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**Working Party on Agricultural Quality Standards****Specialized Section on Standardization  
of Fresh Fruit and Vegetables****Seventy-first session**

Geneva, 9–11 May 2023

Item 4 of the provisional agenda

**Harmonized System codes for fresh fruit and vegetables  
relevant to the work of the Specialized Section****Proposal by the delegation of Brazil concerning Harmonized  
System codes for fresh fruit and vegetables\*,\*\*****Submitted by the delegation of Brazil***Summary*

At the 2022 meeting of the Working Party, the delegation of Brazil suggested discussing the issue of Harmonized System (HS) codes and the difficulty to access data for fresh fruit and vegetables at the product level, as fresh and dried fruit fall under the same HS code. The Working Party agreed that this issue could be brought for discussion in Specialized Sections.

This paper, submitted by the delegation of Brazil, provides an overview of how different types of fruit and vegetables are covered in HS codes, and assesses the alignment of data or coverage of the United Nations Economic Commission for Europe (UNECE) standards, HS codes and Food and Agriculture Organization of the United Nations (FAO). It highlights some challenges, including that fresh and dried produce are mixed for some product codes, and that some types of fruit and vegetables have better coverage than others.

The delegation proposes that the Specialized Section on Standardization of Fresh Fruit and Vegetables collaborates with the World Customs Organization (WCO) to improve the consistency and usability of the Harmonized System codification for analysis of fruit and vegetable products.

The Specialized Section is invited to discuss the challenges resulting from how HS codes are grouped for fresh fruit and vegetables, and potential ways to address the challenges.

\* This document was submitted by the delegation of Brazil for the purposes of a technical discussion in the Specialised Section on Standardization of Fresh Fruit and Vegetables. It does not intend to pronounce itself on the mandate of UNECE or WCO.

\*\* The document was submitted late for processing due to resource constraints.



## I. Background

1. At the seventy-seventh session of the Working Party on Agricultural Quality Standards (WP.7) of the United Nations Economic Commission for Europe (UNECE) on 14–16 November 2022, it was agreed to bring to discussion the issue of Harmonized System (HS) codes and the difficulty to access trade data for fresh fruit and vegetables at a product level, as in many cases data for fresh and dried fruit were under the same HS code (ECE/CTCS/WP.7/2022/2, paragraph 69).
2. The 2022 session of WP.7 discussed the study “Impacts of OECD Fruit and Vegetables Scheme and UNECE Fresh Fruit and Vegetables Standards on International Trade in Fresh Produce” (ECE/CTCS/WP.7/2022/INF.1) which provided evidence of the benefits of standardization for the trade in fresh fruit and vegetables. At the same time, the study pointed to data challenges due to a mismatch between product coverage of the UNECE standards and existing trade data (page 33, third and fourth paragraphs of section B). The data source used in the study was Base Pour L’Analyse du Commerce International (BACI)<sup>1</sup> accessed by the HS code related to the products of the study.
3. A study conducted by Brazil – “Global Market for Certain Small Fruits (UNECE Standard)”,<sup>2</sup> to support its proposal to develop a UNECE standard for Certain Small Fruits, sourced data for physalis (Peruvian ground-cherry) from the Statistical Authority of Colombia, as it was found that detailed data at a product level was missing globally (as such fruit were grouped into the HS code 0810.90 Other, of the Heading 0810 named Other fruit, fresh). As a consequence, the study could only find representative data for Colombia and no representative data for the remaining small fruits listed in the draft standard.
4. Thus, the delegation of Brazil proposed to discuss the issue of data challenges related to the structuring of HS codes for fresh fruit and vegetables. In order to support further analysis, a report entitled “Evaluation of the Harmonized System (HS codes) relevant for the fresh fruits and vegetables industry”<sup>3</sup> was released.

## II. Objectives

5. This document aims to inform discussions about the need to address HS codes for fresh produce relevant to the Specialized Section on Standardization of Fresh Fruit and Vegetables, to enable data analysis of trade and product level.
6. The main premise is that trade statistics need to distinguish data at the product level to enable accurate analysis of trends and impacts of trade in individual types of fruit and vegetables. A coordinated effort to improve the correspondence between HS codes of fruit and vegetables, trade statistics and product coverage of standards would be important to enable analysis of trends at product level, e.g. for products covered by UNECE and Codex Alimentarius standards.

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<sup>1</sup> Base Pour L’Analyse du Commerce International (BACI), developed by the Paris-based organization Centre d’études prospectives et d’informations internationales (CEPII).

<sup>2</sup> André Oliveira, “Global market analysis for Small Fruits: (UNECE Standard): The Contribution of Peruvian ground-cherry (uchuvas, aguaymanto, uvillas) (\*\*Physalis peruviana\*\*) (Colombia - NANDINA classification - 0801.90.50.) and “Other Fresh Fruits” (Brazil - MERCOSUL classification - NCM 0801.90.90.)”, 2022. Conference paper. Available at [https://www.researchgate.net/publication/365380462\\_GLOBAL\\_MARKET\\_FOR\\_CERTAIN\\_SMA\\_LL\\_FRUITS\\_UNECE\\_Standard\\_The\\_Contribution\\_of\\_Peruvian\\_ground-cherry\\_uchuvas\\_aguaymanto\\_uvillas\\_Physalis\\_peruviana\\_Colombia\\_-\\_NANDINA\\_classification\\_-\\_08019050\\_and\\_Other\\_Fr/related](https://www.researchgate.net/publication/365380462_GLOBAL_MARKET_FOR_CERTAIN_SMA_LL_FRUITS_UNECE_Standard_The_Contribution_of_Peruvian_ground-cherry_uchuvas_aguaymanto_uvillas_Physalis_peruviana_Colombia_-_NANDINA_classification_-_08019050_and_Other_Fr/related).

<sup>3</sup> André Oliveira, “Evaluation of the Harmonized System (HS codes) relevant for the fresh fruits and vegetables industry”, 2023. Available at [https://www.researchgate.net/publication/368818377\\_Evaluation\\_of\\_the\\_Harmonized\\_System?channel=doi&linkId=63fb42b957495059454486a5&showFulltext=](https://www.researchgate.net/publication/368818377_Evaluation_of_the_Harmonized_System?channel=doi&linkId=63fb42b957495059454486a5&showFulltext=).

7. Thus, this paper argues for the importance of having specific HS codes for different fresh fruit and vegetable products to enable quantitative analysis of trends in the trade of individual types of fruit and vegetables.

### III. Coverage

8. This paper provides preliminary information obtained from websites of UNECE – standards on fresh fruit and vegetables,<sup>4</sup> WCO – Harmonized System codes (HS codes)<sup>5</sup> and FAO – Statistical Division (FAOStat).<sup>6</sup>

9. The 55 current UNECE standards for fresh fruit and vegetables were reviewed to create a list of products, resulting in a total of 81 products.

- All products listed in this document were sourced from the “Fresh Fruit and Vegetables – Standards” web page of the UNECE website.<sup>7</sup>
- Each WCO HS code was obtained from Section II Vegetable Products (Chapters 7 and 8), according to the “General rules for the interpretation of the harmonized system”.<sup>8</sup>
- Data of production and exports (values) of fresh fruit and vegetables of interest were sourced from FAO – FAOStat2021.<sup>9</sup>

10. More detailed information of the data fields, classifications and analysis covered by this document are available in the report “Evaluation of the Harmonized System (HS codes) relevant for the fresh fruits and vegetables industry”.<sup>10</sup>

### IV. Main findings

11. While the UNECE list of fresh fruit and vegetable standards includes 55 standards, the number of fresh produce covered by these standards encompasses 81 products, as outlined in a previous study<sup>11</sup> referenced above. That study also identified “mismatches” between the coverage of UNECE standards and HS codes, and between HS codes and FAOStat Data classifications.

12. This paper provides a summary of that work and a situational analysis and classification (see Table 1), where the standardized products from the 55 UNECE standards are distributed into four different categories depending on how well their coverage “” with individual HS codes and/or with data available in FAOStat, with categories ranging from, from “Ideal” to “Fully mismatched”. The aim of this categorization is to visualize the situation qualitatively and quantitatively.

13. Production and export values for the year 2021 were added to the table from FAOStat.

<sup>4</sup> List of standards for fresh fruit and vegetables from the UNECE website (<https://unece.org/trade/wp7/FFV-Standards#c55288>), accessed in January 2023.

<sup>5</sup> WCO web page, list of HS codes (<https://www.wcotradetools.org/en/harmonized-system>), accessed in January – 2023.

<sup>6</sup> FAOStat web page sourced 2021 food and agriculture data (<https://www.fao.org/faostat/en/#data>), accessed in January – 2023.

<sup>7</sup> <https://unece.org/trade/wp7/FFV-Standards#c55288>.

<sup>8</sup> Available at <https://www.wcotradetools.org/en/harmonized-system/rules>.

<sup>9</sup> Available at <https://www.fao.org/faostat/en/#data>.

<sup>10</sup> Oliveira, “Evaluation of the Harmonized System”.

<sup>11</sup> Ibid.

Table 1  
**Grouping of standards based on their alignment with HS codes and FAOStat Data availability at product level**

<i>Standards categories</i>	<i>Number of products</i>	<i>Situational classification</i>	<i>Production 2021 (tonnes)</i>	<i>Export value 2021 (US\$ 1,000)</i>
Standards with individual or individually associated HS code and individual FAOStat Data available	20	Ideal	1 032 686 092	58 382 327
Standards with individual HS codes but combined FAOStat Data for other fruits or vegetables	5	Good	70 050 859	3 875 738
Standards with combined fruits or vegetables HS codes but individual FAOStat Data available	4	Acceptable	2 701 557	4 622 997
Standards for which HS codes include both fresh and dried fruits or vegetables and FAOStat Data for fresh and dried produce is combined	52	Mismatched	1 223 008 717	90 289 824

14. It was identified that 20 fresh fruits and vegetables covered by the UNECE standards, as listed in the second column (Number of products) of Table 1 are well aligned with individual or individually associated HS codes<sup>12</sup> and individual FAOStat classification.

15. The analysis identified that the main mismatches were due to the aggregation of data from combined HS codes and/or combined FAOStat classification for fresh produce. This situation was identified for 52 products covered by the UNECE standards, as listed in the second column (Number of products) of Table 1.

16. Five products covered by the UNECE standards were classified as “Good” since robust data existed for those products in data sources other than FAOStat due to their individual HS codes.

17. The classification “Acceptable” was given to four products covered by the UNECE standards because data was available for them from FAOStat, even though their related HS codes combined several products.

18. A matrix summarizing this analysis is provided in Table 2.

Table 2  
**Classification of product coverage of UNECE standards for fresh fruit and vegetables according to their alignment with specific HS codes and FAOStat classification**

	<i>Individual or individually associated HS code</i>	<i>Combined HS codes</i>
Individual FAOStat Data available	Ideal (20 products)	Acceptable (4 products)
Combined FAOStat Data	Good (5 products)	Mismatched (52 products)

<sup>12</sup> In this document the terminology “Individually associated HS codes” is used to indicate cases when a generic code named “Other” existed, which – although called other – could be straightforwardly correlated with an individual product, such as the HS codes for melons and cherries (headings 0807 and 0809). The term Individually associated HS code is thus used to refer to an HS code that does not specify the name of the product in the title (i.e. shows the term Other) but which is directly associated with a single product in the headings of the HS code. Combined HS codes is used to refer to HS codes that group several products into the same heading or subheading.

19. As can be seen from table 3, the 29 well-aligned groups of fresh fruit and vegetables (i.e. marked as ideal, good or acceptable) account for 47 per cent of the total production, in tonnes, of the 81 products covered in this analysis.

20. Products covered by combined HS codes and combined FAOStat classification for fresh fruit and vegetables (i.e. the 52 products marked as mismatched), make up 53 per cent of the production volume and 57 per cent of the value.

Table 3

**Production data for different categories of fresh fruit and vegetables products, classified in regard to their correspondence within HS codes and FAOStat classification**

	<i>Total production in 2021 (tonnes)</i>	<i>Total export value in 2021 (US\$1,000)</i>
Ideal, Good and Acceptable classification (29 products)	1 105 438 508 (47%)	66 881 062 (43%)
Mismatched classification (52 products)	2 328 447 225 (53%)	157 170 886 (57%)

21. The large percentage of production and exports recorded in the “mismatched classification” is linked to the extensive use of the HS code “other”, which means that many different types of fresh fruit and vegetables products are grouped in trade statistics thus not enabling analysis at product level.

22. Lack of data at product level prevents robust analysis of trade impacts of policy measures, such as impact of standards on trade. Thus, and taking into consideration the previous studies undertaken on this matter, this paper advocates addressing this lack of correspondence between produce, HS code and data coverage of trade and production data.

23. Finally, the list of HS codes for fresh fruit and vegetables along its Sections, Chapters and Headings was searched and analysed in order to seek any pattern or conflict. The result of this step is summarized in Annex II.

## V. Discussion and conclusions

24. Mismatches between HS Codes and UNECE standard coverage exist that prevent a clear understanding of the role of standards in the trade of products.

25. This situation relates to the lack of HS codes and/or the lack of individual classification of HS codes and/or statistical data source.

26. In total, only 20 fruit and vegetable products were well matched in the coverage of the standard, the individual HS code and the FAOStat Data (table 2).

27. As highlighted in Section 4. Main Findings, and in earlier studies referenced, this analysis provided an additional confirmation that 61 fresh fruit and vegetables does not have individual or individually associated HS codes, nor straight correspondence with FAOStat data categories.

28. To illustrate that, important products for international trade that do not have a specific HS code include onions (> US\$ 100 billion trade), cucumbers (> US\$ 90 billion trade), as well as headed cabbages, mangoes, pomegranate, carrots and other fresh produce with export values above US\$ 20 billion.

29. Due to the length of HS code review cycles, it is possible that fruit and vegetables could have been overlooked over the years and that HS codification had been granted in response to requests from countries during the regular review processes of the Harmonized System at WCO.

## VI. Suggested ways forward

30. It is proposed that the UNECE Specialized Section on Standardization of Fresh Fruit and Vegetables seek to collaborate with WCO to improve the consistency and usability of the Harmonized System codification for analysis of fruit and vegetable products, for example for the purposes of quantitative analysis of trade.

31. Any effort towards the creation of individual or less generic HS codes will enhance the possibility to monitor and analyse trade worldwide.

32. The following suggestions may be beneficial for improving the codification system for fresh fruit and vegetables:

(1) Conduct an assessment of current and remaining HS code slots at Section II – Vegetable Products, to identify possibilities for better alignment within Chapters, Headings and HS codes.

(a) Some Headings may be able to include additional products in its titles, and subHeadings, and could include new specific HS code slots for a product or the addition of subHeadings for a group of products.

(b) Other Headings have subHeadings with improved and consistent allocation of HS codes, enabling a specific HS code for each product under those subHeadings.

**Suggestion 1:** Taking into consideration the extensive list of traditional and exotic fresh fruit and vegetables currently standardized, but without individual HS code (e.g. mangoes, passion fruit, small fruits, pomegranate, zucchini, cabbage, etc.), identifying Headings that may have their titles revised in line with UNECE standards is an important action.

**Suggestion 2:** Allowing for the inclusion of additional products (e.g. new standards, standards for groups of products such as culinary herbs, bioeconomy related products etc.).

**Suggestion 3:** Allocating new products into closely related Headings, making changes to the title of the Headings if necessary, is preferable to allocating products on generic Headings “Other...”, indistinctly.

**Suggestion 4:** Propose revisions to the list of products in assigned Headings to be as much inclusive as possible, although this should not detract from the necessity to improve the current allocation of HS codes among products.

(2) A possible approach may be to create and categorize, as much as possible, subHeadings with well-known fruit and vegetable groups.

(a) SubHeadings enable the use of specific codes for different types of produce.

(b) For example, in spite of having an exclusive HS code, fruits grouped as in the HS five-digit code 0805.2 – Mandarins (including tangerines and satsumas); clementines, wilkings and similar citrus hybrids allows the use of further 9 to 10 codes (from 1 up to 9 or 0 to 9) for the sixth digit of a HS six-digit code, boosting the possibilities of the codification system.

**Suggestion 5:** Concurrently to suggestions 1 and 2, evaluating the creation of subHeading(s) to a Heading as an alternative to the Heading’s title revision is a better practice, taking into consideration that each new subHeading allows the creation of at least nine new HS codes.

Moreover, taking into consideration the need to propose alternatives to the negative effect of the combined HS codes for the fresh fruit and vegetables with UNECE standards the following suggestions could also be addressed:

**Suggestion 6:** For fruit products with Headings stating “for fresh and dried” (produce), evaluate the feasibility of a specific HS code for the dried produce.

**Suggestion 7:** Whenever two or more products are combined in a single HS code, evaluate the feasibility of moving the less traded fresh produce to a new subHeading and HS code (preferably) or to a specific HS code.

## Annex I

### Example 1 of the application of the list of suggestions

Taking into account the Section “Suggested ways to move forward”, the following recommendations apply to Section II – Vegetable Products, of the Harmonized System Codes, Chapter 7, Heading 0703:

- Heading 0703 – Onions, shallots, garlic, leeks and other alliaceous vegetables, fresh or chilled.
  - Evaluate the proposal of a new subHeading 0703.3 named Other alliaceous vegetables (Suggestion 5).
    - Revise HS code 070310 from – Onions and shallots, to 070310 – Onions – standing HS code 070310 only for onions (Suggestion 7).
    - Allocate a new HS code for Shallots (Suggestion 7).
    - Allocate a new HS code for Leeks (Suggestion 7).
    - Revise HS code 0703.90 to be other alliaceous vegetables.

### Example 2 of the application of the list of suggestions

To address the mismatch for the new UNECE Standard for certain small fruits, the following is recommended for Section II – Vegetable Products, of the Harmonized System Codes, Chapter 8, Heading 0809:

- Heading 0809 – “Apricots, cherries, peaches (including nectarines), plums and sloes, fresh” could be amended to: *Heading 0809 – “Apricots, cherries, peaches (including nectarines), plums, sloes and small fruits, fresh”* (Suggestion 3).
  - Consider adding a new subHeading 0809.5 named Certain Small Fruits (Suggestions 1, 2 and 3).
    - Evaluate the allocation of a new HS code for Physalis, which has been traded internationally many years, as well as codes for any other relevant small fruits listed in the standard, as appropriate (Suggestion 4), and include an HS code for “other certain small fruits” (Suggestion 7).



## Annex II

### Analysis of Section II in HS codes – Vegetable Products, of the Harmonized System Codes

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#### *Chapter 7 – Edible vegetables and certain roots and tubers.*

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*Headings 0701 and 0702 were dedicated to Potatoes and Tomatoes, respectively.*

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Both appear to have plenty of slots available to include subHeadings or to create HS codes for other closely associated fresh produce.

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*Heading 0703 – Onions, shallots, garlic, leeks and other alliaceous vegetables, fresh or chilled.*

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This heading appears to have several empty slots for potential subHeadings or space to create additional HS codes for other closely related fresh produce.

Garlic has a dedicated HS code.

Onion shares the same HS code as shallots, and leeks share the same HS code as all other alliaceous vegetables.

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*Heading 0704 – Cabbages, cauliflowers, kohlrabi, kale and similar edible brassicas, fresh or chilled.*

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This heading also appears to have several empty slots for potential subHeadings or space to create additional HS codes for other closely related fresh produce.

HS code 0704.10 is shared between cauliflowers and headed broccoli.

Brussels sprouts have a dedicated HS code.

The remaining fresh produce of Heading 0704 shares the generic Other HS code, including, headed cabbages and Chinese cabbages, which are covered by separate UNECE standards.

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*Heading 0705 – Lettuce and chicory, fresh or chilled.*

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This heading has two five-digit subHeadings, one for lettuces and the other for chicory.

There appears to be plenty of slots available to accommodate most of the fresh produce listed in UNECE standards for lettuce and endives (romaine lettuces, leaf lettuces, crossbreeding lettuces), leafy vegetables (watercress, rocket, spinach, turnip tops or turnip greens, broccoli raab or ruvo kale, chard, pak choi) and chicory, among others.

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*Heading 0706 – Carrots, turnips, salad beetroot, salsify, celeriac, radishes and similar edible roots, fresh or chilled.*

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This heading also appears to have several empty slots for potential subHeadings or space to create additional HS codes for other closely related fresh produce.

Nonetheless, HS code 0706.10 is shared between carrots and turnips.

Remaining listed products in the heading are accommodated in HS code 0706.90 (other) such as fennel (same family as carrots) and root and tubercle vegetables: beetroot, celeriac, radish, turnip, salsify.

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*Heading 0707 – Cucumbers and gherkins, fresh or chilled.*

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Has only one HS code combining cucumbers and gherkins in the same slot (HS code 070700).

This heading thus has many available slots for additional subHeadings at five and six digit levels, and/or space to create additional HS codes for other closely related fresh produce.

The heading does not include a subHeading code named Other. Thus, the category cannot be used for courgettes, which instead uses the generic HS code 0709.99 “Other, Other”.

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*Heading 0708 – Leguminous vegetables, shelled or unshelled, fresh or chilled.*

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This heading also appears to have several empty slots for potential subHeadings or space to create additional HS codes for other closely related fresh produce.

Has individual HS code for peas (0708.10).

Has individual HS code for beans (0708.20), although the code is shared for *Vigna* spp. and *Phaseolus* spp. green beans.

All other leguminous vegetables are covered by Other (0708.90).

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*Heading 0709 – Other vegetables, fresh or chilled.*

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Most slots under this heading are taken at the five-digit level.

Cucurbitaceae family fresh produce (pumpkins and squash) occupies HS code 0709.93, but could be allocated on Heading 0707. The same stands for spinach (Heading 0705) and Bellor chilli peppers (Heading 0702). This reinforces the perception of the HS codes being randomly settled.

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*Heading 0714 – Manioc, arrowroot, salep, Jerusalem artichokes, sweet potatoes and similar roots and tubers with high starch or inulin content, fresh, chilled, frozen or dried, whether or not sliced or in the form of pellets; sago pith.*

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Has several empty slots.

Does not have a specific HS code for root chicory, fresh produce listed in the UNECE standard for root and tubercle vegetables.

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***Chapter 8 – Edible fruit and nuts; peel of citrus fruit or melons, presents a combination not readily understood in the first view:***

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*Heading 0804 – Dates, figs, pineapples, avocados, guavas, mangoes and mangosteens, fresh or dried.*

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Has several empty slots for subHeadings or to create HS codes for other closely related fresh produce.

Presents a combination of dry and dried produce, without HS codes separating dried from fresh fruit, resulting in unclearly codified products.

Combines mangoes, guavas and mangosteens under the same HS code (0804.50).

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*Heading 0805 – Citrus fruit, fresh or dried.*

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Has one five-digit subHeading to better accommodate in specific HS codes mandarins (including tangerines and satsumas); clementines, wilkings and similar citrus hybrids.

Has several empty slots at five-digit level.

Also combines dry and dried produce, without HS codes separating dried from fresh fruit, resulting in unclearly codified products.

Combines lemons and limes at the same HS code.

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*Heading 0806 – Grapes, fresh or dried.*

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Is dedicated to table grapes and has many slots not used.

Presents specific HS codes separating dried from fresh grapes, resulting in clearly codified products.

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*Heading 0807 – Melons (including watermelons) and papaws (papayas), fresh.*

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Provides the subHeading 0807.1 – Melons (including watermelons), with dedicated codes for watermelons (0807.11) and melons, other (0807.19).

Papayas (0807.20) also have a dedicated HS code.

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*Heading 0808 – Apples, pears and quinces, fresh.*

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Provides Specific HS codes for apples (0808.10), pears (0808.30) and quinces (0808.40).

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*Heading 0809 – Apricots, cherries, peaches (including nectarines), plums and sloes, fresh.*

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Provides the subHeading 0809.2 – Cherries, further divided into sour cherries (0809.21) and other (0809.29).

Apricots (0809.10) and sour cherries (0809.21) have specific HS codes.

Peaches and nectarines share the same HS code (0809.30).

Plums and sloes share the same HS code (0809.40).

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*Heading 0810 – Other fruit, fresh.*

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Most slots at five-digit level used for this heading.

Strawberries (0810.10), kiwifruit (0810.50), durians (0810.60) and persimmons (0810.70) have specific HS codes.

Raspberries, blackberries, mulberries and loganberries share the same HS code (0810.20).

Black, white or red currants and gooseberries share the same HS code (0810.30).

Cranberries, bilberries and other fruits of the genus *Vaccinium* share the same HS code (0810.40).

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