



Department  
for Environment  
Food & Rural Affairs



Animal &  
Plant Health  
Agency



Forestry Commission

# Quality and Methodology report: ‘Plant Health – international trade and controlled consignments’

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## Introduction

This document is the quality report for the statistical release titled “Plant Health – international trade and controlled consignments”. The release comprises:

1. Analysis of data on international trade in plants and plant related commodities.
2. Analysis of data on controlled consignments that have been notified to plant health authorities.

The quality and methodology report for ‘Plant Health; international trade and controlled consignments’ statistics provides information to help users:

- Understand the sources of the data, and the associated strengths and limitations.
- Understand the definitions used in the analysis.
- Decide suitable uses for the data.
- Reduce the risk of misusing data.

This report aims to meet practice Q3.1 in the [Code of Practice for Statistics](#) “Statistics should be produced to a level of quality that meets users’ needs. The strengths and limitations of the statistics and data should be considered in relation to different uses, and clearly explained alongside the statistics.”

## Background

Plants are environmentally, economically, and socially important, providing a vital contribution to our food and timber supply and to the rural economy. Plants also perform an essential ecosystem service in shaping the landscape and supporting biodiversity and have been linked to improved health and wellbeing<sup>1</sup>.

The globalisation of trade has facilitated an increase in the volume and diversity of plants and plant commodities which enter the UK and this, along with other factors<sup>2</sup>, has increased the risk of pest and disease.

Plant health legislation<sup>3</sup> controls the import and movement of certain plants, trees, seeds, and organic matter - such as soil - and certain plant products, including fruit, potatoes, vegetables, cut flowers, timber, foliage, and grain. The controls are required to prevent the introduction and spread of harmful plant pests and diseases. Inspections are carried out on high-risk products to ensure that they are free of pest and disease when arriving in the UK.

The production of the statistical release comprised three key steps:

1. A list of relevant CN8 codes for plants and plant related commodities was developed and the data extracted from the [HMRC](#) trade data site.

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<sup>1</sup> [NHS Forest](#)

<sup>2</sup> [Plant Biosecurity Strategy for Great Britain](#)

<sup>3</sup> [Plant health legislation](#)

2. Data covering controlled consignments of plants and plant commodities were supplied by the Plant Health and Seeds Inspectorate. Data were quality assured prior to analysis.
3. Data covering controlled consignments of wood and timber were supplied by the Forestry Commission. Data were quality assured prior to analysis.

The statistical release takes the form of a commentary, tables, charts, and infographics.

## Use and users

This statistical release is a contribution to the narrative around plant health and is designed to provide stakeholders, internal and external to government, with information on the patterns of trade over time for a specific set of commodities. The aim is to facilitate discussion and aid decision making around matters of biosecurity.

The release is not intended for the purpose of drawing inferences as to the effectiveness of plant health and forestry inspectorates.

It is expected that these statistics will be of interest to Government and Government agencies (APHA, FC), trade bodies, organisations and individuals involved in the trade of plants and plant products and those with an interest in biosecurity.

We welcome feedback on the data from all users including how and why the data are used. This helps us to understand the value of the statistics to external users and identifies any unmet needs. Enquiries and feedback contact details: Sam Grant, Plant and Bee Health, Variety and Seeds, Department for Environment, Food and Rural Affairs, Horizon House, Deanery Rd, Bristol BS1 5TL. Email: [sam.grant@defra.gov.uk](mailto:sam.grant@defra.gov.uk)

## Defra statistics

Our statistical practice is regulated by the Office for Statistics Regulation (OSR). OSR sets the standards of trustworthiness, quality and value in the Code of Practice for Statistics that all producers of official statistics should adhere to. You can read about how Official Statistics in Defra comply with these standards on the [Defra Statistics](#) website.

You are welcome to contact us directly with any comments about how we meet these standards using the contact details above. Alternatively, you can contact OSR by emailing [regulation@statistics.gov.uk](mailto:regulation@statistics.gov.uk) or via the OSR website.

## Accessibility

The release is published on GOV.UK as [Plant Health: International trade and controlled consignments](#). The statistical report is published in PDF and HTML format and is accompanied by two datasets (ODS) and this quality and methodology report (PDF).

## Data sources, methodology and quality assurance

### A. International trade in goods

International trade in goods data is provided by Her Majesty's Revenue and Customs (HMRC) and cover commodities physically leaving and entering the UK. Non-EU trade data are taken from customs declarations collected by the CHIEF (Customs Handling of Import and Export Freight) system. Historically, EU trade data was collected via a survey known as Intrastat which was linked to the VAT system and was required to cover around 93 per cent of imports and 97 per cent of exports. As outlined below, the most recent EU import data is taken from customs declarations.

Commodity information is organised according to the [Combined Nomenclature](#) (CN). CN8 codes are used as they provide a greater level of detail than the Harmonised System (HS) used in other statistics. Changes to CN8 codes are made at the international level and reflect the evolution of, for example, commercial policy, technological or statistical requirements. The codes used to form the basis of the statistical release are checked and updated annually to reflect these changes at the international level but also to reflect domestic policy, for example, ten additional codes were included in the data since 2020 to reflect changes in plant health legislation, these codes are: 07142010, 07142090, 07143000, 07144000, 07145000, 07149020, 07149090, 09021000, 09022000 and 14049000. Commodity code 25309000 was removed. Other changes have seen codes split into more finely grained groups.

The CN8 codes used for the release are published in the accompanying data file.

#### Important information about changes in trade data

For goods moving from 1 January 2021, between Great Britain (England, Scotland and Wales) to and the EU, export statistics have been compiled directly from customs export declarations made according to the requirements of the Taxation (Cross Border Trade) Act. Intrastat survey returns, however, continued to be collected for goods exported from Northern Ireland to the EU, under the terms of the Northern Ireland Protocol. Both the GB to EU customs export declaration data and Northern Ireland (NI) Intrastat export (dispatch) data were incorporated into the overall UK to EU export dataset. As a result of the changes and differences outlined above, there was a break in the timeseries for published UK to EU export statistics from January 2021.

UK imports from EU statistics were not impacted by any change in 2021 as the Intrastat survey continued to operate for all UK (GB and NI) imports (arrivals) from the EU, to mitigate the effects of staging customs controls, and to comply with the Northern Ireland Protocol. However, since 1 January 2022 imports into Great Britain (GB) (England, Scotland and Wales) from the EU have been compiled from customs declarations. This information is used in combination with Intrastat data on imports into Northern Ireland from the EU, to create the overall UK's imports dataset.

Throughout 2021, the introduction of temporary Staged Customs Controls (SCC) allowed GB importers of non-controlled EU goods the opportunity to defer submission of the full customs declaration for up to 175 days after the movement of goods. This had a reducing effect on the number of received customs declarations for EU imports in 2021, most notably in the first few months of the year. It is not possible to distinguish which customs declarations are associated with SCC and therefore remove or adjust the trade statistics.

The Office for National Statistics published a paper looking at the impact of changes to HM Revenue and Customs data collection: [Impact of trade in goods data collection changes on UK trade statistics: summary of adjustments and the structural break from 2021](#)  
Additional information on the impact of EU exit and Covid on trade statistics: [Impact of the coronavirus and EU exit on the collection and compilation of UK trade statistics](#)

### **Use of HMRC data in the statistical release**

The analysis presented in the statistical release is based around a subset of commodities which can be defined as:

- Raw plant products, including plants for planting and cut flowers, and unprocessed commodities such as fresh fruit, fresh vegetables, and cereal seed.
- Simply processed commodities which are those commodities that have undergone some processing but are not processed enough to ensure that they no longer remain capable of being infested with quarantine pests or are not subject to a level of processing that can be considered to have changed the fundamental nature of the commodity. This includes commodities which have been subject to chopping, peeling, and drying. Further information on types of simple processing is provided by [International Standards for Phytosanitary Measures - ISPM No. 32: Categorisation of commodities according to their pest risk](#).

### Data aggregations

Commodities are grouped into 'sectors.

- Plants and planting materials: live or dormant plants, seeds, bulbs or tubers of plants and trees and cut flowers.
- Food and crops: commodities traded for the primary purpose of human consumption and plant crops, for example wheat and wheat seed, vegetables and fruit, forage crops.
- Forestry: timber and wood, wooden commodities such as prefabricated buildings, cases and crates but excluding live trees.

### Accuracy and quality assurance

Data are subject to quality assurance by the producer (HMRC) and published as simple aggregations in this release. CN8 codes are mapped from year to year to ensure that the

codes used are both available and relevant. Quality assurance of the calculations underlying the tables and charts is undertaken prior to release.

### Data limitations

- Data are collected for customs purposes rather than for plant health and as such some CN8 categories include (1) both processed and unprocessed commodities, (2) frozen and fresh produce and (3) mixed commodities. For this reason, it is not appropriate nor possible to provide an analysis solely consisting of trade in 'controlled' plants and plant products.
- Variability in trade between years can be substantial and result from factors such as changes in trade policy as well as changes in market conditions, climate events, pest and disease, country instability etc. As such it is often not appropriate to make conclusions about changes in plant products being a result of specific factors.
- Imports refers to the country from which the goods were originally dispatched to the UK without any commercial transaction in any intermediate country (either with or without breaking bulk in the course of transport). This is not necessarily the country of origin, manufacture, or the last country from which the goods were shipped to the UK.
- Exports refers to the country of destination as declared at the time of export. However, where goods can be traded while in transit (e.g., grain), this may not necessarily be the final destination of the goods.
- Some commodities are exported out of the UK before being re-imported. An example of such a commodity may be a sapling which is exported to the EU to be grown on before being re-imported for sale. These commodities would be recorded twice in the HMRC data. It is thought that this mainly happens between the UK and the EU rather than the UK and countries outside of the EU.

## **B. Controlled consignment data – general information**

The Plant Health and Seed Inspectorate (PHSI) implements and enforces plant health policy in England and Wales on behalf of the Welsh Government. The Forestry Commission (FC) implements and enforces plant health policy in England, Wales, and Scotland. The controls of such materials differ according to the species - and whether or not they are classified as quarantine organisms - but include phytosanitary certificates, plant passports and/or inspection.

Under EU legislation plants, fruit, vegetables, and plant material from outside the EU fall into 3 categories: 'unrestricted', 'controlled', and 'prohibited' material. Plant passports

facilitate the movement of controlled commodities within the EU area whilst inspections of relevant businesses are carried out 'in field', generally between 2 and 4 times per year<sup>4</sup>.

In December 2019 the EU introduced new legislation pertaining to plants and plant products. Implementing Regulation (EU) 2019/2072 and its Annexes replaced the Annexes of Directive 2000/29/EC. Implementing Regulation (EU) 2019/2072 covers more plants and plant commodities than the previous legislation.

Now that the UK has left the EU new legislation is in place<sup>5</sup> and, following the end of the transition period (31 December 2020), there are new processes for importing plants and plant products, including wood and wood products, from the EU. These are detailed in the [Guidance on importing and exporting plants and plant products from 1 January 2021](#).

Under the new legislation plants, fruit, vegetables, cut flowers, soil and other regulated objects (for example, machinery) fall into 5 categories of phytosanitary control:

1. 'Prohibited' - Can only bring into Great Britain if a scientific research license or derogation is obtained.
2. 'Prohibited (pending risk assessment)' – material you can only bring into Great Britain if risk assessed by Defra. (Exclusions apply).
3. 'Regulated and notifiable' – material you can only bring into Great Britain if accompanied by a phytosanitary certificate and advanced notification of landing.
4. 'Regulated' – material you can only bring into Great Britain if accompanied by a phytosanitary certificate. After applicants complete a customs entry, a small number of these consignments may need advanced notification on CHIEF (Customs Handling of Import and Export Freight).
5. 'Unregulated' – material you can bring into Great Britain without a phytosanitary certificate or advanced notification.

A small number of commodities have been deregulated and no longer require a phytosanitary certificate.

Great Britain (England, Scotland, and Wales) has adopted a phased approach to plant health controls for plants and plant products imported from the European Union (EU). This phased approach started in January 2021 and is proposed to be completed by 1 July 2025<sup>6</sup>. The plant health controls that have been phased in are:

- 1 January 2021 - high-priority plants and plant products (ware and seed potatoes) require pre-notification and a phytosanitary certificate (PC) when being imported from the EU, Liechtenstein, and Switzerland. This includes all plants for planting, ware potatoes, some seed for sowing and other plant or forest reproductive material, some wood and wood products and used agricultural or forestry machinery.
- 1 January 2022 - notification of import required for some other regulated and notifiable plants and plant products imported from the EU (except the Republic of Ireland) including root and tubercle vegetables, some leafy vegetables, some fresh

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<sup>4</sup> [EU Plant health rules](#)

<sup>5</sup> [The Plant Health \(Phytosanitary Conditions\) \(Amendment\) \(EU Exit\) Regulations 2020](#)

<sup>6</sup> [Import Requirements Review Q&A, Defra](#)

produce (fruit and vegetables), some seeds (in addition to those on the high-priority list) and some cut flowers<sup>7</sup>.

### Data limitations

- The commodities included in the controlled consignment datasets are a subset of those included in the international trade analysis. The CN8 level of data does not necessarily disaggregate to the level to provide an analysis of only controlled products. One example of this is hypericum and solidago which are controlled and captured alongside non-controlled commodities such as tulips in the Combined Nomenclature (CN8) code 06031970 - 'other cut flowers'.
- Data are reliant on businesses using the correct commodity codes and notifying the inspectorate of trade in controlled products, as required under statutory notifications. The level of trade that goes unreported to inspectorates is unknown.
- The definition of consignment used in the controlled consignments data differs from the ISPM definition of a consignment (a quantity of plants, plant products or other articles being moved from one country to another and covered, when required, by a single phytosanitary certificate [a consignment may be composed of one or more commodities or lots]). For data collected by PHSI a consignment is a commodity type declared on a phytosanitary certificate. Some phytosanitary certificates will cover more than one commodity type and so the number of consignments declared will be more than the number of phytosanitary certificates.
- Data on interceptions of material that does not meet EU phytosanitary requirements and information on consignments, interceptions and inspections are detailed in the 'Related releases' section further down.

## **C. Controlled consignment data – Plant Health and Seed Inspectorate (PHSI)**

The Plant Health and Seed Inspectorate (PHSI) inspection data covers notifications of controlled plant commodities imported into England and Wales. Importers are required to pre-notify the PHSI who may then carry out document checks, identification checks and/or physical inspections. Responsibility for these actions in Scotland lies with the Scottish Government's Plant Health Service.

The number of controlled consignments is not equivalent to the number of inspections undertaken. This is because the proportion of consignments of a specific commodity that are subject to physical inspection can range from 1% to 100% depending on the level of risk associated with the consignment.

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<sup>7</sup> [BTOM risk categorisation and timeline](#)



Analysis of PHSI data provides users with insight into the volume of controlled commodities being imported and where those commodities are originating from. Data are provided on a calendar year basis while geographies are in line with [United Nations Statistics Division \(UNSD\) groupings](#).

### Data aggregations

Commodities are grouped into ‘types’:

- Plants for planting.
- Cut flowers and flower buds.
- Foliage, branches and other parts of plants.
- Seed and tissue culture.
- Fruit and nuts.
- Vegetables.
- Other.

### Table 7 category mapping

The categories covering ‘type of commodity’ used from 2023 onwards are based on groupings in the IPAFFS system. Due to some trade still being captured in the PEACH system, data covering the period 2019 to 2023 has been mapped to the new IPAFFS groups and recalculated.

A small number of commodities cannot be accurately mapped because they have appeared in more than one category in IPAFFS so these commodities have been proportionally assigned to categories based on 2023 IPAFFS data. These commodities are:

Ocimum – has appeared in the categories ‘plants for planting’, ‘vegetables’, ‘other vegetable products’ and ‘seed and tissue culture’.

Solidago - has appeared in the categories ‘plants for planting’, ‘cut flowers and flower buds’ and ‘foliage, branches and other parts of plants’.

Trachelium - has appeared in the categories ‘plants for planting’ and ‘cut flowers and flower buds’.

The number of consignments this affects is detailed in the table below.

| <b>Commodity</b> | <b>2019</b> | <b>2020</b> | <b>2021</b> | <b>2022</b> | <b>2023</b> |
|------------------|-------------|-------------|-------------|-------------|-------------|
| Ocimum           | 2,598       | 2,236       | 2,891       | 5,931       | 5,367       |
| Solidago         | 800         | 912         | 2,069       | 8,015       | 7,807       |
| Trachelium       | 46          | <5          | 24          | <5          | <5          |

### Accuracy and quality assurance

1. Data are extracted from the PEACH/IPAFFS data systems and cleaned by PHSI data experts.
2. Defra undertake checks for inconsistencies.
3. A final dataset is produced from which simple aggregations are constructed.
4. Quality assurance of the calculations underlying the tables and charts is undertaken prior to release.

## D. Controlled consignment data – Forestry Commission (FC)

Forestry Commission (FC) data covers inspections of timber, including sawn timber, wood shavings, wood chips, sawdust and prefabricated buildings made of wood being imported to England, Scotland, and Wales. FC are notified of any controlled commodities being imported and are required to carry out document checks and/or physical inspections. All controlled forestry commodities are subject to full checks (100%) meaning the number of notifications should equal the number of inspections undertaken.

Analysis of FC data provides users with insight into the volumes of hardwood and softwood being imported and where those commodities are originating from. Data are provided on a financial year basis, while geographies are in line with the [United Nations Statistics Division \(UNSD\) groupings](#).

### Data aggregations

- Hardwood: timber from deciduous trees
- Softwood: timber from coniferous trees

### Accuracy and quality assurance

1. Data are extracted by FC.
  2. Data are checked for inconsistencies by Defra.
  3. A final dataset is produced from which simple aggregations are constructed.
  4. Where the number of consignments is less than 3 these records will be removed from the analysis in order to maintain confidentiality.
  5. Quality assurance of the calculations underlying the tables and charts is undertaken prior to release.
- Where the number of consignments is less than 3 these records will be removed 2019/20 – 7 records were removed from the dataset for the year 2019/2020 due to these records missing one or more of the key fields used for analysis.
  - 2020/21 – 6 records were removed from the dataset for the year 2020/2021 due to these records missing one or more of the key fields used for analysis.
  - 2021/22 – 42 records were removed from the dataset for the year 2021/2022 due to these records missing species information.

**Table 1: Comparison of dataset variables used in the statistical release**

| <b>Dataset</b> | <b>Geography</b> | <b>Value unit</b> | <b>Volume unit</b> | <b>Consignments</b> | <b>Time period</b> |
|----------------|------------------|-------------------|--------------------|---------------------|--------------------|
|----------------|------------------|-------------------|--------------------|---------------------|--------------------|

|                                   |                             |                 |  |                        |                |
|-----------------------------------|-----------------------------|-----------------|--|------------------------|----------------|
| International trade (HMRC)        | United Kingdom              | Pounds sterling | Net mass (kg)  | Not available          | Calendar year  |
| Plant Health Notifications (PHSI) | England and Wales           | Not available   | Not available  | Number of consignments | Calendar year  |
| Forestry notifications (FC)       | England, Scotland and Wales | Not available   | Volume in cubic metres (m <sup>3</sup> ). From 2021/22 additional commodities are presented which are measured in kilograms. | Number of consignments | Financial year |

## Disclosure control

At the level of aggregation presented there are no disclosure issues in the HMRC international trade data.

For PHSI and FC controlled consignments data disclosure was applied at country level where the number of notifications was three or fewer. This data has been removed from the individual line and also from the totals. The reason for not including these low numbers is to prevent the identification of businesses and their associated trade.

Where symbols appear in tables in line with the [Government Statistical Service Harmonised Symbols](#). The symbols used are:

r = data have been revised since first publication.

p = data are provisional.

b = break in time series

c = data are confidential

x = data are not available.

z = data are not applicable.

## Related releases

There are no other statistical releases covering trade in plants and plant commodities however there are several publications that provide further information on topics related to plant health:

Data covering pest and disease notifications and interceptions are available in the following reports:

- [Europhyt - Interceptions of harmful organisms in imported plants and other objects](#)
- [GB Import Data and Non-compliance](#)
- [Multi Annual National Control Plan Annual Report](#)

In theory, the estimated trade flows of each country should match, for example, data covering exports from other countries to the UK should match the imports registered in the UK. In practice however, there are differences known as trade symmetries. For further information please see the [Asymmetries in Trade Data](#) report published by the Office for National Statistics.

Related trade data are available in the following reports:

- [Eurostat: International trade in goods](#)
- [United Nations Commodity Trade Statistics Database](#)
- [International Seed Federation](#)
- [The fruit and vegetable sector in the EU - a statistical overview](#)

Other related Government statistics are available:

- [Defra Food, Farming and Bio-security statistics](#) (includes releases covering horticulture, and farming)
- [Forestry Commission](#)

The Forestry Commission produces statistics on the value of imports and exports of wood as shown in Chapter 3 of Forestry Statistics. The values in the tables are different to the values published in the plant health international trade and controlled consignments release for the following reasons:

- The “other wood” category in Forestry Statistics also includes “other agglomerates” (CN code 44013900).
- Veneer sheets are included within the “woodbased panels” category in Forestry Statistics (alongside plywood, particleboard and fibreboard, which are all excluded from the experimental stats).
- The Forestry Statistics tables exclude further processed sawn wood, wooden wrapping and packaging materials and other secondary processed wood.

- [Welsh Government](#) (includes releases covering the Survey of agriculture and horticulture, and Woodland for Wales indicators)
- [Scottish Government](#) (includes releases covering forestry and farmland use - horticulture)
- [Northern Ireland](#) (includes releases covering agriculture and food)

## **Future plans**

Consultation on content of release – October 2024