

COUNTRY NOTES

In all entries below, conversion of data from *Formulated Products* into *Active Ingredients* is described in the Pesticides Use domain metadata

Albania	Data were received in Formulated Products. They were converted in Active Ingredients by FAO.
Algeria	Data refer to the sales for use in the agricultural sector. They were reported by the country in Formulated Products and converted in Active Ingredients by FAO.
Armenia	2018 data refer to imported quantities of pesticide, expressed in Formulated Product and converted to Active Ingredients by FAO.
Antigua and Barbuda	Due to administrative issues 2015 data are partial.
Argentina	Data refer to imports for agricultural use. In the years 2006–2011, data were reported by the country in Formulated Products and converted in Active Ingredients by FAO.
Austria	Data refer to the sales for application to crops and seeds. Starting with the year 2011, the analysis of the data is carried out by groups of active ingredients according to the Annex III (harmonized classification of substances) of the Statistics Reg (EC) No. 1185/2009 (statistics on pesticides). Active ingredients for seed treatments are not evaluated separately. Until the year 2010, safeners, synergists and waxes were included in the analysis. In the year 2016 "INSECTICIDES" excludes 731 tonnes of Carbondioxide. "OTHER FUNGICIDES" data refer to the amount of sulfur and copper products. In the years 2018 and 2019 INSECTICIDES - CARBAMATES are included in Insecticides - Others. Until 2018, MINERAL OILS refers to sum of plant oils and mineral oils.
Bahamas	Data refer to imported quantities. They were reported by the country in Formulated Products and converted in Active Ingredients by FAO. "FUNGICIDES & BACTERICIDES" data include fungicide seed treatments. "OTHER PESTICIDES" data include mineral oils.
Bahrain	In 1997 and as of 2008, "RODENTICIDES" data refer to Acaricides, Molluscicides, Rodenticides as well as Adhesives and Wetting Agents.
Bangladesh	All data in the period 2001–2008 and data on "RODENDTICIDES" in the years 2009–2010 were reported by the country in Formulated Products and converted in Active Ingredients by FAO.
Belarus	Data were reported by the country in Formulated Products and converted in Active Ingredients by FAO.
Belgium	Data refer to sales of pesticides including non-agricultural use. In 2007, the data collection methodology has been slightly modified; thus, data prior and after the year 2007 are not strictly comparable.
Bermuda	Data are sourced from national website, they were expressed in Formulated Products and converted in Active Ingredients by FAO.
Bhutan	Data refer to imports. They were reported by the country in Formulated Products: data on main pesticides type were converted in Active Ingredients by FAO; whereas data on chemical groups are disseminated as reported by the country.
Bolivia	Data refer to imports. They were reported by the country in Formulated Products and converted in Active Ingredients by FAO.
Brazil	Data refer to sales for use in the agricultural sector.
Bulgaria	Starting in 2016, data collection methodology has changed.
Burkina Faso	Data in 1998 and for the period 2005–2009 were reported by the country in Formulated Products and converted in Active Ingredients by FAO.
Brunei Darussalam	Data are based on the distribution or sales of chemicals at subsidized price to registered farmers. Data for 2013 are incomplete as not covering all the country usage data districts.

Cameroon	In the periods 1990–1992 and 2002–2010 data refer to imports for both agricultural and non-agricultural use. The quantities were reported in Formulated Products by the country and converted in Active Ingredients by FAO.
Canada	Data for 2016–2018 sourced directly from the country. <i>Data refer to sales as proxy for use. For previous years sources referring to the agricultural sector areas as follows: (a) 1990 and 1994: FAO Annual questionnaires completed and returned by the Commercial Chemical Evaluation Branch, Environment Canada; (b) 2006: “OECD Environmental Data, Compendium 2008” report, containing OECD Secretariat estimates based on sales data in dollar values from “CropLife Canada” http://www.oecd.org/dataoecd/56/23/41255459.xls; (c) from 2008 to 2015: Pest Control Products Sales reports (https://www.canada.ca/en/health-canada/services/consumer-product-safety/reports-publications/pesticides-pest-management/corporate-plans-reports.html). As a result, data for different years may not be strictly comparable.</i> Data correspond to sales data of all products in Canada.
Chile	Data refer to sales.
China	For the 2022 update, China data were revised downward significantly - the currently disseminated 2019 pesticides total value in active ingredients –as well as break down in major categories—were provided by the Country. Previous years were imputed using the 2019 ratio of formulated products to active ingredients, using time series of formulated products available from the Chinese National Bureau of Statistics. As a result, revised figures for China are on average one order of magnitude lower than previously disseminated.
China, Macao SAR	Pesticides Use was computed as a balance of Imports to Exports, both reported by the country in Formulated Products and converted in Active Ingredients by FAO.
China, mainland	Pesticides use data are only available at aggregated level. The data reported under "OTHER PESTICIDES, NES" refer to Total Pesticides use (<i>Ministry of Agriculture of People's Republic of China</i>).
Colombia	As of 2001, data refer to Production + Imports-Export. In the period 1990 to 1995, data referring to "MINERAL OILS" were reported by the country including adjuvants and converted in Active Ingredients by FAO. The increase in quantity of “FUNGICIDES & BACTERICIDES" in 2014 is considered to be the combined result of higher production values reported for some fungicides and of a sample size increment in the data collection process. The differences in the totals reported for the year 2019 compared to the years 2017 and 2018 of the pesticide groups (insecticides, herbicides and fungicides) are due to a change in the methodology of collection and processing of information.
Congo Republic	Data for 2009–2010 are partial as only referring to the capital town, Brazzaville.
Costa Rica	Until 2016 data refer to imports; data on "OTHER PESTICIDES, NES" include fumigants. In the years 1993, 1995–1997 data were reported by the country in Formulated Products: main pesticides type were converted in Active Ingredients by FAO; whereas data on chemical groups are disseminated as reported by the country. In the years 2017–2019, data have been reported in FAO questionnaire 2020, they refer to difference in imports quantity minus exports quantity expressed in Active Ingredients; 2019 data are preliminary.
Cyprus	Data for the periods 1990–1997 and 2000–2001 refer to imports; 2002–2010 data refer to industry statistics by the European Crop Protection Association (ECPA); starting in 2011 data refer to the sales of substances listed in the Annex III of the Regulation No

	1185/2009 of the European Parliament and the Council with a time series break in 2016 due to a change in the surveyed items.
Czechia	As of 2011, "OTHER PESTICIDES, NES" data refer to biological products based on micro-organism.
Denmark	Data refer to the sales for application to crops and seeds in agriculture. The trend of pesticides sales in recent years is probably reflecting the Pesticides Strategy and revised taxation policy 1/ 7-2013; additional information is available at: https://eng.mst.dk/ http://eng.mst.dk/media/mst/69655/MST_spr%C3%B8jtemiddelstrategi_uk_web_let.pdf
Dominican Republic	Data were reported by the country in Formulated Products and converted in Active Ingredients by FAO.
Ecuador	Mixed reporting of data that may refer to imports or sales.
El Salvador	Data on "OTHER PESTICIDES, NES" refer to fumigants.
Egypt	Data refer to imports.
Estonia	Data from 1992 to 1996 refer to use of pesticides in the enterprises only. As of 1997 data refer to use of pesticides in both enterprises and private farms. As of 2002, "UREA DERIVATES" data also include Sulfonyl Ureas and data on seed treatments are no longer reported separately, but included in each of the group "INSECTICIDES" and "FUNGICIDES & BACTERICIDES" depending on the active ingredient.
Fiji	Data refer to imports. They were reported in Formulated Products by the country and converted in Active Ingredients by FAO. "HERBICIDES" include anti sprouting products and plant growth regulators.
Finland	Data refer to the sales for application to crops and seeds in agriculture. Data on seed treatments Insecticides and Fungicides are included in the groups "INSECTICIDES" and "FUNGICIDES & BACTERICIDES", respectively. In questionnaire 2020, the country has informed that current data collection system does not include grouping of individual substances to the chemical groups of the FAO classification.
France	Data refer to the sales for application to crops and seeds in agriculture. Mineral oils and nematicides are included in "OTHER PESTICIDES NES" in the years up to 2007 and shown separately and in the "INSECTICIDES" afterwards. Starting from the year 2011, data include French Guiana, Guadeloupe, Martinique and Réunion.
French Polynesia	Data refer to imports as registered at the port of entry. The registration is under the control of the officers of the Plant Protection Department. Data from the country Health directorate (CHSP) are not included.
Georgia	Data on pesticides use are derived as a balance of import minus export trade data. Occupied territories of Georgia (Abkhazian Autonomous Republic and Tskhinvali region) are not covered.
Germany	Data from 2015 on seeds treatment are no longer provided separately and are included into insecticides. Data refer to sales for use in agriculture, forestry and home gardening. Up to 2015, "OTHER PESTICIDES, NES" data refer to "Inert Gases for storage protections" which was a specific category for Germany not included in the insecticides sum; as of 2016 inert gases for storage protection have been reclassified and included in the Insecticides As of 2011, some active substances have been reclassified from category "Triazoles diazoles-Seed treatment" into "Triazoles diazoles-Fungicides and Bactericides"; these items and their main pesticide types are therefore not 100% comparable to previous years. Carbon dioxide, used for storage protection (approx. 20.000 tonnes per year), is considered a plant protection product (insecticide). Sales

	<p>amounts for seed treatment do not include use on seed potatoes and onions of ornamentals.</p> <p>As of 2014, the calculation of seed treatments has been refined: sales quantity of active ingredients have been assigned to the seed treatment / non-seed treatment categories based on their content in individual products, depending on whether the products are used predominantly for seed treatment or for other purposes. Up to 2013, the complete sales amount of each active ingredient had been assigned to the seed treatment category if the majority of authorized uses of all products containing the active substance was for seed treatment. Therefore, the values up to 2013 cannot be directly compared to the values of 2014 which were calculated with the refined method. Rodenticides are increasingly being marketed as biocides only.</p> <p>In 2016 there is a break in the time series as some substances have been reclassified to be in line as far as possible with EUROSTAT's classification (Annex III of Regulation (EC) No. 1185/2009, which had a first major revision effective in 2016.</p>
Ghana	As of 2002 data were reported in Formulated products by the country. Data on main pesticides type were converted in Active Ingredients by FAO; whereas data on chemical groups are disseminated as reported by the country.
Greece	Data refer to sales for application to crops and seeds in agriculture.
Guatemala	Data refer to imports and include technical material Active Ingredients.
Guinea	2009 data refer to the market area of the town of Conakry. The information was collected from importers and distributors of plant protection products and it relates to the quantity of products available in stock and/or for sales.
Honduras	Data refer to imports for agricultural use. In the period 1990–1992 and in 1994, data were reported by the country in Formulated Products and converted in Active Ingredients by FAO. "OTHER PESTICIDES NES" data include fumigants and soil disinfectants.
Hungary	Up to 2010, the content of the active substances was estimated as 50% of total Formulated Products. In 2011, the active substances were calculated by applying the % of concentration at product level.
Iceland	Until 2008 data refer to the sales while as of 2009 data refer to the imports.
Iran	As of 2000, data were reported in Formulated Products by the country and converted in Active Ingredients by FAO. "OTHER PESTICIDES" data include Granules & Emulsion Oil.
Ireland	Data refer to quantities sold into the country for agricultural use. Data referring to the herbicides products "AMIDES" and "DINITROANILINES" are included in "OTHER HERBICIDES" in the years 1996 and 1997. As of 2015, data on seed treatments are no longer reported separately, but included in each of the group "INSECTICIDES" and "FUNGICIDES & BACTERICIDES" depending on the active ingredient. "OTHER PESTICIDES NES" refer to Molluscicides and Other pesticides.
Israel	In 1998 "INSECTICIDES" data include rodenticides.
Italy	In the period 1990-1995, the content of the active ingredients is estimated by applying to each pesticide type the relevant percentage of Active Ingredients concentration; this is derived as the average concentration in the years 1997, 1998 and 1999 as per the <i>Italian Statistical Institute (Istat) yearbooks 1999 and 2000</i> .
Jamaica	Data refer to total Imports. They were reported by the country in Formulated Products and converted in Active Ingredients by FAO.
Japan	Data refer to sales for use in the agricultural sector including agricultural chemicals for turf and forest. Data on seed treatments are not reported separately, but included in each of the group "INSECTICIDES" and "FUNGICIDES & BACTERICIDES". Data on biologicals are not included, because most of the Active Ingredients are expressed in units other than metric tons (e.g. the number of natural enemy in the products and Colony

	Forming Unit (CFU) for microbial pesticides). "OTHER INSECTICIDES" data include the Mineral oils.
Jordan	In the period 2001–2007 data were reported by the country in Formulated Products and converted in Active Ingredients by FAO. Data on seed treatments are not reported separately, but included in each of the groups "INSECTICIDES" and "FUNGICIDES & BACTERICIDES". Data on "OTHER PESTICIDES NES" include sterilizers of soil and multi-purpose pesticides.
Kenya	In the years 2000 and 2001 "INSECTICIDES" data do not include "Botanical products and Biologicals" because the percentage of Active Ingredients is not available for these products.
Korea, Republic of	Data refer to delivery of Agricultural Chemical from the manufacturers. As of 2001, data on seed treatments are not reported separately, but included in each of the group "INSECTICIDES" and "FUNGICIDES & BACTERICIDES".
Kyrgyzstan	Data on seed treatments are not reported separately, but included in each of the group "INSECTICIDES" and "FUNGICIDES & BACTERICIDES".
Laos	Data refer to Imports through the Department of Agriculture and the Provincial Offices of Agriculture and Forestry.
Latvia	Data on seed treatments are not reported separately, but included in each of the group "INSECTICIDES" and "FUNGICIDES & BACTERICIDES". In 2016 there is a break in the time series due to change in data collection methodology.
Lithuania	Data refer to sales for application to crops and seeds in agriculture. Starting with 2012, data on seed treatments are not reported separately, but included in each of the group "INSECTICIDES" and "FUNGICIDES & BACTERICIDES".
Macedonia	Data cover Agricultural enterprises and cooperatives but exclude individual agricultural holdings.
Madagascar	Data refer to imports.
Malawi	Data for the period 1997–2000 might have been reported by the country in Formulated Products without specific indication. They were converted in Active Ingredients by FAO. Data on "OTHER PESTICIDES NES" refer to biopesticides and fumigants.
Malaysia	Data refer to imports and include technical material Active Ingredients.
Mali	Data refer to Imports. They were reported by the country in Formulated Products and converted in Active Ingredients by FAO.
Mauritania	Data refer: in 2001–2003 to quantity of pesticides bought by the state, they exclude pesticides in use for locust control and pesticides used by private; in 2004-2010 to quantity of pesticides bought by the state and pesticides in use for locust control; in 2011 to pesticides in use for locust control.
Mauritius	As of 1994, data refer to Imports. They were reported in Formulated Products by the country and converted in Active Ingredients by FAO.
Mexico	Data refer to Imports + Production. They were reported in Formulated Products by the country and converted in Active Ingredients by FAO.
Moldova Republic	Data refer to the whole country excluding districts of the left bank of Nistru River and the municipality of Bender. Data refer to conventional pesticides usage.
Mozambique	In the years 2017 and 2018 the quantities were reported in Formulated Products by the country and converted in Active Ingredients by FAO.
Nepal	"OTHER PESTICIDES NES" data include bio-pesticides; in 2004 and 2005 Molluscicides are also included.
Netherlands	As of 2011 data refer to sales of plant protection products according to Annex III of Regulation EC 1185/2009. "OTHER PESTICIDES NES" include Mineral oils, Soil Sterilants and Rodenticides.

New Caledonia	Data refer to imports for agricultural use expressed in Active Ingredients.
New Zealand	As of 2002, data is sourced from the OECD database: data refer to pesticide sales covering agriculture and non-agricultural uses (eg. forestry, gardens) (http://stats.oecd.org/ – <i>Agriculture and Fisheries – Environmental Indicators for Agriculture – Environmental Performance of Agriculture 2013 – Pesticides</i>). Data for 2008 is sourced from Agcarm (http://agcarm.co.nz/) and refer to the sales (from July to June) for use in agriculture, which represent over 80-85% of total annual sales.
Nicaragua	Data refer to the imports.
Norway	Data refer to sales for application to crops and seeds in agriculture also including plant protection products used outside traditional agriculture, e.g.: private gardens etc.
Palestine	Data are reported and expressed in Formulated Products.
Oman	Data refer to imports of Formulated Products.
Panama	Data refer to the imports. Until 2007, they were reported by the country in Formulated Products and converted in Active Ingredients by FAO. In the period 2001–2007 "HERBICIDES" data include Plant growth regulators.
Paraguay	Data are partial and refer to imports. They are reported by the country in Formulated Products and converted in Active Ingredients by FAO.
Peru	Data refer to the imports. Data on "SEED TREATMENT FUNGICIDES" refer to disinfectants.
Philippines	According to Fertilizers and Pesticides Authority (FPA), data refer to imports. They were reported in Formulated Products by the country and converted in Active Ingredients by FAO.
Poland	Data refer to the sales for application to crops and seeds in agriculture.
Portugal	Data 2018 - 2020 correspond to pesticides sales data. It includes other uses than agricultural use. Data refer to the sales for application to crops and seeds in agriculture. The increase in sales between 1994 and 1995 is mainly due to an increase in the number of companies included in the survey. "OTHER PESTICIDES, NES": 2002-2006 data include Plant growth regulators, Rodenticides and Nematicides. As of 2007, data refer to soil sterilants only.
Russian Federation	Starting with 2015, country provided quantity of imports, exports and production expressed in Formulated Products. The reported data were used for calculation of the balance, "Production+Imports-Exports" and were converted in Active Ingredients by FAO.
Rwanda	Data are based on the inventory with local importers and sellers. Rodenticides are not registered; however, quantities used are minimal (as other methods are used to kill rats); local seeds are hardly treated whereas imported seeds are treated in the country of origin.
Samoa	Data refer to imported pesticides.
Senegal	Data on "OTHER INSECTICIDES" include seed treatments.
Serbia and Montenegro	Data were reported by the country in Formulated Products and converted in Active Ingredients by FAO. As of 1999, data for Kosovo and Metohija are not included.
Slovakia	Pesticides data covered 70% of agriculture land area in the country. Data on "MINERAL OILS" include only herbicide mineral oils; whereas insecticide mineral oils are covered under "OTHER INSECTICIDES".
Slovenia	Data refer to wholesale of pesticides in the domestic market for agriculture and other purposes (roads, railway, golf courses, parks and etc.). Data do not refer to the actual use in the reference year; the use depends also on the stocks from previous years, individual purchase abroad, etc. Data on "OTHER PESTICIDES, NES" include Molluscicides, plant growth regulators, mineral and vegetal oils and soil sterilants. As of 2011, data on plant growth regulators are shown separately.

Spain	In the period 1990-2010, data refer to pesticides use in agriculture. As of 2011, data refer to the sales for use in agriculture. For the year 2019 data refer to Pesticides use over cultivated area.
Sri Lanka	Data refer to imports for agricultural use.
Suriname	Data refer to the imports. In the period 2002–2010, data were reported by the country in Formulated Products and converted in Active Ingredients by FAO.
Switzerland	Data refer to sales including for private use. In questionnaire 2020, country revised data for the years 2008 to 2019 to harmonize to EUROSTAT calculation method and classification.
Sweden	Data refer to pesticides sales data.
Syria	Data were reported by the country in Formulated Products and converted in Active Ingredients by FAO.
Tanzania	Data reported are not the actual consumption, as some quantities were imported into the country without importation permits and therefore not recorded.
Thailand	As of 2010 data were received in Formulated Products. They were converted in Active Ingredients by FAO.
Trinidad and Tobago	Data in the years 1990–1993 were reported in Formulated Products by the country and converted in Active Ingredients by FAO.
Tonga	Data refer to Imports.
Tunisia	In 2009, data refer to the imports. They were reported in Formulated Products by the country and converted in Active Ingredients by FAO.
United Kingdom	Data refer to the sales for application to crops and seeds in the agricultural sector. Until 2009, "OTHER HERBICIDES" data include sulphuric acid used as desiccant on potatoes. As of 2010, sulphuric acid is no longer in use.
Ukraine	Information provided by Ukraine excludes statistical data concerning the Autonomous Republic of Crimea, the city of Sevastopol and certain areas of the Donetsk and Luhansk regions. Statistical data in relation to Ukraine is presented without prejudice to relevant UN General Assembly and UN <ol style="list-style-type: none"> 1. Pesticides used in the agriculture sector for crops, seeds. 2. Data only covers agricultural enterprises and excludes households. Data refer to pesticides usage. They are expressed in Active Ingredients.
Uruguay	Data on "OTHER PESTICIDES NES" refer to bird repellent.
United States of America	"INSECTICIDES" data refer to Insecticides, Nematicides and Fumigants. "MINERAL OILS" data include sulfur, petroleum distillate and petroleum oil; "HERBICIDES" data include Herbicides and Plant growth regulators. "RODENTICIDES" data include Rodenticides, Molluscicides, aquatic and fish/bird pesticides, and other miscellaneous conventional pesticides. "OTHER PESTICIDES NES" includes other chemicals used as pesticides (e.g. sulfuric acid and insect repellents). Data refer to conventional pesticides usage. Conventional pesticides are all active ingredients other than biologicals and antimicrobials.
	Global Conversion Factors (%), by pesticide type. These coefficients are used to convert data received in formulated product into active ingredients (see also Metadata). Values are based on the mean conversation factors computed for a limited group of countries that reported data in both active ingredients and formulated products in any year within the period 1990-2018. It is thus not a physical conversion factor table (i.e., it is not based on chemical and market analysis of pesticides products), and should not be used as such.
Item	Global Conversion Factors
Insecticides	31%
Mineral Oils	75%

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Herbicides	34%
Fungicides & Bactericides	60%
Plant Growth Regulators	29%
Rodenticides	45%
Seed Treatment Fungicides	2%
Seed Treatment Insecticides	9%
Generic Pesticide	36%