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EAST AFRICAN STANDARD

Fresh sweet potatoes — Specification and grading



EAST AFRICAN COMMUNITY

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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:

United States Standards for Grades of Sweet Potatoes, Effective April 21, 2005

ISO 9719:1995, *Root vegetables — Cold storage and refrigerated transport*

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 STAN 230:2001 (Rev.1:2003), *Maximum levels for lead*

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.

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Draft for comments only — Not to be cited as East African Standard

Fresh sweet potatoes — Specification and grading

1 Scope

This standard applies to sweet potatoes of varieties (cultivars) grown from *Ipomoea batatas* to be supplied to the consumer in the natural state, sweet potatoes 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

the sweet potatoes have the same character of flesh and practically the same skin color. For example, dry type shall not be mixed with semi-moist or moist type.

3.2

firm

not more than slightly flabby or shriveled

3.3

smooth

the sweet potato is free from veining or other defects causing roughness which more than slightly detract from the appearance of the individual sweet potato or the general appearance of the lot

3.4

fairly clean

the individual sweet potato is not caked with dirt and that dirt or other foreign matter does not materially detract from the general appearance of the lot

3.5

fairly well shaped

the sweet potatoes are not so curved, crooked, constricted or otherwise misshapen as to materially detract from the appearance of the individual sweet potato or the general appearance of the lot

3.6

damage

any specific defect defined 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 shipping quality of the individual sweet potato or the lot as a whole; or

which cannot be removed without a loss of more than 5 % of the total weight of the sweet potato including peel covering the defective area. The following specific defects shall be considered as damage:

- (a) Sprouts when more than 10 % of the sweet potatoes in the lot have sprouts over 19 mm in length;
- (b) Growth cracks when unhealed or which detract materially from the appearance of the individual sweet potato or general appearance of the lot;
- (c) Scurf when more than 15 % of the surface in the aggregate is affected by solid light brown discoloration. Speckled types of scurf, or lighter or darker shades of discoloration may be permitted over a greater or lesser area provided no discoloration detracts from the appearance more than the amount of solid light brown discoloration permitted;
- (d) Pox (soil rot) when materially detracting from the appearance of the individual sweet potato; and,
- (e) Wireworm, grass root or similar injury when any hole in a sweet potato ranging in size from 168 g to 224 g, is more than 19 mm inch long, or when the aggregate length of all holes is more than 32 mm, or correspondingly shorter or longer holes in smaller or larger sweet potatoes.

3.7

length

the dimension of the sweet potato, measured in a straight line between points at or near each end of the sweet potato where it is at least 10 mm in diameter

3.8

diameter

the greatest dimension of the sweet potato, measured at right angles to the longitudinal axis

3.9

one type

the sweet potatoes have the same character of flesh, and do not show an extreme range in skin colour. For example, dry type shall not be mixed with semi-moist, or moist type, and deep red or purple skin colour shall not be mixed with yellow or reddish copper skin colour.

3.10

fairly smooth

the sweet potato is free from veining or other defects causing roughness which materially detract from the appearance of the individual sweet potato or the general appearance of the lot

3.11

serious damage

any specific defect defined in this section; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which seriously detracts from the appearance or edible or shipping quality of the individual sweet potato or the lot as a whole; or which cannot be removed without a loss of more than 10 percent of the total weight of the sweet potato including peel covering the defective area. The following specific defects shall be considered as serious damage:

- (a) Dirt or other foreign matter when the individual sweet potato is badly caked with dirt, or when seriously detracting from the appearance of the lot;
- (b) Growth cracks when unhealed or when seriously detracting from the appearance of the individual sweet potato or general appearance of the lot;
- (c) Pox (Soil Rot) when seriously detracting from the appearance of the individual sweet potato; and,

- (d) Wireworm, grass root or similar injury when any hole in a sweet potato ranging in size from 168 g to 224 g, is more than 32 mm long, or when the aggregate length of all holes is more than 50 mm, or correspondingly shorter or longer holes in smaller or larger sweet potatoes.

4 Provisions concerning quality

4.1 General

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

4.2 Minimum requirements

4.2.1 In all classes, subject to the special provisions for each class and the tolerances allowed, the sweet potatoes must be:

- (a) whole;
- (b) sound, produce affected by rotting or deterioration such as to make it unfit for consumption is excluded;
- (c) clean, practically free of any visible foreign matter, except permitted substances used to prolong their shelf life;
- (d) practically free of pests affecting the general appearance of the produce;
- (e) practically free of damage caused by pests;
- (f) free of abnormal external moisture, excluding condensation following removal from cold storage;
- (g) free of any foreign smell and/or taste;¹
- (h) firm;
- (i) practically free of mechanical damage and bruising;
- (j) practically free of signs of sprouting.

4.2.2 The sweet potatoes must have been carefully harvested and have reached an appropriate degree of physiological development, account being taken of the characteristics of the variety and/or commercial type and the area in which they are grown.

The development and condition of the sweet potatoes 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

Sweet potatoes are classified in three classes defined below:

4.3.1 "Extra" Class

Sweet potatoes in this class consists of sweet potatoes of similar varietal characteristics which are firm, smooth, fairly clean, fairly well shaped, which are free from freezing injury, internal breakdown, Black Rot, other decay or wet breakdown, and free from damage caused by secondary rootlets,

¹ This provision allows for smell caused by conservation agents used in compliance with corresponding regulations.

sprouts, cuts, bruises, scars, growth cracks, scurf, Pox (Soil Rot), or other diseases, wireworms, weevils, or other insects, or other means.

4.3.2 Class I

Class I consists of sweet potatoes of one type which are firm, fairly smooth, fairly clean, fairly well shaped, which are free from freezing injury, internal breakdown, Black Rot, other decay or wet breakdown, and free from damage caused by secondary rootlets, sprouts, cuts, bruises, scars, growth cracks, scurf, Pox (Soil Rot), or other diseases, wireworms, weevils or other insects, or other means.

4.3.3 Petite class

Petite class consists of sweet potatoes of one type which are firm, fairly smooth, fairly clean, fairly well shaped, which are free from freezing injury, internal breakdown, Black Rot, other decay or wet breakdown, and free from damage caused by secondary rootlets, sprouts, cuts, bruises, scars, growth cracks, scurf, Pox (Soil Rot), or other diseases, wireworms, weevils or other insects, or other means.

4.3.4 Commercial class

The Commercial class consists of sweet potatoes which meet all the requirements of the Class I except that an increased tolerance for defects is allowed.

4.3.5 Class II

Class II consists of sweet potatoes of one type which are firm and which are free from freezing injury, internal breakdown, Black Rot, other decay or wet breakdown, and free from serious damage, caused by dirt or other foreign materials, cuts, bruises, scars, growth cracks, Pox (Soil Rot), or other diseases, wireworms, weevils or other insects, or other means.

5 Provisions concerning sizing

Size is determined by the weight, length and/or diameter of the sweet potatoes, in accordance with the respective classes.

5.1 Extra class

- (a) Length shall be not less than 76 mm or more than 228.6 mm.
- (b) Maximum weight shall be not more than 504 g.
- (c) Maximum diameter shall be not more than 82.55 mm.
- (d) Minimum diameter, unless otherwise specified, shall be not less than 44.45 mm.

5.2 Class I

- (a) Maximum diameter shall be not more than 89 mm.
- (b) Maximum weight shall not be more than 560 g.
- (c) Length, unless otherwise specified, shall be not less than 76 mm or more than 228.6 mm.
- (d) Minimum diameter, unless otherwise specified, shall be not less than 44.45 mm.

5.3 Petite class

- (a) Diameter shall be not less than 38 mm or more than 57 mm.
- (b) Length shall be not less than 76 mm or more than 178 mm.

5.4 Class II

Unless otherwise specified the minimum diameter shall be not less than 38 mm and the maximum weight not more than 1000 g.

6 Provisions concerning tolerances

In order to allow for variations incident to proper grading and handling in each of the foregoing grades the following tolerances, by weight, are provided as specified:

6.1 Quality tolerances

6.1.1 "Extra" Class, Class I and Petite Class

10 percent of the sweet potatoes in any lot may fail to meet the requirements of these grades, but not more than one-half of this amount, or 5 percent, shall be allowed for sweet potatoes which are seriously damaged, including therein not more than 2 percent for sweet potatoes affected by soft rot or wet breakdown.

6.1.2 Commercial Class

25 % of the sweet potatoes in any lot may fail to meet the requirements of this grade, but not more than one-fifth of this amount, or 5 %, shall be allowed for sweet potatoes which are seriously damaged, including therein not more than 2 % for sweet potatoes affected by soft rot or wet breakdown.

6.1.3 Class II

10 percent of the sweet potatoes in any lot may fail to meet the requirements of this grade, including therein not more than 2 percent for sweet potatoes affected by soft rot or wet breakdown.

6.2 Size tolerances

10 percent of the sweet potatoes in any lot may fail to meet any specified size, but not more than one-half of this amount, or 5 percent, shall be allowed for sweet potatoes which are below the minimum diameter and minimum length specified.

6.3 Application of tolerances

The contents of individual packages in the lot are subject to the following limitations provided that the averages for the entire lot are within the tolerances specified for the grade.

- (a) Packages which contain more than 4.5 kg shall have not more than one and one-half times a specified tolerance of 10 percent or more, or not more than double a specified tolerance of less than 10 percent, except that at least one defective and one off-size specimen may be permitted in any package; and,
- (b) Packages which contain 4.5 kg or less shall have not more than four times the tolerance specified or not more than two defective or off-size specimens in any package, whichever is the larger percentage.

7 Provisions concerning presentation

7.1 Uniformity

The contents of each package must be uniform and contain only sweet potatoes of the same origin, variety and/or commercial type, quality and size. The visible part of the contents of the package must be representative of the entire contents.

7.2 Packaging

Sweet potatoes must be packed in such a way as to protect the produce properly. The materials used inside the package must be new², clean, and of a quality such as to avoid causing any external or internal damage to the produce. The use of materials, particularly of paper or stamps bearing trade specifications is allowed, provided the printing or labelling has been done with non-toxic ink or glue.

Sweet potatoes shall be packed in each container in compliance with CAC/RCP 44.

7.2.1 Description of containers

The containers shall meet the quality, hygiene, ventilation and resistance characteristics to ensure suitable handling, shipping and preserving of the sweet potatoes. Packages must be free of all foreign matter and smell.

8 Marking or 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-retain containers

Each package must bear the following particulars, in letters grouped on the same side, legibly and indelibly marked, and visible from the outside, or in the documents accompanying the shipment.

8.2.1 Identification

Name and address of exporter, packer and/or dispatcher. Identification code (optional).³

8.2.2 Nature of Produce

Name of the produce if the contents are not visible from the outside. Name of the variety and/or commercial type (optional).

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 Identification

- Type (yellow or orange flesh with a white, yellow, orange or red skin);
- Class;
- Size (size code or minimum and maximum weight in grams);
- Net weight (optional).

² For the purposes of this Standard, this includes recycled material of food-grade quality.

³ 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.

8.2.5 Official Inspection Mark (optional)**9 Contaminants****9.1 Pesticide residues**

Sweet potatoes shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for this commodity. 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 sweet potatoes
(current as at 2009-06-07)**

Pesticide	Unit symbol	Limit	Method of test	Notes
ALDICARB	MRL (mg/kg)	0.1		
CARBARYL	MRL (mg/kg) (*)	0.02		
DIMETHENAMID-P	MRL (undef) (*)	0.01		
ENDOSULFAN	MRL (mg/kg) (*)	0.05		
ETHOPROPHOS	MRL (undef)	0.05		

9.2 Heavy metals

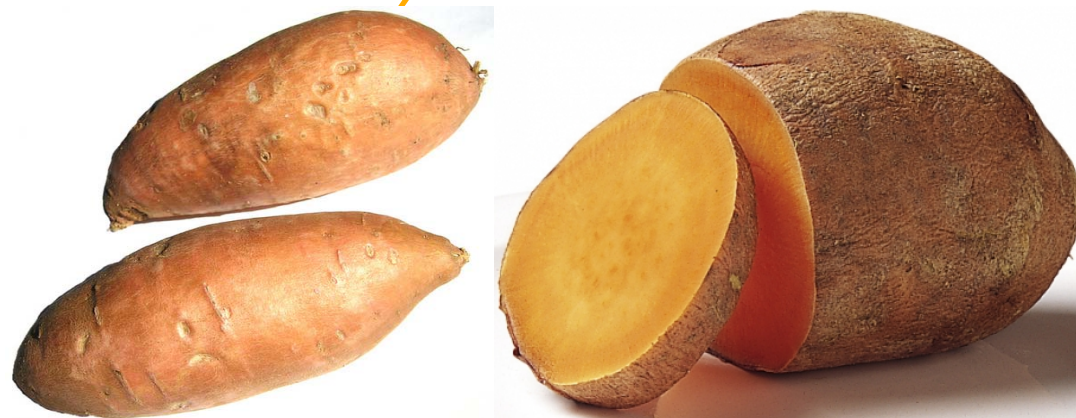
Sweet potatoes shall comply with those maximum levels for heavy metal contaminants established by the Codex Alimentarius Commission for this commodity. The current limits are as indicated below:

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	0.10	ISO 6561-1 or 6561-2

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.

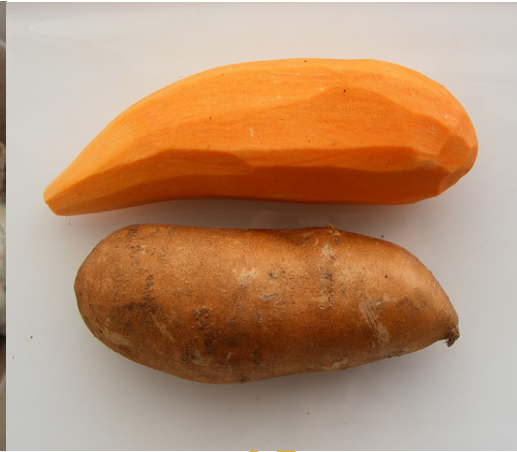
10.2 The produce should comply with any microbiological criteria established in accordance with CAC/GL 21.



Yellow fleshed sweet potatoes



Purple fleshed sweet potato



Sweet potato (orange kind)



Red sweet potatoes



Fresh yellow sweet potatoes



Purple skinned sweet potatoes



Freshly dug sweet potatoes



Fresh sweet potato harvest

Sweet potatoes in market

Draft for comments only — No

Annex B
(informative)

Cold storage and refrigerated transport

B.1 Scope

This annex gives guidance on conditions for cold storage and refrigerated transport of fresh root vegetables.

It applies only to stemless root vegetables intended for long-term storage in large-capacity warehouses, or refrigerated transport. Requirements for the storage of root vegetables with leaves are considerably different and are applicable only to short-term storage.

B.2 Field of application

This annex applies to black radish (*Raphanus sativus*), blackroot (*Scorzonera hispanica*), carrot (*Daucus carota*), horseradish (*Armoracia rusticana*), parsley (*Petroselinum crispum* var. *tuberosum*), red beetroot (*Beta vulgaris* var. *cruenta*) and similar root crops.

B.3 Characteristics for storage

B.3.1 Vegetables intended for long-term storage should be intact and firm without any mechanical damage, and be free of frost damage, rot, mould, parasites and disease. Excessive moisture on the surface of the roots and the presence of foreign odours or flavours should be avoided. Total removal of leaves is recommended. It is permitted to cut eaves smoothly with tops of roots of carrots, parsley, celeriac and beetroot.

B.3.2 The vegetables may be stored in warehouses without preliminary cleaning or washing, however, the soil naturally adhering to the roots or bulb should not exceed 2 % of the root weight.

B.3.3 Reference to standards for quality requirements valid for the individual types of root vegetable will minimize storage losses

B.4 Putting into storage

B.4.1 Root vegetables may be stored in box pallets or individual wooden or plastic boxes, stacked on simple pallets to form handling units. Individual boxes on pallets may be formed onto storage blocks suitable for forklift trucks.

B.4.2 The stacking height depends on the structure of the pallets and boxes but should conform to national standards for maximum loading. A common stacking height for individual boxes on pallets is 4 m, while that for box pallets is 6 m.

B.4.3 It is necessary to leave a minimum of 25 cm to 30 cm of free space between the stacks and the ceiling, and between the walls of the warehouse and the nearest stack

B.4.4 In order to facilitate the use of a fork-lift truck, a space of 25 cm to 30 cm is recommended between the stacks.

B.4.5 Root vegetables may also be loose (or bulk) piled. The warehouse should be provided with interior bulkheads at least 1 m from the interior walls. Bulk piling may not be suitable for vegetables with long roots because of possible damage during mechanical filling and removal.

B.5 Method of storage

B.5.1 Root vegetables should be packed in wooden or plastic boxes for storage and transport.

The sides and possibly the bottom of the individual containers should be provided with a sufficient number of ventilation holes to allow air circulation through the package.

Ventilation in the horizontal direction is preferred.

An evaporator should be located near the ceiling so that the cooled air, circulated by the evaporation fans above the stored vegetables, falls and is returned to the evaporator.

B.5.2 The following conditions should be applied:

- high relative humidity may be provided by installation of a mechanical humidifier;
- air should be circulated within the room at a rate of 30 air changes per hour;
- the rate of ventilation with outside air should be 0.5 air changes per hour;
- if the mechanical refrigeration system is out order, ventilation with outside air should be stopped so that the temperature within the room is maintained for as long as possible.

B.6 Optimum storage and transport conditions

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

B.6.1 Root vegetables should be stored at

- a) temperature 0 °C to 2 °C;
- b) relative humidity: 90 % to 95 %.


B.6.2 The storage room should be pre-cooled to 0 °C to 1 °C prior to loading; product loading should be completed in less than 7 days.

B.6.3 When removed from storage, any moisture which may condense on the surface of the vegetables may be removed by holding the vegetables at 10 °C to 20 °C with adequate air circulation.

B.6.4 Root vegetables should always be shipped in refrigerated transport maintained at a uniform temperature between 0 °C and 5 °C.

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. <input type="checkbox"/> Internal <input type="checkbox"/> Import <input type="checkbox"/> 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: <u>CD/K/092:2010, Fresh sweet potatoes — Specification and grading</u> _____ Customs office foreseen Place and date of issue Valid until (date): Signatory (name in block letters): <div style="display: flex; justify-content: space-around;"> Signature Seal of competent authority </div>			
13. Observations:			
(1) Where the goods are being re-exported, indicate the origin in box 9.			

Annex D (informative)

Sweet potato — Fact sheet

D.1 Introduction

Common Names: English: **sweetpotato, common potato, wild sweet potato**; Spanish: **batata, boniato, camote, batata dulce**; Polynesian: **kumara**

Scientific Names: Species: ***Ipomoea batatas* (L.) Lam., Syn.: *Ipomoea fastigiata* Choisy**
Family: Convolvulaceae

D.2 Uses

Cultivated primarily for edible storage roots; vines are used as vegetables in some parts of the world. Both starchy roots and vines can be used as animal feed or feed supplement. Various products such as candy, pastas, flour, drinks are produced in local industries.

D.3 Origin

New World; northwestern South America

D.4 Crop Status

A tropical perennial cultivated as an annual in temperate climates; grown in more than 100 countries in tropical, sub-tropical and temperate climates, it is used as a major food staple in a few countries, as an alternative staple in many countries, and as an incidental or luxury addition to the diet in many countries. It is one of only seven world food crops with an annual production of more than 100 million metric tons per year ranking thirteenth globally in production value among agricultural commodities (see Table D.1). It is cultivated primarily for the enlarged edible storage roots which provide high amounts of starch to staple diets. Use as an export crop is rare and production is usually to meet local or national needs. Asia accounts for over 80% of world production (most of that is in China), Africa for about 15% and the rest of the world about 5%. The US accounts for less than 1% of world production.

Sweet potatoes have yellow or orange flesh with a white, yellow, orange or red skin. Although variation in storage root skin colour and flesh colour is abundant, two major types exist which delineate usage. In most developing countries where sweet potato is used as a staple or alternative staple food, the type of root which is produced has white to cream coloured flesh and a bland, non-sweet flavour. It is dry in texture and often has a high dry matter content. The energy content which it can provide in staple diets depends on the dry matter content. In contrast, the type most used in developed countries, where use is normally as a vegetable or dessert, has root flesh colour of yellow or deep orange, moist texture, a very distinct flavour and high sugar content. The yellow or orange flesh colour is directly related to beta-carotene, a precursor of Vitamin A. Other nutrients supplied by sweet potato are Vitamin C, iron and potassium.

D.5 Anti-nutritional factors

Sweet potatoes contain trypsin inhibitors which may reduce ability to utilize protein if eaten raw. However, trypsin inhibitors do not survive cooking and are of no consequence in cooked roots.

D.6 Botany — Taxonomy

Sweet potato is a member of the family Convolvulaceae, Genus *Ipomoea*, section Batatas. It the only hexaploid ($6x = 90$) in this section and its origin is unknown. Section Batatas continues to undergo revision but contains approximately 12 other species, most of which are diploid ($2n = 30$), with a few tetraploids ($4x = 60$). Tetraploid sweetpotatoes have been collected in the wild although rarely. *Ipomoea trifida*, a diploid, is purported to be one of the likely progenitors of sweetpotato. Species in

section Batatas have been shown to contain unreduced gametes but the derivation of the hexaploid sweetpotato remains a mystery. Different theories of the evolution of *I. batatas* have been advanced by Japanese researchers, who consider it an autopolyploid derivative of *I. trifida*, and American researchers, who favor an allopolyploid origin involving *I. trifida* and an unidentified tetraploid parent. Introgression of traits from related species is normally prevented by crossing barriers between species. Some success has been reported through using massive numbers of crosses and embryo culture. However, introducing genes by this method is still generally not viable in a breeding program even though a few traits of considerable interest have been identified in related species.

The major centre of diversity for *I. batatas* is in northwestern South America (northern Peru, southern Ecuador) but other very important centres of diversity exist in sub-Saharan Africa, Papua New Guinea, and Indonesia.

D.7 Crop Culture — Ecology

Sweet potato is cultivated as a perennial in tropical and subtropical lowland agroecologies although it is well adapted to other zones and can be grown over widely different environments. The crop will grow with temperatures between 15°C and 35°C; however, the lower and higher temperatures have detrimental effects on yield. Storage roots are sensitive to changes in soil temperature depending on stage of root development. Sweet potato responds well to increasing moisture but is considered a drought-tolerant crop because it is deep rooted and capable of developing storage roots under very dry conditions. Excessive moisture inhibits storage root development in early growth stages and causes decay of storage roots in later growth stages. Sweet potatoes grow best in a sandy loam, well-drained soil. They have been produced at altitudes in excess of 2000m and as far north as Canada.

D.8 Cultivars

Hundreds of cultivars and land races are used throughout the world and are unique to countries or to smaller regions within countries. In industrialized countries which grow sweet potatoes, limited numbers of cultivars are grown. In the United States, growers tend to grow only one or two major cultivars for regional and national markets but may grow several cultivars in small amounts for local markets. Despite the tremendous genetic variability available to breeders in almost all traits of sweet potato, the crop is considered to be genetically vulnerable due to this heavy concentration in only one or two cultivars. The two cultivars which account for most of the current US acreage are 'Jewel' and 'Beauregard'.

The main differences between the white-fleshed and the familiar orange-fleshed sweet potatoes are that the white-fleshed types: tend to have a higher dry matter content with 25 to 40% starch and sugar content, are usually less sweet, generally are allowed to grow to a larger size, have variable root shape, and have a skin color that ranges from red to white. In addition the white-fleshed types are usually grown from stem tip cuttings of 30 to 40 cm in length, whereby little attention has been paid to the qualities and yield potential of the enlarged storage roots below the soil. Planting densities are approximately 30,000 plants/ha and harvest begins from four to six months after planting. Although planting is not mechanized, vegetable transplanters could be modified to accommodate the cuttings.

The main problem in production is sweet potato weevil (*Cylas formicarius* Fab.) infestation in the roots, which can result in total crop loss if left uncontrolled.

D.9 Production Practices

In temperate climates sweet potatoes cannot survive freezing temperatures and storage roots must be stored overwinter and used as "seed" roots the next spring. Overwintered storage roots are presprouted while still in storage by raising the temperature to 20-30°C for 2-6 weeks. Roots are then placed in ground beds in late winter, covered with up to 5cm of soil and covered with plastic. Exact conditions and types of beds vary with location. Plastic is removed after the threat of frost is over. Typically roots will produce enough sprouts to begin planting in 5-6 weeks. Sprouts approximately 25cm in length are either pulled from the mother roots or cut (cutting prevents spread of some diseases but is costly in terms of labor) and planted in field rows using mechanical 4 or 8 row transplanters. Optimum plant density depends on cultivar but is usually around 40,000 plants/ha. Rows may vary from 1m to 1.25m apart; in row spacing is usually 25-30cm.

Fertilizer is usually incorporated in the soil with an additional application approximately 6 weeks after planting. Requirements depend on soil testing but are normally in the range of 60kgN/ha and 120kgK/ha. Phosphorous is also required but is only added in phosphorous deficient soils. Boron is usually added to prevent a surface defect known as blister. Requirements for water vary with soil type but can be generally estimated as 18-20mm/week early in the season, 40-45mm/week during the middle part of the season when storage roots are enlarging rapidly, and a reduction to about 20mm late in the season. Excessive moisture early in the season delays storage root development and enlargement; late in the season, it induces cracking and/or rotting of roots. Herbicides are normally necessary for sweet potato production but recommendations vary in different states. Few herbicides are labelled for use with sweet potato. Nematicides may also be necessary. The severity of nematode damage varies from state to state and thus all released cultivars may not have nematode resistance. As with herbicides, choices for nematicides are extremely limited.

D.10 Harvesting and storing

Storage roots are harvested when the production of the Number 1 grade (5-9cm in diameter) is maximized. This depends on cultivar but is usually between 90-120 days. Roots harvested early are usually washed, graded and sent directly to fresh produce market because of high prices. Roots harvested later are placed in buildings to cure (30-35°C, 90%RH) and then are stored (10-15°C; 85-90%RH) until needed for market. Curing promotes wound healing and provides a barrier to prevent bacteria and fungi from entering wounds received during harvest and handling. Properly cured roots will store for 12 months or longer with 15-25% losses under the best conditions. Temperature must not drop below 12°C in order to prevent physiological cold damage to which sweet potatoes are particularly susceptible. Relative humidity should remain between 80 and 90% to prevent dehydration as the living storage roots continue to respire. As they are needed for marketing, roots are removed from storage rooms, processed through a mechanical washer/grader and packed into boxes of about 15kg. Wash water may contain chlorine or other approved fungicides to reduce infection of wounds generated by the grading procedure. Roots which are designated as the next year's "seed" roots are usually harvested late and are kept separate from the commercial stock.

D.11 Processing

Most of the sweet potatoes which are processed in the US are canned. Because the best prices are received for roots on the fresh market, those going to canning processors are the smaller roots (2.5-5cm in diameter). Roots larger than those desired for fresh market (>9cm in diameter) are usually sent to baby food processors.

Table D.1 — Production of major world food crops and root crops

Crop	Global production (000 tons)	United States production (000 tons)
Wheat	538,056	55,407
Rice	506,291	7,007
Maize	470,318	191,197
Barley	168,964	8,784
Potato	276,740	16,659
Sweet potato	133,234	542
Cassava	147,500	—
Yam	23,459	—
Aroids	5,814	3
Root crops total	590,176	17,204

Source: FAO 1989 Production Yearbook (FAO 1990)

D.12 Food uses

Sweet potatoes can be used in all types of dishes from soups to sides and even desserts. The hardy sweet tubers are high in antioxidants, fibre, and vitamins A, C, and B6 as well as minerals manganese, copper, potassium and iron. Because of their high antioxidant content, sweet potatoes have been found to help eliminate free radicals in the body, reducing the risk of inflammatory diseases, and lowering the risk of heart disease.

Annex E (informative)

Sweet potatoes (*Ipomoea batatas*) — 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

	US 1	Cod	EU 2
2,4-D	0.1	---	<i>{0.05}</i>
	1. United States does not maintain a specific MRL for the 2,4-D/Sweet Potato 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/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Vegetables Fresh or Frozen" group.		
	US 3	Cod	EU 4
Acetamiprid	0.01	---	0.01
	3. United States does not maintain a specific MRL for the Acetamiprid/Sweet Potato combination, but does maintain an MRL of 0.01 PPM for its "Vegetable, Tuberos and Corm, Subgroup 1C" group.		
	4. European Union does not maintain a specific MRL for the Acetamiprid/Sweet Potato combination, but does maintain an MRL of 0.01 PPM for its "Root and tuber vegetables" group.		
	US	Cod	EU 5
Aldicarb	0.1	0.1	<i>{0.02}</i>
	5. European Union does not maintain a specific MRL for the Aldicarb/Sweet Potato combination, but does maintain an MRL of 0.02 PPM for its "Root and tuber vegetables" group.		
	US 6	Cod	EU 7
Azoxystrobin	0.03	---	0.05
	6. United States does not maintain a specific MRL for the Azoxystrobin/Sweet Potato combination, but does maintain an MRL of 0.03 PPM for its "Vegetable, Tuberos and Corm, Subgroup 1C" group.		
	7. European Union does not maintain a specific MRL for the Azoxystrobin/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Tropical root and tuber vegetables" group.		
	US 8	Cod	EU
Beta-cyfluthrin	0.01	---	---
	8. United States does not maintain a specific MRL for the Beta-cyfluthrin/Sweet Potato combination, but does maintain an MRL of 0.01 PPM for its "Vegetable, Tuberos and Corm, Subgroup 1C" group.		
	US	Cod	EU 9
Bifenazate	0.1	---	<i>{0.01}</i>
	9. European Union does not maintain a specific MRL for the Bifenazate/Sweet Potato combination, but does maintain an MRL of 0.01 PPM for its "Root and tuber vegetables" group.		
	US 10	Cod	EU 11
Bifenthrin	0.05	---	0.05
	10. United States does not maintain a specific MRL for the Bifenthrin/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Vegetable, Tuberos and Corm, Subgroup 1C" group.		
	11. European Union does not maintain a specific MRL for the Bifenthrin/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Root and tuber vegetables" group.		
	US 12	Cod	EU 13
Boscalid	0.05	---	0.5
	12. United States does not maintain a specific MRL for the Boscalid/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Vegetable, Tuberos and Corm, Subgroup 1C" group.		
	13. European Union does not maintain a specific MRL for the Boscalid/Sweet Potato combination, but does maintain an MRL of 0.5 PPM for its "Tropical root and tuber vegetables" group.		

	US 14	Cod	EU 15
Captan	0.05	---	{0.02}
	14. United States does not maintain a specific MRL for the Captan/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Vegetable, Root and Tuber, Group 1" group.		
	15. European Union does not maintain a specific MRL for the Captan/Sweet Potato combination, but does maintain an MRL of 0.02 PPM for its "Tropical root and tuber vegetables" group.		
	US	Cod	EU
Carbaryl	0.2	{0.02}	{0.05}
	US 16	Cod	EU 17
Carfentrazone-ethyl	0.1	---	{0.01}
	16. United States does not maintain a specific MRL for the Carfentrazone-ethyl/Sweet Potato combination, but does maintain an MRL of 0.1 PPM for its "Vegetable, Root and Tuber, Group 1" group.		
	17. European Union does not maintain a specific MRL for the Carfentrazone-ethyl/Sweet Potato combination, but does maintain an MRL of 0.01 PPM for its "Vegetables Fresh or Frozen" group.		
	US	Cod	EU 18
Chlorpyrifos	0.05	---	0.05
	18. European Union does not maintain a specific MRL for the Chlorpyrifos/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Tropical root and tuber vegetables" group.		
	US	Cod	EU 19
Clethodim	1	---	{0.1}
	19. European Union does not maintain a specific MRL for the Clethodim/Sweet Potato combination, but does maintain an MRL of 0.1 PPM for its "Tropical root and tuber vegetables" group.		
	US	Cod	EU 20
Clomazone	0.05	---	{0.01}
	20. European Union does not maintain a specific MRL for the Clomazone/Sweet Potato combination, but does maintain an MRL of 0.01 PPM for its "Vegetables Fresh or Frozen" group.		
	US 21	Cod	EU 22
Cyfluthrin	0.01	---	0.02
	21. United States does not maintain a specific MRL for the Cyfluthrin/Sweet Potato combination, but does maintain an MRL of 0.01 PPM for its "Vegetable, Tuberos and Corm, Subgroup 1C" group.		
	22. European Union does not maintain a specific MRL for the Cyfluthrin/Sweet Potato combination, but does maintain an MRL of 0.02 PPM for its "Root and tuber vegetables" group.		
	US 23	Cod	EU 24
Deltamethrin	0.04	---	0.05
	23. United States does not maintain a specific MRL for the Deltamethrin/Sweet Potato combination, but does maintain an MRL of 0.04 PPM for its "Vegetable, Tuberos and Corm, Subgroup 1C" group.		
	24. European Union does not maintain a specific MRL for the Deltamethrin/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Root and tuber vegetables" group.		
	US	Cod	EU 25
Dicloran	10	---	{0.1}
	25. European Union does not maintain a specific MRL for the Dicloran/Sweet Potato combination, but does maintain an MRL of 0.1 PPM for its "Root and tuber vegetables" group.		
	US	Cod	EU 26
Difenoconazole	0.01	---	0.1
	26. European Union does not maintain a specific MRL for the Difenoconazole/Sweet Potato combination, but does maintain an MRL of 0.1 PPM for its "Tropical root and tuber vegetables" group.		
	US 27	Cod	EU 28
Dimethenamid	0.01	0.01	0.01
	27. United States does not maintain a specific MRL for the Dimethenamid/Sweet Potato combination, but does maintain an MRL of 0.01 PPM for its "Vegetable, Tuberos and Corm, Subgroup 1C" group.		
	28. European Union does not maintain a specific MRL for the Dimethenamid/Sweet Potato combination, but does maintain an MRL of 0.01 PPM for its "Vegetables Fresh or Frozen" group.		

	US	Cod	EU 29
Endosulfan	0.15	{0.05}	{0.05}
	29. European Union does not maintain a specific MRL for the Endosulfan/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Root and tuber vegetables" group.		
	US 30	Cod	EU 31
EPTC	0.1	---	{0.05}
	30. United States does not maintain a specific MRL for the EPTC/Sweet Potato combination, but does maintain an MRL of 0.1 PPM for its "Root Crops-Vegetables" group.		
	31. European Union does not maintain a specific MRL for the EPTC/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Tropical root and tuber vegetables" group.		
	US	Cod	EU 32
Ethoprop	0.02	0.05	0.02
	32. European Union does not maintain a specific MRL for the Ethoprop/Sweet Potato combination, but does maintain an MRL of 0.02 PPM for its "Tropical root and tuber vegetables" group.		
	US 33	Cod	EU 34
Fenamidone	0.02	---	0.02
	33. United States does not maintain a specific MRL for the Fenamidone/Sweet Potato combination, but does maintain an MRL of 0.02 PPM for its "Vegetable, Tuberos and Corm, Subgroup 1C" group.		
	34. European Union does not maintain a specific MRL for the Fenamidone/Sweet Potato combination, but does maintain an MRL of 0.02 PPM for its "Root and tuber vegetables" group.		
	US 35	Cod	EU 36
Flonicamid	0.2	---	{0.05}
	35. United States does not maintain a specific MRL for the Flonicamid/Sweet Potato combination, but does maintain an MRL of 0.2 PPM for its "Vegetable, Tuberos and Corm, Subgroup 1C" group.		
	36. European Union does not maintain a specific MRL for the Flonicamid/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Tropical root and tuber vegetables" group.		
	US	Cod	EU 37
Fluazifop	0.05	---	0.3
	37. European Union does not maintain a specific MRL for the Fluazifop/Sweet Potato combination, but does maintain an MRL of 0.3 PPM for its "Tropical root and tuber vegetables" group.		
	US 38	Cod	EU 39
Fludioxonil	3.5	---	{0.05}
	38. United States does not maintain a specific MRL for the Fludioxonil/Sweet Potato combination, but does maintain an MRL of 3.5 PPM for its "Vegetable, Tuberos and Corm, Except Potato, Subgroup 1D" group.		
	39. European Union does not maintain a specific MRL for the Fludioxonil/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Tropical root and tuber vegetables" group.		
	US	Cod	EU 40
Flumioxazin	0.02	---	0.05
	40. European Union does not maintain a specific MRL for the Flumioxazin/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Vegetables Fresh or Frozen" group.		
	US 41	Cod	EU 42
Fluopicolide	0.02	---	{0.01}
	41. United States does not maintain a specific MRL for the Fluopicolide/Sweet Potato combination, but does maintain an MRL of 0.02 PPM for its "Vegetable, Tuberos and Corm, Except Potato, Subgroup 1D" group.		
	42. European Union does not maintain a specific MRL for the Fluopicolide/Sweet Potato combination, but does maintain an MRL of 0.01 PPM for its "Tropical root and tuber vegetables" group.		
	US	Cod	EU 43
Fluoxastrobin	0.01	---	0.05
	43. European Union does not maintain a specific MRL for the Fluoxastrobin/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Vegetables Fresh or Frozen" group.		
	US 44	Cod	EU 45
Glyphosate	0.2	---	{0.1}
	44. United States does not maintain a specific MRL for the Glyphosate/Sweet Potato combination, but does maintain an MRL of 0.2 PPM for its "Vegetable, Root and Tuber, Group 1" group.		
	45. European Union does not maintain a specific MRL for the Glyphosate/Sweet Potato combination, but does maintain an MRL of 0.1 PPM for its "Tropical root and tuber vegetables" group.		

	US 46	Cod	EU 47
Imidacloprid	0.4	---	{0.05}
	46. United States does not maintain a specific MRL for the Imidacloprid/Sweet Potato combination, but does maintain an MRL of 0.4 PPM for its "Vegetable, Root and Tuber, Group 1" group.		
	47. European Union does not maintain a specific MRL for the Imidacloprid/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Tropical root and tuber vegetables" group.		
	US	Cod	EU 48
Indoxacarb	0.01	---	0.02
	48. European Union does not maintain a specific MRL for the Indoxacarb/Sweet Potato combination, but does maintain an MRL of 0.02 PPM for its "Root and tuber vegetables" group.		
	US	Cod	EU 49
Inorganic bromide resulting from fumigation	75	---	{50}
	49. European Union does not maintain a specific MRL for the Inorganic bromide resulting from fumigation/Sweet Potato combination, but does maintain an MRL of 50 PPM for its "Root and tuber vegetables" group.		
	US 50	Cod	EU 51
Lambda Cyhalothrin	0.02	---	0.02
	50. United States does not maintain a specific MRL for the Lambda Cyhalothrin/Sweet Potato combination, but does maintain an MRL of 0.02 PPM for its "Vegetable, Tuberosus and Corm, Subgroup 1C" group.		
	51. European Union does not maintain a specific MRL for the Lambda Cyhalothrin/Sweet Potato combination, but does maintain an MRL of 0.02 PPM for its "Tropical root and tuber vegetables" group.		
	US	Cod	EU 52
Malathion	1	---	{0.02}
	52. European Union does not maintain a specific MRL for the Malathion/Sweet Potato combination, but does maintain an MRL of 0.02 PPM for its "Root and tuber vegetables" group.		
	US 53	Cod	EU 54
Mandipropamid	0.01	---	0.01
	53. United States does not maintain a specific MRL for the Mandipropamid/Sweet Potato combination, but does maintain an MRL of 0.01 PPM for its "Vegetable, Tuberosus and Corm, Subgroup 1C" group.		
	54. European Union does not maintain a specific MRL for the Mandipropamid/Sweet Potato combination, but does maintain an MRL of 0.01 PPM for its "Root and tuber vegetables" group.		
	US 55	Cod	EU 56
Metalaxyl	0.5	---	{0.05}
	55. United States does not maintain a specific MRL for the Metalaxyl/Sweet Potato combination, but does maintain an MRL of 0.5 PPM for its "Vegetable, Root and Tuber, Group 1" group.		
	56. European Union does not maintain a specific MRL for the Metalaxyl/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Tropical root and tuber vegetables" group.		
	US 57	Cod	EU 58
Methomyl	0.2	---	{0.05}
	57. United States does not maintain a specific MRL for the Methomyl/Sweet Potato combination, but does maintain an MRL of 0.2 PPM for its "Root Crops-Vegetables" group.		
	58. European Union does not maintain a specific MRL for the Methomyl/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Tropical root and tuber vegetables" group.		
	US 59	Cod	EU 60
Methoxyfenozide	0.02	---	0.02
	59. United States does not maintain a specific MRL for the Methoxyfenozide/Sweet Potato combination, but does maintain an MRL of 0.02 PPM for its "Vegetable, Tuberosus and Corm, Except Potato, Subgroup 1D" group.		
	60. European Union does not maintain a specific MRL for the Methoxyfenozide/Sweet Potato combination, but does maintain an MRL of 0.02 PPM for its "Root and tuber vegetables" group.		
	US	Cod	EU 61
Methyl Parathion	0.1	---	{0.02}
	61. European Union does not maintain a specific MRL for the Methyl Parathion/Sweet Potato combination, but does maintain an MRL of 0.02 PPM for its "Vegetables Fresh or Frozen" group.		
	US	Cod	EU 62
Napropamide	0.1	---	{0.05}
	62. European Union does not maintain a specific MRL for the Napropamide/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Tropical root and tuber vegetables" group.		

	US	Cod	EU 63
Novaluron	0.05	---	{0.01}
	63. European Union does not maintain a specific MRL for the Novaluron/Sweet Potato combination, but does maintain an MRL of 0.01 PPM for its "Tropical root and tuber vegetables" group.		
	US	Cod	EU
O-phenylphenol	15	---	---
	US 64	Cod	EU 65
Oxamyl	0.1	---	{0.01}
	64. United States does not maintain a specific MRL for the Oxamyl/Sweet Potato combination, but does maintain an MRL of 0.1 PPM for its "Vegetable, Tuberos and Corm, Subgroup 1C" group.		
	65. European Union does not maintain a specific MRL for the Oxamyl/Sweet Potato combination, but does maintain an MRL of 0.01 PPM for its "Root and tuber vegetables" group.		
	US	Cod	EU 66
Phosmet	10	---	{0.05}
	66. European Union does not maintain a specific MRL for the Phosmet/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Vegetables Fresh or Frozen" group.		
	US	Cod	EU 67
Phosphine	0.01	---	0.05
	67. European Union does not maintain a specific MRL for the Phosphine/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Tropical root and tuber vegetables" group.		
	US	Cod 68	EU
Piperonyl Butoxide	0.25	0.5	---
	68. Codex does not maintain a specific MRL for the Piperonyl Butoxide/Sweet Potato combination, but does maintain an MRL of 0.5 PPM for its "Root and tuber vegetables" group.		
	US 69	Cod	EU 70
Pymetrozine	0.02	---	0.02
	69. United States does not maintain a specific MRL for the Pymetrozine/Sweet Potato combination, but does maintain an MRL of 0.02 PPM for its "Vegetable, Tuberos and Corm, Subgroup 1C" group.		
	70. European Union does not maintain a specific MRL for the Pymetrozine/Sweet Potato combination, but does maintain an MRL of 0.02 PPM for its "Root and tuber vegetables" group.		
	US 71	Cod	EU 72
Pyraclostrobin	0.04	---	{0.02}
	71. United States does not maintain a specific MRL for the Pyraclostrobin/Sweet Potato combination, but does maintain an MRL of 0.04 PPM for its "Vegetable, Tuberos and Corm, Subgroup 1C" group.		
	72. European Union does not maintain a specific MRL for the Pyraclostrobin/Sweet Potato combination, but does maintain an MRL of 0.02 PPM for its "Tropical root and tuber vegetables" group.		
	US	Cod 73	EU 74
Pyrethrins	0.05	0.05	1
	73. Codex does not maintain a specific MRL for the Pyrethrins/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Root and tuber vegetables" group.		
	74. European Union does not maintain a specific MRL for the Pyrethrins/Sweet Potato combination, but does maintain an MRL of 1 PPM for its "Vegetables Fresh or Frozen" group.		
	US 75	Cod	EU 76
Pyrimethanil	0.05	---	0.05
	75. United States does not maintain a specific MRL for the Pyrimethanil/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Vegetable, Tuberos and Corm, Subgroup 1C" group.		
	76. European Union does not maintain a specific MRL for the Pyrimethanil/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Tropical root and tuber vegetables" group.		
	US 77	Cod	EU 78
Pyriproxyfen	0.15	---	{0.05}
	77. United States does not maintain a specific MRL for the Pyriproxyfen/Sweet Potato combination, but does maintain an MRL of 0.15 PPM for its "Vegetable, Root and Tuber, Group 1" group.		
	78. European Union does not maintain a specific MRL for the Pyriproxyfen/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Root and tuber vegetables" group.		
	US 79	Cod	EU 80
S-metolachlor	0.2	---	{0.05}
	79. United States does not maintain a specific MRL for the S-metolachlor/Sweet Potato combination, but does maintain an MRL of 0.2 PPM for its "Vegetable, Tuberos and Corm, Subgroup 1C" group.		
	80. European Union does not maintain a specific MRL for the S-metolachlor/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Vegetables Fresh or Frozen" group.		

	US 81	Cod	EU 82
Sethoxydim	4	---	{0.1}
	81. United States does not maintain a specific MRL for the Sethoxydim/Sweet Potato combination, but does maintain an MRL of 4 PPM for its "Vegetable, Root and Tuber, Group 1" group.		
	82. European Union does not maintain a specific MRL for the Sethoxydim/Sweet Potato combination, but does maintain an MRL of 0.1 PPM for its "Tropical root and tuber vegetables" group.		
	US 83	Cod	EU 84
Spinetoram	0.1	---	{0.05}
	83. United States does not maintain a specific MRL for the Spinetoram/Sweet Potato combination, but does maintain an MRL of 0.1 PPM for its "Vegetable, Root and Tuber, Group 1" group.		
	84. European Union does not maintain a specific MRL for the Spinetoram/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Root and tuber vegetables" group.		
	US 85	Cod	EU 86
Spinosad	0.1	---	{0.02}
	85. United States does not maintain a specific MRL for the Spinosad/Sweet Potato combination, but does maintain an MRL of 0.1 PPM for its "Vegetable, Root and Tuber, Group 1" group.		
	86. European Union does not maintain a specific MRL for the Spinosad/Sweet Potato combination, but does maintain an MRL of 0.02 PPM for its "Root and tuber vegetables" group.		
	US 87	Cod	EU 88
Spiromesifen	0.02	---	0.02
	87. United States does not maintain a specific MRL for the Spiromesifen/Sweet Potato combination, but does maintain an MRL of 0.02 PPM for its "Vegetable, Tuberos and Corm, Subgroup 1C" group.		
	88. European Union does not maintain a specific MRL for the Spiromesifen/Sweet Potato combination, but does maintain an MRL of 0.02 PPM for its "Root and tuber vegetables" group.		
	US 89	Cod	EU 90
Spirotetramat	0.6	---	{0.1}
	89. United States does not maintain a specific MRL for the Spirotetramat/Sweet Potato combination, but does maintain an MRL of 0.6 PPM for its "Vegetable, Tuberos and Corm, Subgroup 1C" group.		
	90. European Union does not maintain a specific MRL for the Spirotetramat/Sweet Potato combination, but does maintain an MRL of 0.1 PPM for its "Root and tuber vegetables" group.		
	US 91	Cod	EU 92
Tebufenozide	0.015	---	0.05
	91. United States does not maintain a specific MRL for the Tebufenozide/Sweet Potato combination, but does maintain an MRL of 0.015 PPM for its "Vegetable, Tuberos and Corm, Except Potato, Subgroup 1D" group.		
	92. European Union does not maintain a specific MRL for the Tebufenozide/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Root and tuber vegetables" group.		
	US	Cod	EU
Thiabendazole	0.05	---	15
	US 93	Cod	EU 94
Thiamethoxam	0.02	---	0.05
	93. United States does not maintain a specific MRL for the Thiamethoxam/Sweet Potato combination, but does maintain an MRL of 0.02 PPM for its "Vegetable, Tuberos and Corm, Except Potato, Subgroup 1D" group.		
	94. European Union does not maintain a specific MRL for the Thiamethoxam/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Tropical root and tuber vegetables" group.		
	US	Cod	EU 95
Trifluralin	0.05	---	0.5
	95. European Union does not maintain a specific MRL for the Trifluralin/Sweet Potato combination, but does maintain an MRL of 0.5 PPM for its "Tropical root and tuber vegetables" group.		
	US 96	Cod 97	EU 98
Zeta-Cypermethrin	0.1	{0.05}	{0.05}
	96. United States does not maintain a specific MRL for the Zeta-Cypermethrin/Sweet Potato combination, but does maintain an MRL of 0.1 PPM for its "Vegetable, Root and Tuber, Group 1" group.		
	97. Codex does not maintain a specific MRL for the Zeta-Cypermethrin/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Root and tuber vegetables" group.		
	98. European Union does not maintain a specific MRL for the Zeta-Cypermethrin/Sweet Potato combination, but does maintain an MRL of 0.05 PPM for its "Root and tuber vegetables" group.		

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