



The IR-4 Project

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Pest Management Solutions for Specialty Crops and Specialty Uses

Crop Grouping – US and Codex



Basic Concepts
History and
Current Status



US Crop Grouping – Basic Concepts

- Crop Grouping is used to facilitate the establishment of pesticide tolerances for a large number of crops based on residue data from selected representative crops.



US Crop Grouping – Basic Concepts

- **Crop Group**: A group of crops that are botanically or taxonomically related.
- A crop group includes the representative crop(s).



US Crop Grouping – Basic Concepts

- Representative Crop(s):
Crops in a crop group whose residue data can be used to establish a tolerance on the entire crop group or subgroup.
- Generally the highest residues, most economically important, similar morphology.



US Crop Grouping – Basic Concepts

- Crop Subgroup: More closely related crops in a crop group that are divided into smaller groups with one or more representative crops.



US Crop Grouping – Basic Concepts

- Crop Definition: Crops that are represented by a particular crop from the standpoint of residue exposure (similar to subgroups).



Example Crop Group

Representative commodities	Commodities
<p>Crop Group 10-10</p> <p>Orange or tangerine/mandarin, lemon or lime and grapefruit</p>	<p>Australian desert lime; Australian finger-lime; Australian round lime; Brown River finger lime; calamondin; citron; citrus hybrids; grapefruit; Japanese summer grapefruit; kumquat; lemon; lime; Mediterranean mandarin; mount white lime; New Guinea wild lime; orange, sour; orange, sweet; pummelo; Russell River lime; satsuma mandarin; sweet lime; tachibana orange; Tahiti lime; tangelo; tangerine (mandarin); tangor; trifoliate orange; uniq fruit; cultivars, varieties, and/or hybrids of these</p>
<p>Crop Subgroup 10–10A</p> <p>Orange subgroup</p> <p>Orange or tangerine/mandarin</p>	<p>Calamondin; citron; citrus hybrids; mediterranean mandarin; orange, sour; orange, sweet; satsuma mandarin; tachibana orange; tangerine (mandarin); tangelo; tangor; trifoliate orange; cultivars, varieties, and/or hybrids of these.</p>
<p>Crop Subgroup 10–10B</p> <p>Lemon/Lime subgroup</p> <p>Lemon or lime</p>	<p>Australian desert lime; Australian finger lime; Australian round lime; brown river finger lime; kumquat; lemon; lime; mount white lime; New Guinea wild lime; Russell River lime; sweet lime; Tahiti lime; cultivars , varieties, and/or hybrids of these.</p>
<p>Crop Subgroup 10–10C.</p> <p>Grapefruit subgroup</p> <p>Grapefruit</p>	<p>Grapefruit; Japanese summer grapefruit; pummelo; tangelo; uniq fruit; cultivars, varieties, and/or hybrids of these.</p>



Example Crop Definitions - 40 CFR § 180.1 (g)

Crop Group 10-10 Crop Definitions	A	B
	Tangerine (revised 12/8/2010)	Tangerine (mandarin or mandarin orange), clementine, Mediterranean mandarin, satsuma mandarin, tangelo, tangor, cultivars, varieties and or hybrids of these
	Fruit, citrus	Grapefruit, lemon, lime, orange, tangelo, tangerine, citrus citron, kumquat, and hybrids of these



Orphan crops

- Orphan Crop: A crop that is not currently included in any crop group.
- For example:
 - Artichoke



Crop Groups – Where to find

- **All Crop Groups, Subgroups, Representative crops and Crop Definitions can be found on the IR-4 Web Site:**

<https://www.ir4project.org/fc/crop-grouping/>

- **Federal Register:**

Crop groups (40 CFR § 180.41 Crop group tables):

<https://www.ecfr.gov/current/title-40/chapter-I/subchapter-E/part-180/subpart-B/section-180.40>

Crop definitions (40 CFR §180.1(g) Definitions and interpretations):

<https://www.ecfr.gov/current/title-40/chapter-I/subchapter-E/part-180/subpart-A/section-180.1>

Canadian crop groups (98-02 Residue Chemistry Guidelines):

<https://www.canada.ca/en/health-canada/services/consumer-product-safety/pesticides-pest-management/public/protecting-your-health-environment/pesticides-food/residue-chemistry-crop-groups.html>



US Crop Grouping - History

1962: First publication in the Federal Register (27 FR 12100). 27 groups of crops considered related for non systemic pesticides; did not include representative crops or subgroups.

1971: Publication of 1st ed. of “Green Book” (Food and Feed Crops of the US), C.C. Compton, G.M. Markle and J.R. Magness.

1973: Duggan & Associates – submitted a report to EPA which proposed classifying 450 crops into 10 major classes containing 34 groups.

of the members while they are serving away from their places of residence.

(3) An advance deposit shall be made in the amount of \$2,500 to cover the costs. Further advance deposits of \$2,500 each shall be made upon request of the Commissioner when necessary to prevent arrears in the payment of such costs. Any deposits in excess of actual expenses will be refunded to the depositor.

(4) The person who files a petition for judicial review of an order under section 408 (d) (5) or (e) of the act shall pay the costs of preparing the record on which the order is based.

(5) All deposits and fees required by the regulations in this part shall be paid by money order, bank draft, or certified check drawn to the order of the Food and Drug Administration, collectible at par at Washington, D.C. All deposits and fees shall be forwarded to the Food and Drug Administration, Department of Health, Education, and Welfare, Washington 25, D.C., whereupon after making appropriate record thereof they will be transmitted to the Chief Disbursing Officer, Division of Disbursement, Treasurer of the United States, for deposit to the special account “Salaries and Expenses, Certification, Inspection, and Other Services, Food and Drug Administration.”

(1) The Commissioner may waive or refund such fees in whole or in part when

(a) Each of the following groups of crops lists raw agricultural commodities that are considered to be related for the purpose of paragraph (d) of this section. Commodities not listed in this paragraph are not considered as related for the purpose of paragraph (d) of this section. This grouping of crops does not affect the certification of usefulness by the Secretary of Agriculture as contemplated by section 408(a) of the act.

(1) Apples, crabapples, pears, quinces.

(2) Avocados, papayas.

(3) Blackberries, boysenberries, dewberries, loganberries, raspberries.

(4) Blueberries, currants, gooseberries, huckleberries.

(5) Cherries, plums, prunes.

(6) Oranges, citrus citron, grapefruit, kumquats, lemons, limes, tangelos, tangerines.

(7) Mangoes, persimmons.

(8) Peaches, apricots, nectarines.

(9) Beans, peas, soybeans (each in dry form).

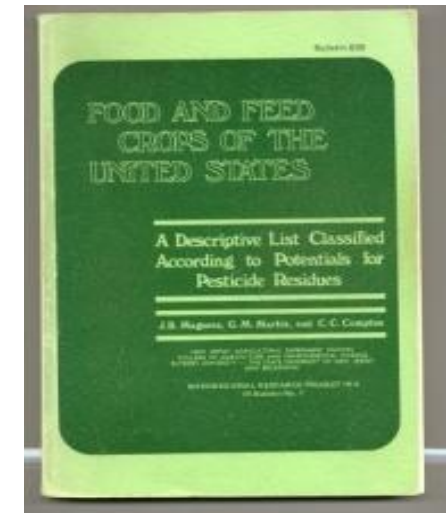
(10) Beans, peas, soybeans (each in succulent form).

(11) Broccoli, brussels sprouts, cauliflower, kohlrabi.

(12) Cantaloups, honeydew melons, muskmelons, pumpkins, watermelons, winter squash.

(13) Carrots, garden beets, sugar beets, horseradish, parsnips, radishes, rutabagas, salsify roots, turnips.

(14) Celery, fennel.



US Crop Grouping - History

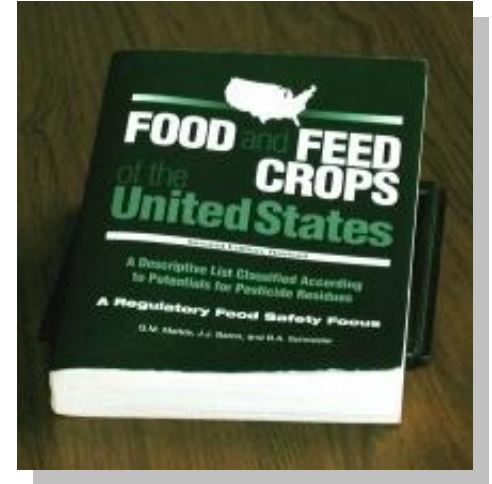
1983: Rule amended crop grouping regulations. 19 crops groups established and representative crops included for the first time, included 500 commodities.

1995: Subgroups added and new crops were added, but no new crop groups. This is the current scheme undergoing revision.

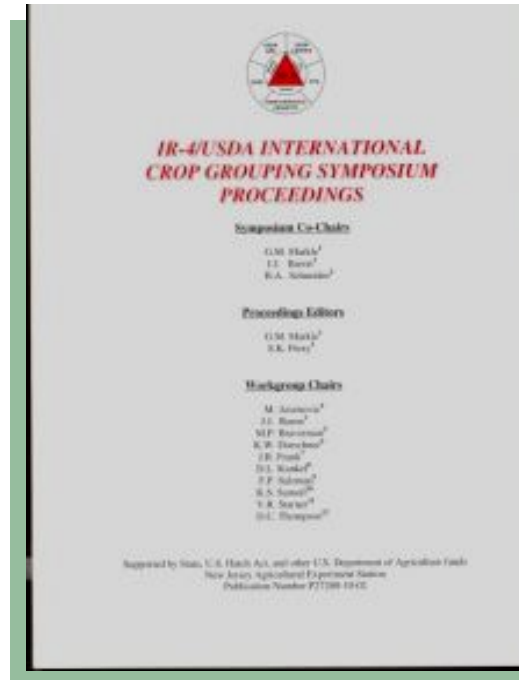


US Crop Grouping - History

1998: 2nd edition of the “Green Book” (G. M. Markle, J. J. Baron and B. A. Schneider). Identified many orphan crops not included in 1995.



2002: IR-4/USDA International Crop Grouping Symposium. Workgroups proposed the addition of many crops and crop groups.



US Crop Grouping - History

2004: International Crop Grouping Consulting Committee (ICGCC) established – Included >200 crop and regulatory experts from 28 countries.

IR-4 proposed additions/revisions, wrote crop monographs and prepared crop group petitions.

The ICGCC workgroup reviewed and commented on the proposals and petitions.

Finalized petitions were submitted to U.S. EPA.



US Crop Grouping - History

At EPA a HED Scientist (Bernie Schneider) reviewed and analyzed the IR-4 submissions, and provided reviews to EPA ChemSAC.

ChemSAC - Joint review by both U.S. and Canadian regulatory agencies – ChemSAC approval.

Proposed rule published in the Federal Register with a 60 day comment period.

Final rule published in the Federal Register – final step.



US Crop Group Revisions – Federal Register

December 7, 2007 (Phase I): 1) Crop Group 3-07: Bulb Vegetable Group; 2) Crop Group 13-07: Berry and Small Fruit Crop Group; 3) **new** Crop Group 21: Edible Fungi Group.

December 8, 2010 (Phase II): 1) Crop Group 8-10: Fruiting Vegetable Group; 2) Crop Group 10-10: Citrus Fruit Group; 3) Crop Group 11-10: Pome Fruit Group; 4) **new** Crop Group 20: Oilseed Group.

August 22, 2012 (Phase III): 1) Crop Group 12-12: Stone Fruit Group; 2) Crop Group 14-12: Tree Nut Group.



US Crop Group Revisions – Federal Register

May 3, 2016 (Phase IV): 1) Crop Group 4-16: Leafy Vegetable Group; 2) Crop Group 5-16: Head and Stem Brassica Vegetable Group; 3) **new** Crop Group 22: Stalk, Stem and Leaf Petiole Vegetable Group; 4) **new** Crop Group 23: Tropical and Subtropical Fruit, Edible Peel Group; 5) **new** Crop Group 24: Tropical and Subtropical Fruit, Inedible Peel Group.



November 6, 2020 (Phase V): 1) **new** Crop Group 25: Herb Group; and 2) **new** Crop Group 26: Spice Group 26.

September 21, 2022 (Phase VI): 1) Crop Group 6-22: Legume Vegetable Group; 2) Crop Group 7-22: Forage and Hay of Legume Vegetable Group; 3) Crop Group 15-22: Cereal Grain Group; and 4) Crop Group 16-22: Forage, Hay, Stover, and Straw of Cereal Grain Group.



US Crop Group Revisions, Additions

To date these revisions have added 5 new crop groups, 34 new subgroups and 655 crops.

New US crop groups include:

20. Oilseed Group

21. Edible Fungi group

22. Stalk, Stem and Leaf Petiole Vegetable Group

23. Tropical and Subtropical Fruit, Edible Peel Group

24. Tropical and Subtropical Fruit, Inedible Peel Group

19. Herbs and Spices Group



25. Herb Crop Group

26. Spice Crop Group



US Crop Group Revisions, Additions

Still to be finalized by EPA:

1. Root and Tuber Vegetables Crop Group
2. Leaves of Root and Tuber Vegetables (Human Food or Animal Feed) Crop Group
9. Cucurbit Vegetables Crop Group
17. Grass Forage, Fodder and Hay Crop Group
18. Nongrass Animal Feeds (Forage, Fodder, Straw and Hay Crop Group



International Classification - Codex

- Codex Alimentarius Commission – Created in 1963 by FAO and WHO to develop food standards and guidelines.
- 189 member countries.
- Decision making occurs in a system of 8 steps.
- Codex Committee on Pesticide Residues (CCPR) meets once a year and recommends maximum residue limits (MRLs) for pesticide residues for food commodities.
- They are derived by reviews by the Joint Meeting on Pesticide Residues (JMPR) – Codex MRLs are applied in international trade.



Classification

First Codex Classification system was published in 1978 and was updated in 1989.

The next edition was published as CXA 4-1989, **Classification of Food and Animal Feeds, 2nd edition, 1993, and this is the revision that was finalized at the last CCPR in Beijing, China. Each Group, subgroup and commodity has a code.**

Class A: Primary food commodities of plant origin (5 types, 32 groups including **fruits, vegetables, grasses (including cereal grains), nuts and seeds and herbs and spices**)

Class B: Primary food commodities of animal origin (5 types, 17 groups)

Class C: **Primary animal feed commodities** (1 type, 3 groups including legume, cereal grains and miscellaneous feed products)

Class D: **Processed food of plant origin** (5 types, 13 groups, 2 reserved)

Class E: Processed food of animal origin (4 types, 10 groups)

Codex – Classification Revision History

CCPR34 (2002), Netherlands: The Netherlands introduced a discussion paper on the need for the revision of the Codex Classification of Foods and Animal Feeds.

CCPR36 (2004), India: Invited comments on proposed limited revision, requested Netherlands and Japan to prepare revised version.

CCPR37 (2005), Netherlands: Committee noted US international expert group [**ICGCC**] agreed to assist, Netherlands to revise Classification.

CCPR38 (2006), Brazil: Circular letter issued; several countries favored a more extended revision. US offered input and cooperation for more extensive cooperative effort between US and Netherlands. Committee agreed to ask Commission to approve work on extended revision.



Codex – Classification Revision History

CCPR39 (2007), Beijing, China: The Committee agreed to a timetable for the revision starting with “Bulb Vegetables” and “Fruiting Vegetables, other than Cucurbits”.

The proposed revised US crop groups were used to propose revisions to Codex groups using an Electronic Working Group (EWG) to revise the Classification. The US became the Chair and Netherland was the Co-Chair. Proposal were considered as agenda items at annual CCPR meetings which after reaching step 5/8 were approval by Codex Alimentarius Commission (CAC).

CCPR40 (2008), Hangzhou, China: “Bulb Vegetables” and “Fruiting Vegetables, Other than Cucurbits” revised.

Draft document presented outlining **“Principles and Guidance on the Selection of the Representative Commodities for the Purposes of Extrapolation of MRLs”**.



Codex – Classification Revision History

CCPR41 (2009), Beijing, China: The Committee agreed to forward to the Commission the Proposed Draft Revision of the Classification for the eight commodity groups for adoption at Step 5. The Committee agreed that representative commodities within each Codex Classification commodity group would be selected and proposed.

CCPR42 (2010), Xi'an, China: Bulb Vegetables; Fruiting Vegetables, other than Cucurbits; Berries and Other Small Fruits; Edible Fungi; Citrus Fruits; Pome Fruits; Stone Fruits; and Oilseeds at Step 7.

CCPR 50 (2018), Haikou, China: **Class A** (primary food commodities of plant origin) **completed.**

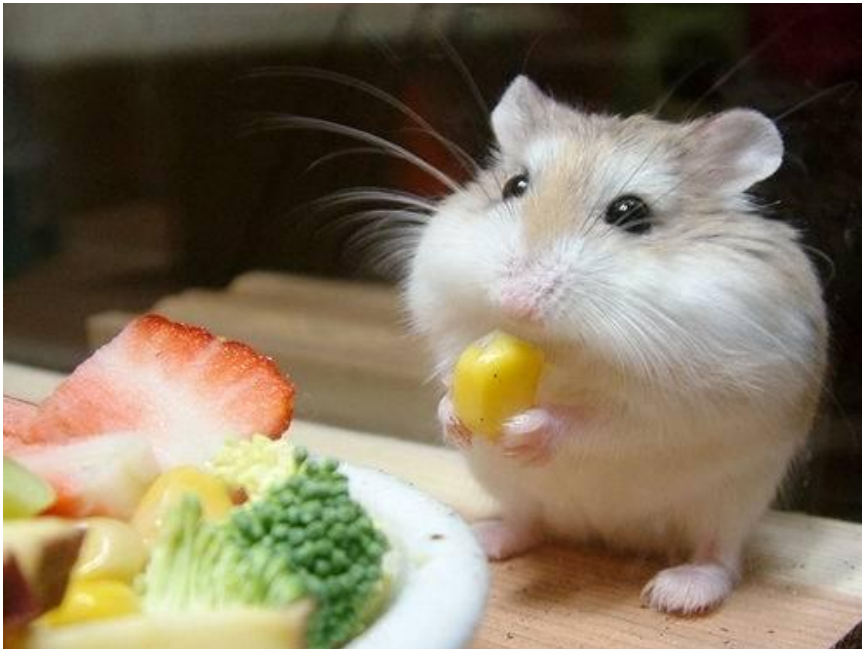
CCPR53 (2021), Virtual: **Class C** (animal feed) and **Class D** (processed food of plant origin) **completed.**

CCPR54 (2023), Beijing, China: **Class B** (animal commodities) and **Class E** (processed animal commodities) **completed.**



Current Status – Questions?

- Codex Classification of Food and Animal Feeds –
- Revision Completed - Codex Alimentarius 1963-2023
- US Crop Grouping – 5 crop groups to be finalized



Remember
to eat your
fruit and
vegetables





#60YearsofIR4