CD/K/063:2010
ICS 67.080.20

EAST AFRICAN STANDARD

Fresh radishes — Specification and grading

EAST AFRICAN COMMUNITY

HS 0706.90.0000

First Edition 2010

Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in East Africa. It is envisaged that through harmonized standardization, trade barriers which are encountered when goods and services are exchanged within the Community will be removed.

In order to meet the above objectives, the EAC Partner States have enacted an East African Standardization, Quality Assurance, Metrology and Test Act, 2006 (EAC SQMT Act, 2006) to make provisions for ensuring standardization, quality assurance, metrology and testing of products produced or originating in a third country and traded in the Community in order to facilitate industrial development and trade as well as helping to protect the health and safety of society and the environment in the Community.

East African Standards are formulated in accordance with the procedures established by the East African Standards Committee. The East African Standards Committee is established under the provisions of Article 4 of the EAC SQMT Act, 2006. The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the procedures of the Community.

Article 15(1) of the EAC SQMT Act, 2006 provides that "Within six months of the declaration of an East African Standard, the Partner States shall adopt, without deviation from the approved text of the standard, the East African Standard as a national standard and withdraw any existing national standard with similar scope and purpose".

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

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Introduction

In the preparation of this East African Standard, the following sources were consulted extensively:

UNECE STANDARD FFV-43:1988, *Marketing and commercial quality control of radishes*

United States Standards for Grades of Radishes, Effective October 1, 1968 *(Reprinted — January 1997)*

CODEX STAN 193:1995 (Rev.5:2009), *General Standard for Contaminants and Toxins in Foods*

CODEX STAN 228:2001 (Rev.1:2004), *General methods of analysis for contaminants*

Codex Alimentarius website: http://www.codexalimentarius.net/mrls/pestdes/jsp/pest_q-e.jsp

USDA Foreign Agricultural Service website: http://www.mrldatabase.com

USDA Agricultural Marketing Service website: http://www.ams.usda.gov/AMSv1.0/Standards

USDA Plant Inspectorate Service website: http://www.aphis.usda.gov/import_export/plants

European Union: http://ec.europa.eu/sanco_pesticides/public

Assistance derived from these sources and others inadvertently not mentioned is hereby acknowledged.

This standard has been developed to take into account:

— the needs of the market for the product;

— the need to facilitate fair domestic, regional and international trade and prevent technical barriers to trade by establishing a common trading language for buyers and sellers.

— the structure of the CODEX, UNECE, USA, ISO and other internationally significant standards;

— the needs of the producers in gaining knowledge of market standards, conformity assessment, commercial cultivars and crop production process;

— the need to transport the product in a manner that ensures keeping of quality until it reaches the consumer;

— the need for the plant protection authority to certify, through a simplified form, that the product is fit for crossborder and international trade without carrying plant disease vectors;

— the need to promote good agricultural practices that will enhance wider market access, involvement of small-scale traders and hence making fruit and vegetable production a viable means of wealth creation; and

— the need to keep unsatisfactory produce from the market by allowing the removal of unsatisfactory produce from the markets and to discourage unfair trade practices e.g. trying to sell immature produce at the beginning of the season when high profits can be made. Immature produce leads to dissatisfaction of customers and influences their choices negatively, which disadvantages those traders who have waited until the produce is mature.

Contents

Fresh radishes — Specification and grading

1 Scope

This standard applies to radishes of varieties (cultivars) grown from *Raphanus sativus L. var. radicula Pers.* to be supplied fresh to the consumer, radishes for industrial processing being excluded.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CAC/GL 21, *Principles for the Establishment and Application of Microbiological Criteria for Foods*

CAC/RCP 1, *Recommended International Code of Practice — General Principles of Food Hygiene*

CAC/RCP 44, *Recommended International Code of Practice for the Packaging and Transport of Tropical Fresh Fruit and Vegetables*

CAC/RCP 53, *Code of Hygienic Practice for Fresh Fruits and Vegetables*

EAS 38, *Labelling of prepackaged foods — Specification*

CD/K/378:2010, *Horticultural industry — Code of practice*

3 Definitions

For the purpose of this standard the following definition shall apply:

3.1
similar varietal characteristics
radishes in any sample are similar in color and shape; for example, red varieties shall not be mixed with white varieties and globe-shaped varieties shall not be mixed with long-shaped varieties

3.2
clean
radishes are practically free from dirt or other foreign material

3.3
well formed
the root has the shape characteristic of the variety

3.4
smooth
the root is not rough, or ridged to the extent that the appearance is materially affected

3.5
firm
the root is crisp and not soft, flabby, or wilted

3.6
Tender
the root is not stringy or woody

3.7
damage
any specific defect described in this section; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which materially detracts from the appearance, or the edible or marketing quality of the individual radish, the individual bunch of

radishes, or the appearance of the sample as a whole. The following specific defects shall be considered as damage:

(a) Growth cracks or air cracks:

(1) When more than one are present;

(2) When the flesh is discolored;

(3) When more than one-fourth inch deep; or,

(4) When the length of any crack exceeds the limitations set forth in Table 1.

(b) Cuts, including harvester cuts and abrasions:

(1) When the flesh is discolored;

(2) When rough or deep;

(3) When the area of exposed flesh of any cut exceeds the limitations set forth in Table 1; or,

(4) When the aggregate of all cuts or abrasions detracts from the appearance more than the maximum size single cut permitted.

Table 1 — Maximum sizes

Diameter of root	Maximum length of growth crack or air crack permitted	Maximum area of cut permitted — equivalent to:
16 mm	10 mm	10 mm circle
19 mm	12.7 mm	12.7 mm circle
22.2 mm	12.7 mm	12.7 mm circle
25.4 mm	16 mm	16 mm circle
28.6 mm	16 mm	19 mm circle

(c) Pithiness when there is any distinctly open space, or when more than one-fourth of the surface at a center cut is dry and cottony;

(d) Insects or insect injury when the appearance of the root is materially affected, or when the injury penetrates into the flesh of the root or when the tops are affected to the extent that the appearance of the bunch is materially affected; and,

(e) Yellowing or other discoloration of the tops when the appearance of the bunch is materially affected. The appearance of bunches with tops having slight discoloration such as yellowing, browning, or other abnormal color affecting a few leaves shall not be considered materially affected if the tops as a whole show a predominantly normal green color.

3.8
fresh
the tops have normal green color and are not more than slightly wilted

3.9
diameter
the greatest dimension of the root measured at right angles to a line running from the crown to the base of the root

3.10
serious damage
any defect or any combination of defects which seriously detracts from the appearance, or the edible or marketing quality of the individual root or the appearance of the bunch

4 Provisions concerning quality

4.1 General

The purpose of the standard is to define the quality requirements for radishes at the export control stage, after preparation and packaging.

4.2 Minimum requirements

In all classes, subject to the special provisions for each class and the tolerances allowed, the tubers of the radishes must be:

— intact; however, the terminal rootlet may be cut

— sound, produce affected by rotting or deterioration such as to make it unfit for consumption is excluded

— clean, practically free of all visible foreign matter

— fresh in appearance

— practically free from pests

— practically free from damage caused by pests

— neither hollow nor woody

— free of abnormal external moisture; i.e. sufficiently drained if washed

— free of any foreign smell and/or taste.

The development and condition of the radishes must be such as to enable them:

— to withstand transport and handling, and

— to arrive in satisfactory condition at the place of destination.

4.3 Classification

Radishes are classified in two classes defined below:

4.3.1 Class I

Radishes in this class must be of good quality. They must have the colour and characteristic shape of the type.

The tubers must be firm and free from cracks.

The following slight defects, however, may be allowed provided these do not affect the quality, the keeping quality and presentation in the package:

— very slight bruises.

The foliage, if present, must be fresh, sound and green in colour.

4.3.2 Class II

This class includes radishes which do not qualify for inclusion in Class I but satisfy the minimum requirements specified above.

The following defects may allowed provided the radishes retain their essential characteristics as regards the quality, the keeping quality and presentation:

— slight defects in shape

— slight defects in colouring

— slight cracks due to washing or handling or slight healed cracks which do not penetrate as far as the core

— slight skin blemishes

— slight damage.

The foliage, if present may be damaged and/or show colour deviation.

5 Provisions concerning sizing

Sizing is not compulsory for radishes.

6 Provisions concerning tolerances

Tolerances in respect of quality shall be allowed in each package for produce not satisfying the requirements of the class indicated.

6.1 Quality tolerances

6.1.1 Class I

10 per cent by number or weight of radishes not satisfying the requirements of the class, but meeting those of Class II or, exceptionally, coming within the tolerances of that class.

6.1.2 Class II

10 per cent by number or by weight of radishes satisfying neither the requirements of the class nor the minimum requirements, with the exception of produce affected by rotting or any other deterioration rendering it unfit for consumption.

7 Provisions concerning presentation

7.1 Uniformity

The contents of each package, or each bunch in the same package, must be uniform and contain only radishes of the same origin, type and quality. Moreover radishes in Class I must be uniform in shape and colour. The visible part of the contents of the package must be representative of the entire contents.

7.2 Packaging

Radishes must be packed in such a way as to protect the produce properly. The materials used inside the package must be new, clean and of a quality such as to avoid causing any external or internal damage to the produce. The use of materials and particularly of paper or stamps bearing trade specifications is allowed provided the printing or labelling has been done with non-toxic ink or glue.

Packages must be free of all foreign matter.

7.3 Presentation

Radishes may be presented with or without foliage.

8 Marking and labelling

8.1 Consumer packages

In addition to the requirements of EAS 38, the following specific provisions apply:

8.1.1 Nature of produce

If the produce is not visible from the outside, each package shall be labelled as to the name of the produce and may be labelled as to name of the variety and/or commercial type.

8.2 Non-retail containers

Each package[1] must bear the following particulars, in letters grouped on the same side, legibly and indelibly marked, and visible from the outside:

8.2.1 Identification

The exporter, packer and/or dispatcher shall be identified by name and physical address (e.g. street/city/region/postal code and, if different from the country of origin, the country) or a code mark officially recognized by the national authority.[2]

8.2.2 Nature of produce

— "Radishes" if the contents are not visible from the outside.

8.2.3 Origin of produce

Country of origin and, optionally, district where grown or national, regional or local place name.

8.2.4 Commercial specifications

— Class

— Number of bunches or number of consumer units.

8.2.5 Official control mark (optional)

9 Contaminants

9.1 Heavy metals

Radishes shall comply with those maximum levels for heavy metals established by the Codex Alimentarius Commission for this commodity. The current limits are as indicated below:

Metal	Unit of measurement	Maximum limit	Test method
Lead (Pb)	mg/kg wet weight	0.10	ISO 6633 (AAS)
Cadmium (Cd)	mg/kg wet weight	0.050	ISO 6561-1 or 6561-2

9.2 Pesticide residues

Radishes shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for this commodity. The limits listed below were current as of the dates

[1] Package units of produce prepacked for direct sale to the consumer shall not be subject to these marking provisions but shall conform to the national requirements. However, the markings referred to shall in any event be shown on the transport packaging containing such package units.

[2] The national legislation of a number of countries requires the explicit declaration of the name and address. However, in the case where a code mark is used, the reference "packer and/or dispatcher (or equivalent abbreviations)" has to be indicated in close connection with the code mark, and the code mark should be preceded by the ISO 3166 (alpha) country/area code of the recognizing country, if not the country of origin.

indicated. The table below provides current MRLs while Annex E provides current MRLs for the USA, EU and Codex markets.

Maximum pesticide residue limits and extraneous maximum residue limits in radishes (current as at 2009-09-09)

Type	Unit symbol	Limit	Method of test	Notes
Radish				
BROMIDE ION	MRL (mg/kg)	200		
CHLORPYRIFOS-METHYL	MRL (mg/kg)	0.1		
DELTAMETHRIN	MRL (mg/kg) (*)	0.01		Used also as veterinary drug
DIAZINON	MRL (mg/kg)	0.1		
METHIDATHION	MRL (mg/kg) (*)	0.05		
PROPAMOCARB	MRL (mg/kg)	1		
PYRACLOSTROBIN	MRL (undef)	0.5		
TOLCLOFOS-METHYL	MRL (mg/kg)	0.1		
Radish leaves including radish tops				
PIPERONYL BUTOXIDE	MRL (mg/kg)	50		
PYRACLOSTROBIN	MRL (undef)	20		
Japanese radish				
PERMETHRIN	MRL (mg/kg)	0.1		

10 Hygiene

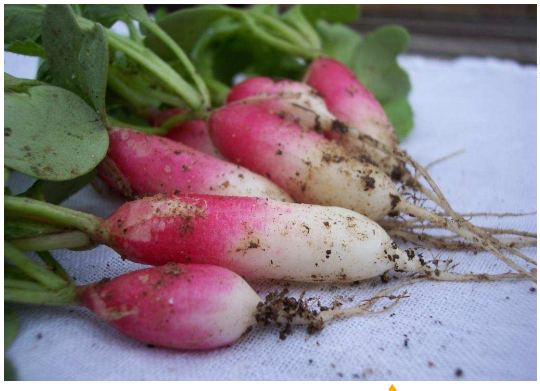
10.1 It is recommended that the produce covered by the provisions of this Standard be prepared and handled in accordance with the appropriate sections of CAC/RCP 1, CAC/RCP 53, and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.

10.2 The produce should comply with any microbiological criteria established in accordance with CAC/GL 21.

Egg radishes

China-rose radishes

Fresh radishes, purple shoulder (left) and white (right)



Open-face radish

Purple, red and white radishes

Hail stone radishes

Fresh red radishes

Radish watermelon

Purple radishes

China-rose radishes

Annex A
(informative)

Guide to storage

A.1 Scope and field of application

This annex describes methods for obtaining conditions for the successful keeping of roots of the species *Armoracia rusticana* Gaertner, B. Meyer and Scherbius, intended, after storage, for direct consumption or for industrial processing.

A.2 Limits of application

This annex provides guidance of a very general nature only. Because of the variability of the product according to the time and place of cultivation, local conditions may make it necessary to define other conditions for harvesting or other physical conditions in the store.

This annex does not apply unreservedly, therefore, to all varieties (cultivars) in all climates, and it will remain for each specialist to be the judge of any modifications to be made.

Subject to all restrictions arising from the fact that radishes are living material, the application of the guidance contained in this annex should enable much wastage in storage and transport to be avoided.

A.3 Conditions of harvesting and putting into store

A.3.1 Harvesting

The horse-radish roots should be lifted during the winter dormancy; lifting should start in late autumn as the roots are very hardy, but should be finished before frosts begin in countries and locations prone to heavy frosts.

A.3.2 Quality characteristics for storage

All horse-radish cultivars grown in any region are suitable for long-term storage; no distinction among them is therefore necessary in respect of storage.

The product quality should correspond to the requirements set out in Clause 4.

The roots should appear fresh and should be clean, sound, whole, not stringy, and free from secondary roots, bruises, deep fissures, and visible damage caused by insects or diseases.

A.3.3 Putting into store

The roots should be cleaned, sorted by quality classes immediately after lifting, and put into cold store within one or two days so that their fresh and pungent state tan be maintained. The cold rooms should be pre-cooled to 0 °C to obtain rapid cooling of th e roots.

A.3.4 Methods of storage

The roots may be stored in containers, boxes or pallet boxes; these may be lined with polyethylene film to prevent moisture loss.

In practice, for example about 25 kg of horse-radish can be put in a box of dimensions 40 cm x 60 cm x 33 cm.

The thickness of polyethylene film liners commonly used is 0.1 to 0.2 mm. The polyethylene film lining should fit the box; the part of the film remaining free should he folded over the roots in such a way as

to ensure some circulation of air. Unlined boxes can be covered with polyethylene film of appropriate dimensions.

The containers shall be free from contamination and foreign odour. No product other than horse-radish shall be stored, even temporarily, in the room intended for storage of horseradish. The room should be clean and free from pests and diseases. The store should be filled continuously and quickly; if it is only partly filled, a suitable partition should be used to separate the filled and unfilled areas.

A.4 Optimum storage conditions

NOTE For definitions and measurement of the physical quantities affecting storage, see CD/K/378:2010.

A.4.1 Temperature

The optimum temperature is between 0 and -2 ℃; the temperature should not rise above 0 ℃.

A.4.2 Relative humidity

The optimum relative humidity is between 90 and 95 %.

A.4.3 Air circulation

The containers and the way in which they are stacked should permit free circulation of air, in order to maintain a uniform temperature.

A.4.4 Storage life

A storage life of 10 months may be expected.

A.4.5 Operations at the end of storage

Horse-radish roots stored in containers without polyethylene film lining should be layered in damp sand 2 to 3 weeks before distribution (the time depending on the moisture loss occurring during storage), in such quantity as to permit ease of delivery. The layering is done on pallets using a frame to contain the sand and the roots. The treatment allows the roots to regain their original freshness and pungency.

The treatment is unnecessary for roots in boxes lined with polyethylene film.

A.5 Adjuncts and other methods of keeping

A.5.1 Use of polyethylene film cowering and liners

A.5.1.1 Roots stored in stacked containers may be covered by polyethylene film to prevent loss of moisture.

A.5.1.2 Containers may be lined with perforated polyethylene

A.5.2 Treatment

The roots may be treated, before being put into the store, with an approved and effective fungicide which complies with national regulations.

Annex C
(informative)

Model certificate of conformity with standards for fresh fruits and vegetables

1. Trader:	Certificate of conformity with the Community marketing standards applicable to fresh fruits and vegetables No. …….. (This certificate is exclusively for the use of inspection bodies)	
2. Packer identified on packaging (if other than trader)	3. Inspection body	
	4. Place of inspection/country of origin ([1])	5. Region or country of destination
6. Identifier of means of transport	7. ☐ Internal ☐ Import ☐ Export	
8. Packages (number and type)	9. Type of product (variety if the standards specifies)	10. Quality Class / 11. Total net weight in kg

12. The consignment referred to above conforms, at the time of issue, with the Community standards in force, vide:

CD/K/063:2010, *Fresh radishes — Specification and grading*

Customs office foreseen …… Place and date of issue ……

Valid until (date): ……

Signatory (name in block letters): ……..

Signature Seal of competent authority

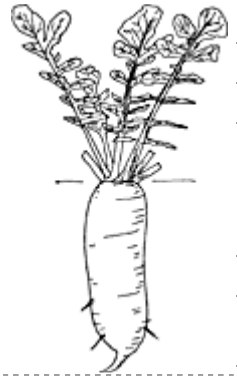
13. Observations:

([1]) Where the goods are being re-exported, indicate the origin in box 9.

Annex D
(informative)

Radish (roots and tops) — Fact sheet

D.1 *Raphanus sativus*



Authority	Bailey
Family	Magnoliopsida:Dilleniidae:Capparales:Cruciferae
Synonyms	
Common names	radish, Japanese radish, leafy daikon, daikon, Chinese radish, Oriental radish, Radis Japonais, Rabano blanco, Diakon, Lobak, putih, Lobak, Radish, Radis, Labanos, Rabanos, Alibanos, Monla, Chhaay thaaw, Kaad khaaw, Phakkat-hua, Phakkhithut.
Editor	
Ecocrop code	1839

Description

A very variable, erect, more or less densely hairy herb with a large, cylindrical, thickened, fleshy, white root. Leaves are long and narrow, up to 60 cm in length. The root of Chinese cultivars may be 10-25 x 4-5 cm or up to 2.5 kg/root, while Japanese cultivars may produce roots with a weight of 10-20 kg. The root may grow to a depth of 1-1.5 m. The edible part consists of the thickened hypocotyl and the upper part of the taproot.

Uses

The roots are crispy and mild in flavour, they are sliced or diced and used in soups and sauces or cooked with meat. They can also be eaten fresh, mixed with other vegetables. The roots can be preserved in salt. The leaves are eaten as salad or spinach. Seedlings are used as greens for appetizers or cooked as spinach.

Growing period

Annual herb, the first roots may be harvested 50-90 days from sowing.

Further information

Scientific synonym: *R. sativus* L. var. *hortensis*, var. *niger* or var. *longipinnatus*. Chinese radish is most important in Japan, Korea, China and South-East Asia. It flowers and produces seeds at low elevations and under short day conditions. Yields vary between 12-20 t/ha.

D.2 *Raphanus sativus* var. *oleiferus*

Authority	L.
Family	Magnoliopsida:Dilleniidae:Capparales:Cruciferae
Synonyms	
Common names	fodder radish, oil radish, oilseed radish, nabo forrajero, nabo forrageiro, Oelrettich
Editor	
Ecocrop code	83541

Description

An erect, more less densely hairy herb, without a swollen root.

Uses

Mainly grown as a green manure and forage, but can also be cultivated for the leaves and used as a vegetable.

Growing period

Annual.

Common names

Leaf radish, Lobak daun, Lobak, Radish, Radis, Labanos, Rabanos, Alibanos, Monla, Chhaay thaaw, Kaad khaaw, Phakkat-hua, Phakkhithut.

Further information

Scientific synonym: R. sativus L. var. oleiformis. Leaf radish is gaining importance in Europe as forage and green manure.

D.3 *Raphanus sativus* var. *radicula*

Authority	L. [Pers]
Family	Magnoliopsida:Dilleniidae:Capparales:Cruciferae
Synonyms	Raphanus radicula Pers.
Common names	radish
Editor	
Ecocrop code	11291

Description

A very variable, erect, more or less densely hairy herb. Root globose, ellipsoid or cylindrical, 0.5-4 x 0.5-4 cm, red, white, red and white or violet with white flesh. The edible part consists of the thickened hypocotyl. When the plant becomes reproductive it may reach 20-100 cm in height.

Uses

The thickened, fleshy, pungent root is used as appetizer and for adding colour to dishes and is eaten as a salad vegetable and also the nutritious leaves may be used in salads. The leaves are used as a commercial source of leaf protein. The seeds are a source of nondrying oils used in soap-making and for edible purposes. The expressed oilseed cake is used as fertilizer.

Growing period

Annual or biennial, ready for harvest 22-50 days from sowing. Annual types matures seed from about 90 days after sowing but biennial types require two seasons to produce seeds. (Monegat; Autumn sown in Brazil annual types flowers in 65-75 days, and mature seed after 90-135 days).

Common names

Small radish, Western radish, Petit radis, Rades, Lobak berem, Lobak, Radish, Radis, Labanos, Rabanos, Alibanos, Monla, Chhaay thaaw, Kaad khaaw, Phakkat-hua, Phakkhithut, Rabano, Radieschen, Rettich, Radijs, Daikon, Mulla, Mullangi, Mullong, Labanos, Lu fu, Hatsuka-diakon, Mourai, Repitschki, Radise, Radies, Ravanello, Rabanete, Redis, Radisa.

Further information

Scientific synonym: *R. sativus* L. var. *sativus* or var. *radicula*. Small radish is most important in temperate climates. In the tropics, it flowers and produces seeds at elevations of 500 m or more in the tropics and under long day conditions. The radish prefer moderate air humidity. Crops grown in infertile soils or at high temperatures may be very pungent. Yields of 7-10 t/ha or 0.7-1 kg/m^2 are often obtained.

Annex E
(informative)

Radish (roots and tops) — Codex, EU and USA pesticide residue limits

Users are advised that international regulations and permissible Maximum Residue Levels (MRL) frequently change. Although this International MRL Database is updated frequently, the information in it may not be completely up-to-date or error free. Additionally, commodity nomenclature and residue definitions vary between countries, and country policies regarding deferral to international standards are not always transparent. This database is intended to be an initial reference source only, and users must verify any information obtained from it with knowledgeable parties in the market of interest prior to the sale or shipment of any products. The developers of this database are not liable for any damages, in whole or in part, caused by or arising in any way from user's use of the database.

Results Key

MRL values in *{Italics}* are more restrictive than US
--- indicates no MRL value is established.
Cod, EU, etc. indicates the source of the MRL and EXP means the market defers to the exporting market.
All numeric values listed are in parts per million (ppm), unless otherwise noted

Radish, Tops	**US *1***	**Cod**	**EU**
2,4-D	0.1	---	---
	1. United States does not maintain a specific MRL for the 2,4-D/Radish, Tops combination, but does maintain an MRL of 0.1 PPM for its "Vegetable, Leaves of Root and Tuber, Group 2" group.		
	US *2*	**Cod**	**EU**
Azoxystrobin	50	---	---
	2. United States does not maintain a specific MRL for the Azoxystrobin/Radish, Tops combination, but does maintain an MRL of 50 PPM for its "Vegetable, Leaves of Root and Tuber, Group 2" group.		
	US	**Cod**	**EU**
Bifenthrin	4.5	---	---
	US *3*	**Cod**	**EU**
Captan	0.05	---	---
	3. United States does not maintain a specific MRL for the Captan/Radish, Tops combination, but does maintain an MRL of 0.05 PPM for its "Vegetable, Leaves of Root and Tuber, Group 2" group.		
	US *4*	**Cod**	**EU**
Carbaryl	75	---	---
	4. United States does not maintain a specific MRL for the Carbaryl/Radish, Tops combination, but does maintain an MRL of 75 PPM for its "Vegetable, Leaves of Root and Tuber, Group 2" group.		
	US *5*	**Cod**	**EU**
Carfentrazone-ethyl	0.1	---	---
	5. United States does not maintain a specific MRL for the Carfentrazone-ethyl/Radish, Tops combination, but does maintain an MRL of 0.1 PPM for its "Vegetable, Leaves of Root and Tuber, Group 2" group.		
	US	**Cod**	**EU**
Clethodim	0.7	---	---
	US *6*	**Cod**	**EU**
Cyprodinil	10	---	---
	6. United States does not maintain a specific MRL for the Cyprodinil/Radish, Tops combination, but does maintain an MRL of 10 PPM for its "Vegetable, Leaves of Root and Tuber, Group 2" group.		
	US	**Cod *7***	**EU**
Deltamethrin	4	*{2}*	---
	7. Codex does not maintain a specific MRL for the Deltamethrin/Radish, Tops combination, but does maintain an MRL of 2 PPM for its "Leafy vegetables" group.		
	US	**Cod**	**EU**
Dimethenamid	0.01	---	---
	US	**Cod**	**EU**
Fenvalerate	8	---	---
	US	**Cod**	**EU**
Flonicamid	16	---	---
	US *8*	**Cod**	**EU**

Fludioxonil	30	---	---
	8. United States does not maintain a specific MRL for the Fludioxonil/Radish, Tops combination, but does maintain an MRL of 30 PPM for its "Vegetable, Leaves of Root and Tuber, Group 2" group.		
	US *9*	**Cod**	**EU**
Fluopicolide	15	---	---
	9. United States does not maintain a specific MRL for the Fluopicolide/Radish, Tops combination, but does maintain an MRL of 15 PPM for its "Vegetable, Leaves of Root and Tuber, Group 2" group.		
	US *10*	**Cod**	**EU**
Glufosinate-ammonium	0.4	---	---
	10. Canola, seed		
	US *11*	**Cod**	**EU**
Glyphosate	0.2	---	---
	11. United States does not maintain a specific MRL for the Glyphosate/Radish, Tops combination, but does maintain an MRL of 0.2 PPM for its "Vegetable, Leaves of Root and Tuber, Group 2" group.		
	US *12*	**Cod**	**EU**
Imidacloprid	4	---	---
	12. United States does not maintain a specific MRL for the Imidacloprid/Radish, Tops combination, but does maintain an MRL of 4 PPM for its "Vegetable, Leaves of Root and Tuber, Group 2" group.		
	US *13*	**Cod**	**EU**
Metalaxyl	15	---	---
	13. United States does not maintain a specific MRL for the Metalaxyl/Radish, Tops combination, but does maintain an MRL of 15 PPM for its "Vegetable, Leaves of Root and Tuber, Group 2" group.		
	US *14*	**Cod**	**EU**
Methoxyfenozide	30	---	---
	14. United States does not maintain a specific MRL for the Methoxyfenozide/Radish, Tops combination, but does maintain an MRL of 30 PPM for its "Vegetable, Leaves of Root and Tuber, Group 2" group.		
	US	**Cod**	**EU**
Pyraclostrobin	16	20	---
	US	**Cod**	**EU**
Sethoxydim	4.5	---	---
	US *15*	**Cod**	**EU**
Spinetoram	10	---	---
	15. United States does not maintain a specific MRL for the Spinetoram/Radish, Tops combination, but does maintain an MRL of 10 PPM for its "Vegetable, Leaves of Root and Tuber, Group 2" group.		
	US *16*	**Cod *17***	**EU**
Spinosad	10	10	---
	16. United States does not maintain a specific MRL for the Spinosad/Radish, Tops combination, but does maintain an MRL of 10 PPM for its "Vegetable, Leaves of Root and Tuber, Group 2" group.		
	17. Codex does not maintain a specific MRL for the Spinosad/Radish, Tops combination, but does maintain an MRL of 10 PPM for its "Leafy vegetables" group.		
	US	**Cod**	**EU**
Thiamethoxam	0.8	---	---
	US	**Cod**	**EU**
Trifloxystrobin	10	---	---
	US	**Cod**	**EU**
Trifluralin	0.05	---	---
Radish, Roots	**US *1***	**Cod**	**EU *2***
2,4-D	0.1	---	*{0.05}*
	1. United States does not maintain a specific MRL for the 2,4-D/Radish, Roots combination, but does maintain an MRL of 0.1 PPM for its "Vegetable, Root and Tuber, Group 1" group.		
	2. European Union does not maintain a specific MRL for the 2,4-D/Radish, Roots combination, but does maintain an MRL of 0.05 PPM for its "Vegetables Fresh or Frozen" group.		
	US *3*	**Cod**	**EU**
Azoxystrobin	0.5	---	*{0.2}*
	3. United States does not maintain a specific MRL for the Azoxystrobin/Radish, Roots combination, but does maintain an MRL of 0.5 PPM for its "Vegetable, Root, Subgroup 1A" group.		
	US	**Cod**	**EU**
Beta-cyfluthrin	1	---	---

	US *4*	**Cod**	**EU *5***
Bifenthrin	0.1	---	*{0.05}*
	4. United States does not maintain a specific MRL for the Bifenthrin/Radish, Roots combination, but does maintain an MRL of 0.1 PPM for its "Vegetable, Root, Except Sugar Beet, Subgroup 1B" group.		
	5. European Union does not maintain a specific MRL for the Bifenthrin/Radish, Roots combination, but does maintain an MRL of 0.05 PPM for its "Root and tuber vegetables" group.		
	US	**Cod**	**EU**
Boscalid	---	---	1
	US *6*	**Cod**	**EU**
Captan	0.05	---	*{0.02}*
	6. United States does not maintain a specific MRL for the Captan/Radish, Roots combination, but does maintain an MRL of 0.05 PPM for its "Vegetable, Root and Tuber, Group 1" group.		
	US *7*	**Cod**	**EU *8***
Carbaryl	2	---	*{0.05}*
	7. United States does not maintain a specific MRL for the Carbaryl/Radish, Roots combination, but does maintain an MRL of 2 PPM for its "Vegetable, Root and Tuber, Group 1" group.		
	8. European Union does not maintain a specific MRL for the Carbaryl/Radish, Roots combination, but does maintain an MRL of 0.05 PPM for its "Other root and tuber vegetables except sugar beet" group.		
	US *9*	**Cod**	**EU *10***
Carfentrazone-ethyl	0.1	---	*{0.01}*
	9. United States does not maintain a specific MRL for the Carfentrazone-ethyl/Radish, Roots combination, but does maintain an MRL of 0.1 PPM for its "Vegetable, Root and Tuber, Group 1" group.		
	10. European Union does not maintain a specific MRL for the Carfentrazone-ethyl/Radish, Roots combination, but does maintain an MRL of 0.01 PPM for its "Vegetables Fresh or Frozen" group.		
	US	**Cod**	**EU**
Chlorpyrifos	2	---	*{0.2}*
	US	**Cod**	**EU *11***
Clethodim	1	---	*{0.5}*
	11. European Union does not maintain a specific MRL for the Clethodim/Radish, Roots combination, but does maintain an MRL of 0.5 PPM for its "Other root and tuber vegetables except sugar beet" group.		
	US	**Cod**	**EU *12***
Cyfluthrin	1	---	*{0.02}*
	12. European Union does not maintain a specific MRL for the Cyfluthrin/Radish, Roots combination, but does maintain an MRL of 0.02 PPM for its "Root and tuber vegetables" group.		
	US *13*	**Cod**	**EU**
Cyprodinil	0.75	---	*{0.05}*
	13. United States does not maintain a specific MRL for the Cyprodinil/Radish, Roots combination, but does maintain an MRL of 0.75 PPM for its "Vegetable, Root, Except Sugar Beet, Subgroup 1B" group.		
	US *14*	**Cod**	**EU *15***
Deltamethrin	0.2	*{0.01}*	*{0.05}*
	14. United States does not maintain a specific MRL for the Deltamethrin/Radish, Roots combination, but does maintain an MRL of 0.2 PPM for its "Vegetable, Root, Except Sugar Beet, Subgroup 1B" group.		
	15. European Union does not maintain a specific MRL for the Deltamethrin/Radish, Roots combination, but does maintain an MRL of 0.05 PPM for its "Root and tuber vegetables" group.		
	US	**Cod**	**EU**
Diazinon	0.5	*{0.1}*	*{0.1}*
	US	**Cod**	**EU *16***
Dimethenamid	0.01	---	0.01
	16. European Union does not maintain a specific MRL for the Dimethenamid/Radish, Roots combination, but does maintain an MRL of 0.01 PPM for its "Vegetables Fresh or Frozen" group.		
	US	**Cod *17***	**EU *18***
Fenvalerate	0.3	*{0.05}*	*{0.02}*
	17. Codex does not maintain a specific MRL for the Fenvalerate/Radish, Roots combination, but does maintain an MRL of 0.05 PPM for its "Root and tuber vegetables" group.		
	18. European Union does not maintain a specific MRL for the Fenvalerate/Radish, Roots combination, but does maintain an MRL of 0.02 PPM for its "Vegetables Fresh or Frozen" group.		
	US *19*	**Cod**	**EU *20***
Flonicamid	0.6	---	*{0.05}*
	19. United States does not maintain a specific MRL for the Flonicamid/Radish, Roots combination, but does maintain an MRL of 0.6 PPM for its "Vegetable, Root, Except Sugar Beet, Subgroup 1B" group.		

	20. European Union does not maintain a specific MRL for the Flonicamid/Radish, Roots combination, but does maintain an MRL of 0.05 PPM for its "Other root and tuber vegetables except sugar beet" group.		
	US *21*	**Cod**	**EU *22***
Fludioxonil	0.75	---	*{0.05}*
	21. United States does not maintain a specific MRL for the Fludioxonil/Radish, Roots combination, but does maintain an MRL of 0.75 PPM for its "Vegetable, Root, Except Sugar Beet, Subgroup 1B" group.		
	22. European Union does not maintain a specific MRL for the Fludioxonil/Radish, Roots combination, but does maintain an MRL of 0.05 PPM for its "Other root and tuber vegetables except sugar beet" group.		
	US *23*	**Cod**	**EU *24***
Fluopicolide	0.15	---	*{0.01}*
	23. United States does not maintain a specific MRL for the Fluopicolide/Radish, Roots combination, but does maintain an MRL of 0.15 PPM for its "Vegetable, Root, Subgroup 1A" group.		
	24. European Union does not maintain a specific MRL for the Fluopicolide/Radish, Roots combination, but does maintain an MRL of 0.01 PPM for its "Other root and tuber vegetables except sugar beet" group.		
	US *25*	**Cod**	**EU *26***
Glyphosate	0.2	---	*{0.1}*
	25. United States does not maintain a specific MRL for the Glyphosate/Radish, Roots combination, but does maintain an MRL of 0.2 PPM for its "Vegetable, Root and Tuber, Group 1" group.		
	26. European Union does not maintain a specific MRL for the Glyphosate/Radish, Roots combination, but does maintain an MRL of 0.1 PPM for its "Other root and tuber vegetables except sugar beet" group.		
	US *27*	**Cod**	**EU *28***
Imidacloprid	0.4	---	*{0.05}*
	27. United States does not maintain a specific MRL for the Imidacloprid/Radish, Roots combination, but does maintain an MRL of 0.4 PPM for its "Vegetable, Root and Tuber, Group 1" group.		
	28. European Union does not maintain a specific MRL for the Imidacloprid/Radish, Roots combination, but does maintain an MRL of 0.05 PPM for its "Other root and tuber vegetables except sugar beet" group.		
	US *29*	**Cod**	**EU**
Metalaxyl	0.5	---	*{0.1}*
	29. United States does not maintain a specific MRL for the Metalaxyl/Radish, Roots combination, but does maintain an MRL of 0.5 PPM for its "Vegetable, Root and Tuber, Group 1" group.		
	US *30*	**Cod**	**EU *31***
Methoxyfenozide	0.5	---	*{0.02}*
	30. United States does not maintain a specific MRL for the Methoxyfenozide/Radish, Roots combination, but does maintain an MRL of 0.5 PPM for its "Vegetable, Root, Subgroup 1A" group.		
	31. European Union does not maintain a specific MRL for the Methoxyfenozide/Radish, Roots combination, but does maintain an MRL of 0.02 PPM for its "Root and tuber vegetables" group.		
	US *32*	**Cod**	**EU**
Pyraclostrobin	0.4	0.5	*{0.2}*
	32. United States does not maintain a specific MRL for the Pyraclostrobin/Radish, Roots combination, but does maintain an MRL of 0.4 PPM for its "Vegetable, Root, Except Sugar Beet, Subgroup 1B" group.		
	US *33*	**Cod**	**EU *34***
Pyriproxyfen	0.15	---	*{0.05}*
	33. United States does not maintain a specific MRL for the Pyriproxyfen/Radish, Roots combination, but does maintain an MRL of 0.15 PPM for its "Vegetable, Root and Tuber, Group 1" group.		
	34. European Union does not maintain a specific MRL for the Pyriproxyfen/Radish, Roots combination, but does maintain an MRL of 0.05 PPM for its "Root and tuber vegetables" group.		
	US *35*	**Cod**	**EU *36***
S-metolachlor	0.3	---	*{0.05}*
	35. United States does not maintain a specific MRL for the S-metolachlor/Radish, Roots combination, but does maintain an MRL of 0.3 PPM for its "Vegetable, Root, Except Sugar Beet, Subgroup 1B" group.		
	36. European Union does not maintain a specific MRL for the S-metolachlor/Radish, Roots combination, but does maintain an MRL of 0.05 PPM for its "Vegetables Fresh or Frozen" group.		
	US *37*	**Cod**	**EU *38***
Sethoxydim	4	---	*{0.5}*
	37. United States does not maintain a specific MRL for the Sethoxydim/Radish, Roots combination, but does maintain an MRL of 4 PPM for its "Vegetable, Root and Tuber, Group 1" group.		
	38. European Union does not maintain a specific MRL for the Sethoxydim/Radish, Roots combination, but does maintain an MRL of 0.5 PPM for its "Other root and tuber vegetables except sugar beet" group.		
	US *39*	**Cod**	**EU *40***
Spinetoram	0.1	---	*{0.05}*
	39. United States does not maintain a specific MRL for the Spinetoram/Radish, Roots combination, but does maintain an MRL of 0.1 PPM for its "Vegetable, Root and Tuber, Group 1" group.		

	40. European Union does not maintain a specific MRL for the Spinetoram/Radish, Roots combination, but does maintain an MRL of 0.05 PPM for its "Root and tuber vegetables" group.		
	US *41*	**Cod**	**EU *42***
Spinosad	0.1	---	*{0.02}*
	41. United States does not maintain a specific MRL for the Spinosad/Radish, Roots combination, but does maintain an MRL of 0.1 PPM for its "Vegetable, Root and Tuber, Group 1" group.		
	42. European Union does not maintain a specific MRL for the Spinosad/Radish, Roots combination, but does maintain an MRL of 0.02 PPM for its "Root and tuber vegetables" group.		
	US *43*	**Cod**	**EU**
Thiamethoxam	0.02	---	0.05
	43. United States does not maintain a specific MRL for the Thiamethoxam/Radish, Roots combination, but does maintain an MRL of 0.02 PPM for its "Vegetable, Root, Except Sugar Beet, Subgroup 1B" group.		
	US	**Cod**	**EU**
Trifloxystrobin	---	---	0.02
	US	**Cod**	**EU**
Trifluralin	0.05	---	0.5
	US *44*	**Cod *45***	**EU *46***
Zeta-Cypermethrin	0.1	*{0.05}*	*{0.05}*
	44. United States does not maintain a specific MRL for the Zeta-Cypermethrin/Radish, Roots combination, but does maintain an MRL of 0.1 PPM for its "Vegetable, Root and Tuber, Group 1" group.		
	45. The MRL is established for the sum of cypermethrin and zeta-cypermethrin. Codex does not maintain a specific MRL for the Zeta-Cypermethrin/Radish, Roots combination, but does maintain an MRL of 0.05 PPM for its "Root and tuber vegetables" group.		
	46. European Union does not maintain a specific MRL for the Zeta-Cypermethrin/Radish, Roots combination, but does maintain an MRL of 0.05 PPM for its "Root and tuber vegetables" group.		