)	608-73-1	Pesticide	Prior to adoption of the Convention
Heptachlor	76-44-8	Pesticide	Prior to adoption of the Convention
Hexachlorobenzene	118-74-1	Pesticide	Prior to adoption of the Convention
Lindane	58-89-9	Pesticide	Prior to adoption of the Convention
Mercury compounds, including inorganic mercury compounds, alkyl mercury compounds and alkyloxyalkyl and aryl mercury compounds		Pesticide	Prior to adoption of the Convention
Methamidophos	10265-92-6	Pesticide	15 September 2015
Monocrotophos	6923-22-4	Pesticide	1 February 2005
Parathion	56-38-2	Pesticide	1 February 2005

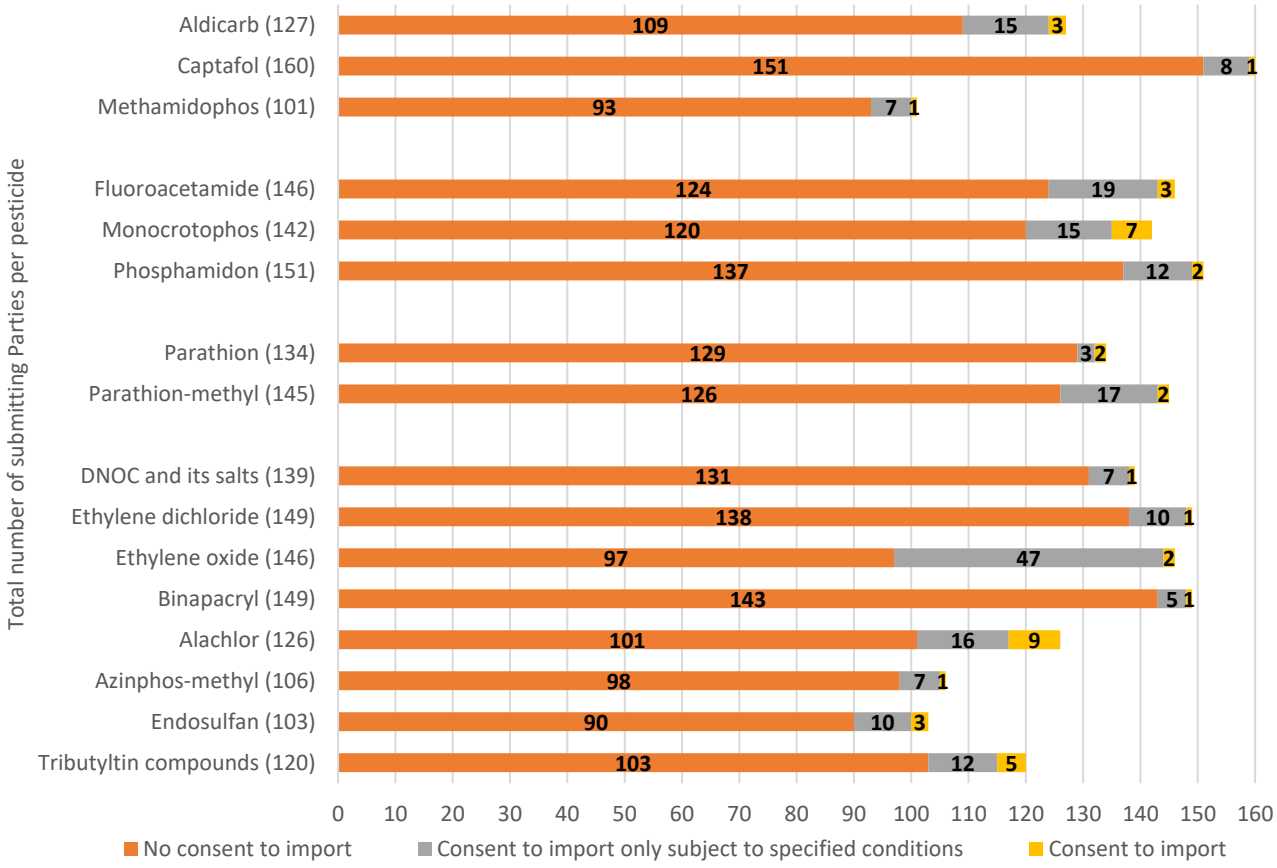
Chemical name	CAS No.	Category	Date of first dispatch of decision guidance document
Pentachlorophenol and its salts and esters	87-86-5	Pesticide	Prior to adoption of the Convention
Phorate	298-02-2	Pesticide	16 September 2019
Toxaphene	8001-35-2	Pesticide	1 February 2005
All tributyltin compounds including: - Tributyltin oxide - Tributyltin fluoride - Tributyltin methacrylate - Tributyltin benzoate - Tributyltin chloride - Tributyltin linoleate - Tributyltin naphthenate	 56-35-9 1983-10-4 2155-70-6 4342-36-3 1461-22-9 24124-25-2 85409-17-2	Pesticide	1 February 2009
Trichlorfon	52-68-6	Pesticide	15 September 2017
Dustable powder formulations containing a combination of: - Benomyl at or above 7%, - Carbofuran at or above 10%, - Thiram at or above 15%	 17804-35-2 1563-66-2 137-26-8	Severely hazardous pesticide formulation	1 February 2005
Phosphamidon (soluble liquid formulations of the substance that exceed 1000 g active ingredient/L)	13171-21-6 (mixture, (*E*)&(*Z*) isomers) 23783-98-4 ((*Z*)-isomer) 297-99-4 ((*E*)-isomer)	Severely hazardous pesticide formulation	Prior to adoption of the Convention
Methyl-parathion (emulsifiable concentrates (EC) at or above 19.5% active ingredient and dusts at or above 1.5% active ingredient)	298-00-0	Severely hazardous pesticide formulation	Prior to adoption of the Convention
Asbestos: - Actinolite - Anthophyllite - Amosite - Crocidolite - Tremolite	 77536-66-4 77536-67-5 12172-73-5 12001-28-4 77536-68-6	Industrial	 1 February 2005 1 February 2005 1 February 2005 Prior to adoption of the Convention 1 February 2005
Commercial octabromodiphenyl ether including: - Hexabromodiphenyl ether - Heptabromodiphenyl ether	 36483-60-0 68928-80-3	Industrial	10 August 2013

Chemical name	CAS No.	Category	Date of first dispatch of decision guidance document
Commercial pentabromodiphenyl ether including: - Tetrabromodiphenyl ether - Pentabromodiphenyl ether	 40088-47-9 32534-81-9	Industrial	10 August 2013
Hexabromocyclododecane	25637-99-4 3194-55-6 134237-50-6 134237-51-7 134237-52-8	Industrial	16 September 2019
Perfluorooctane sulfonic acid, perfluorooctane sulfonates, perfluorooctane sulfonamides and perfluorooctane sulfonyls including: - Perfluorooctane sulfonic acid - Potassium perfluorooctane sulfonate - Lithium perfluorooctane sulfonate - Ammonium perfluorooctane sulfonate - Diethanolammonium perfluorooctane sulfonate - Tetraethylammonium perfluorooctane sulfonate - Didecyldimethylammonium perfluorooctane sulfonate - *N*-Ethylperfluorooctane sulfonamide - *N*-Methylperfluorooctane sulfonamide - *N*-Ethyl-*N*-(2-hydroxyethyl) perfluorooctane sulfonamide - *N*-(2-Hydroxyethyl)-*N*-methylperfluorooctane sulfonamide - Perfluorooctane sulfonyl fluoride	 1763-23-1 2795-39-3 29457-72-5 29081-56-9 70225-14-8 56773-42-3 251099-16-8 4151-50-2 31506-32-8 1691-99-2 24448-09-7 307-35-7	Industrial	10 August 2013
Polybrominated biphenyls (PBB)	36355-01-8 (hexa-) 27858-07-7 (octa-) 13654-09-6 (deca-)	Industrial	Prior to adoption of the Convention

Chemical name	CAS No.	Category	Date of first dispatch of decision guidance document
Polychlorinated biphenyls (PCB)	1336-36-3	Industrial	Prior to adoption of the Convention
Polychlorinated terphenyls (PCT)	61788-33-8	Industrial	Prior to adoption of the Convention
Short-chain chlorinated paraffins	85535-84-8	Industrial	15 September 2017
Tetraethyl lead	78-00-2	Industrial	1 February 2005
Tetramethyl lead	75-74-1	Industrial	1 February 2005
All tributyltin compounds including: - Tributyltin oxide - Tributyltin fluoride - Tributyltin methacrylate - Tributyltin benzoate - Tributyltin chloride - Tributyltin linoleate - Tributyltin naphthenate	 56-35-9 1983-10-4 2155-70-6 4342-36-3 1461-22-9 24124-25-2 85409-17-2	Industrial	15 September 2017
Tris(2,3-dibromopropyl) phosphate	126-72-7	Industrial	Prior to adoption of the Convention

APPENDIX II

Import responses for the subset of 12 selected pesticides



Source: FAO.

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