

SECTION 2

ANALYSIS OF PESTICIDE RESIDUES

SECTION 2.1

**PORTION OF COMMODITIES TO WHICH CODEX MRLS APPLY AND
WHICH IS ANALYZED**

PORTION OF COMMODITIES TO WHICH CODEX MAXIMUM RESIDUE LIMITS APPLY AND WHICH IS ANALYZED

INTRODUCTION

Codex Maximum Residue Limits are in most cases stated in terms of a specific whole raw agricultural commodity as it moves in international trade. In some instances, a qualification is included that describes the part of the raw agricultural commodity to which the maximum residue limit applies, for example, almonds on a shell-free basis and beans without pods. In other instances, such qualifications are not provided. Therefore, unless otherwise specified, the portion of the raw agricultural commodity to which the MRL applies and which is to be prepared as the analytical sample for the determination of pesticide residues is as described in the following table.

CLASSIFICATION OF COMMODITIES

PORTION OF COMMODITY TO WHICH THE CODEX MRL APPLIES (AND WHICH IS ANALYZED)

GROUP 1 - ROOT AND TUBER VEGETABLES

Root and tuber vegetables are starchy foods derived from the enlarged solid roots, tubers, corms or rhizomes, mostly subterranean, of various species of plants. The entire vegetable may be consumed.

Root and Tuber vegetables:

beets	rutabagas
carrots	sugar beets
celeriac	sweet potatoes
parsnips	turnips
potatoes	yams
radishes	

Whole commodity after removing tops. Wash the roots or tubers in cold running water, brushing gently with a soft brush to remove loose soil and debris, if necessary, and then dab lightly with a clean tissue paper to dry. For the carrots, after drying, the tops are carefully cut off with a knife by cutting through the bottom of the stem at the lowest point of attachment of the outer petioles. If an annulus of root tissue is thereby severed from hollow-crown roots, the material should be re-combined with the roots.

GROUP 2 - BULB VEGETABLES

Bulb vegetables are pungent flavourful foods derived from the fleshy scale bulbs, or growth buds of alliums of the lily family (*Liliaceae*). The entire bulb may be consumed following removal of the parchment like skin.

Bulb vegetables:

garlic	onions
leeks	spring onions

Remove adhering soil (e.g. by rinsing in running water or by gentle brushing of the dry commodity)

Bulb/dry onions and garlic:

Whole commodity after removal of roots and whatever parchment skin is easily detached.

Leeks and spring onions:

Whole vegetable after removal of roots and adhering soil.

CLASSIFICATION OF COMMODITIES

**PORTION OF COMMODITY TO WHICH THE CODEX
MRL APPLIES (AND WHICH IS ANALYZED)**

GROUP 3 - LEAFY VEGETABLES (EXCEPT BRASSICA VEGETABLES)

Leafy vegetables (except Group 4 vegetables) are foods derived from the leaves of a wide variety of edible plants including leafy parts of Group 1 vegetables. The entire leaf may be consumed. Leafy vegetables of the brassica family are grouped separately.

Leafy vegetables:

beet leaves	radish leaves
corn salad	spinach
endive	sugar beet leaves
lettuce	Swiss chard

Whole commodity after removal of obviously decomposed or withered leaves.

GROUP 4 - BRASSICA (COLE) LEAFY VEGETABLES

Brassica (cole) leafy vegetables are foods derived from the leafy parts, stems and immature inflorescences of plants commonly known and botanically classified as brassicas and also known as cole vegetables. The entire vegetable may be consumed.

Brassica leafy vegetables:

broccoli	cauliflower
Brussels sprouts	collards
cabbage	kales
cabbage, Chinese	kohlrabi
cabbage, red	mustard greens
cabbage, Savoy	

Whole commodity after removal of obviously decomposed or withered leaves. For cauliflower and headed broccoli analyse Brussels sprouts flower head and stems discarding leaves; for Brussels sprouts analyse "buttons" only.

GROUP 5 - STEM VEGETABLES

Stem vegetables are foods derived from the edible stems or shoots from a variety of plants.

Stem vegetables:

artichoke	chicory (witloof)
celery	rhubarb

Whole commodity after removal of obviously decomposed or withered leaves.

Rhubarb and asparagus: stems only.

Celery and asparagus: remove adhering soil (e.g., by rinsing in running water or by gentle brushing of the dry commodity).

CLASSIFICATION OF COMMODITIES

**PORTION OF COMMODITY TO WHICH THE CODEX
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GROUP 6 - LEGUME VEGETABLES

Legume vegetables are derived from the dried or succulent seeds and immature pods or leguminous plants commonly known as beans and peas. Succulent forms may be consumed as whole pods or as the shelled product. Legume fodder is in Group 18.

Legume vegetables:

Whole commodity.

beans	navy beans
broad beans	runner beans
dwarf beans	snap beans
French beans	soybeans
green beans	peas
kidney beans	cow peas
Lima beans	sugar peas

GROUP 7 - FRUITING VEGETABLES - EDIBLE PEEL

Fruiting vegetables - edible peel are derived from the immature or mature fruits of various plants, usually annual vines or bushes. The entire fruiting vegetables may be consumed.

Fruiting vegetables - edible peel:

Whole commodity after removal of stems.

cucumber	pepper
egg plant	summer squash
gherkin	tomato
okra	

GROUP 8 - FRUITING VEGETABLES - INEDIBLE PEEL

Fruiting vegetables - inedible peel are derived from the immature or mature fruits of various plants, usually annual vines or bushes. Edible portion is protected by skin, peel or husk which is removed or discarded before consumption.

Fruiting vegetables - inedible peel:

Whole commodity after removal of stems.

cantaloupe	squash
melon	watermelon
pumpkin	winter squash

CLASSIFICATION OF COMMODITIES

**PORTION OF COMMODITY TO WHICH THE CODEX
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GROUP 9 - CITRUS FRUITS

Citrus fruits are produced by trees of the rue family and characterized by aromatic oily peels, globular form, and interior segments of juice filled vesicles. The fruit is fully exposed to pesticides during the growing season. The fruit pulp may be consumed in succulent form and as a beverage. The entire fruit may be used for preserving.

Citrus fruits:

Whole commodity.

GROUP 10 - POME FRUITS

Pome fruits are produced by trees related to the *genus pyrus* of the rose family (*Rosaceae*). They are characterized by fleshy tissue surrounding a core consisting of parchment like carpels enclosing the seed. The entire fruit, excepting the core, may be consumed in the succulent form or after processing.

Pome fruits:

Whole commodity after removal of stems.

apple quince
pear

GROUP 11 - STONE FRUITS

Stone fruits are produced by trees related to the *genus prunus* of the rose family (*Rosaceae*) characterized by fleshy tissue surrounding a single hard shelled seed. The entire fruit, except seed, may be consumed in a succulent or processed form.

Stone fruits:

Whole commodity after removal of stems and stones but the residue calculated and expressed on the whole commodity without stem.

apricots nectarines
cherries peaches
sour cherries plums
sweet cherries

CLASSIFICATION OF COMMODITIES

**PORTION OF COMMODITY TO WHICH THE CODEX
MRL APPLIES (AND WHICH IS ANALYZED)**

GROUP 12 - SMALL FRUITS AND BERRIES

Small fruits and berries are derived from a variety of plants having fruit characterized by a high surface-weight ratio. The entire fruit, often including seed, may be consumed in a succulent or processed form.

Small fruits and berries:

blackberries	gooseberries
blueberries	grapes
boysenberries	loganberries
cranberries	raspberries
currants	strawberries
dewberries	

Whole commodity after removal of caps and stems. Currants: fruit with stems.

GROUP 13 - ASSORTED FRUITS - EDIBLE PEEL

Assorted fruits - edible peel are derived from the immature or mature fruits of a variety of plants, usually shrubs or trees from tropical or subtropical regions. The whole fruit may be consumed in a succulent or processed form.

Assorted fruits - edible peel:

dates	olives
figs	

Dates and olives: whole commodity after removal of stems and stones but residue calculated and expressed on the whole fruit.

Figs: Whole commodity.

GROUP 14 - ASSORTED FRUITS - INEDIBLE PEEL

Assorted fruits - inedible peel are derived from the immature or mature fruits of different kinds of plants, usually shrubs or trees from tropical or subtropical regions. Edible portion is protected by skin, peel or husk. Fruit may be consumed in a fresh or processed form.

Assorted fruits - inedible peel:

avocados	mangoes
bananas	papayas
guavas	passion fruits
kiwi fruit	pineapples

Whole commodity unless qualified.

Pineapples: after removal of crown.

Avocado and mangoes: whole commodity after removal of stone but calculated on whole fruit.

Bananas: after removal of crown tissues and stalks.

CLASSIFICATION OF COMMODITIES

**PORTION OF COMMODITY TO WHICH THE CODEX
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GROUP 15 - CEREAL GRAINS

Cereal grains are derived from the clusters of starchy seeds produced by a variety of plants primarily of the grass family (*Gramineae*). Husks are removed before consumption.

Cereal grains:

barley	rye
maize	sorghum
oats	sweet corn
rice	wheat

Whole commodity.

Fresh corn and sweet corn: kernels plus cob without husk.

GROUP 16 - STALK AND STEM CROPS

Stalk and stem crops are various kinds of plants, mostly of the grass family (*Gramineae*) cultivated extensively as animal feed and for the production of sugar. Stems and stalks used for animal feeds are consumed as succulent forage, silage, or as dried fodder or hay. Sugar crops are processed.

Stalk and stem crops:

barley fodder and straw	maize fodder sorghum fodder
grass fodders	

Whole commodity.

GROUP 17 - LEGUME OILSEEDS

Legume oilseeds are mature seeds from legumes cultivated for processing into edible vegetable oil or for direct use as human food.

Legume oilseeds:

peanuts

Whole kernel after removal of shell.

GROUP 18 - LEGUME ANIMAL FEEDS

Legume animal feeds are various species of legumes used for animal forage, grazing, fodder, hay or silage with or without seed. Legume animal feeds are consumed as succulent forage or as dried fodder or hay.

Legume and animal feeds:

alfalfa fodder	peanut fodder
bean fodder	pea fodder
clover fodder	soybean fodder

Whole commodity.

CLASSIFICATION OF COMMODITIES

PORTION OF COMMODITY TO WHICH THE CODEX MRL APPLIES (AND WHICH IS ANALYZED)

GROUP 19 - TREE NUTS

Tree nuts are the seed of a variety of trees and shrubs which are characterized by a hard inedible shell enclosing an oil seed. The edible portion of the nut is consumed in succulent, dried or processed forms.

Tree nuts:

almonds	macadamia nuts
chestnuts	pecans
filberts	walnuts

Whole commodity after removal of shell.

Chestnuts: whole in skin.

GROUP 20 - OILSEED

Oilseed consists of the seed from a variety of plants used in the production of edible vegetable oils. Some important vegetable oilseeds are by-products of fibre or fruit crops.

Oilseed:

cottonseed	safflowerseed
linseed	sunflowerseed
rapeseed	

Whole commodity.

GROUP 21 - TROPICAL SEEDS

Tropical seeds consist of the seed from several tropical and semitropical trees and shrubs mostly used in the production of beverages and confections. Tropical seeds are consumed after processing.

Tropical seeds:

cacao beans coffee beans

Whole commodity.

GROUP 22 - HERBS

Herbs consist of leaves, stems and roots from a variety of herbaceous plants used in relatively small amounts to flavour other foods. They are consumed in succulent or dried forms as components of other foods.

CLASSIFICATION OF COMMODITIES

**PORTION OF COMMODITY TO WHICH THE CODEX
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Herbs:

Whole commodity.

GROUP 23 - SPICES

Spices consist of aromatic seeds, roots, fruits and berries from a variety of plants used in relatively small amount to flavour other foods. They are consumed primarily in the dried form as components of other foods.

Spices:

Whole commodity.

GROUP 24 - TEAS

Teas are derived from the leaves of several plants, but principally *Camellia sinensis*. They are used in the preparation of infusions for consumption as stimulating beverages. They are consumed as extracts of the dried or processed product.

Teas:

Whole commodity.

GROUP 25 - MEATS

Meats are the muscular tissue, including adhering fatty tissue from animal carcasses prepared for wholesale distribution. The entire product may be consumed.

Meats:

carcass meat (and carcass fat)
carcass meat of cattle
carcass meat of goats
carcass meat of horses
carcass meat of pigs
carcass meat of sheep

Whole commodity. (For fat soluble pesticides a portion of carcass fat is analyzed and MRLs apply to carcass fat)¹

GROUP 26 - ANIMAL FATS

Animal fats are the rendered or extracted fat from the fatty tissue of animals. The entire product may be consumed.

Animal fats:

Whole commodity.

cattle fat sheep fat
pig fat

¹ For milk and milk products regarding fat soluble pesticides see Section 1 of this Volume.

CLASSIFICATION OF COMMODITIES

**PORTION OF COMMODITY TO WHICH THE CODEX
MRL APPLIES (AND WHICH IS ANALYZED)**

GROUP 27 - MEAT BYPRODUCTS

Meat byproducts are edible tissues and organs, other than meat and animal fat, from slaughtered animals as prepared for wholesale distribution. Examples: liver, kidney, tongue, heart. The entire product may be consumed.

Meat byproducts (such as liver, kidney, etc.): Whole commodity.

cattle meat byproducts
goat meat byproducts
pig meat byproducts
sheep meat byproducts

GROUP 28 - MILKS

Milks are the mammary secretion of various species of lactating herbivorous ruminant animals, usually domesticated. The entire product may be consumed.

Milks:² Whole commodity.

GROUP 29 - MILK FATS

Milk fats are the rendered or extracted fats from milk.

Milk fats: Whole commodity.

GROUP 30 - POULTRY MEATS

Poultry meats are the muscular tissues including adhering fat and skin from poultry carcasses as prepared for wholesale distribution. The entire product may be consumed.

Poultry Meats: Whole commodity. (For fat soluble pesticides a portion of carcass fat is analyzed and MRLs apply to carcass fat).

GROUP 31 - POULTRY FATS

Poultry fats are the rendered or extracted fats from fatty tissues of poultry. The entire product may be consumed.

² For milk and milk products regarding fat soluble pesticides see Section 1 of this Volume.

CLASSIFICATION OF COMMODITIES

**PORTION OF COMMODITY TO WHICH THE CODEX
MRL APPLIES (AND WHICH IS ANALYZED)**

Poultry fats:

Whole commodity.

GROUP 32 - POULTRY BYPRODUCTS

Poultry byproducts are edible tissue and organs, other than poultry meat and poultry fat from slaughtered poultry.

Poultry byproducts:

Whole commodity.

GROUP 33 - EGGS

Eggs are the fresh edible portion of the reproductive body of several avian species. The edible portion includes egg white and egg yolk after removal of the shell.

Eggs:

Whole egg whites and yolks combined after removal of shells.