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EAST AFRICAN STANDARD

Fresh Cape gooseberry — 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:

CODEX STAN 226:2001 (Rev. 2005), *Standard for Cape Gooseberry*

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_g-e.jsp

USDA Foreign Agricultural Service website: <http://www.mrlatabase.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 Cape gooseberry — Specification and grading

1 Scope

This Standard applies to commercial varieties of cape gooseberries grown from *Physalis peruviana* (L.), of the *Solanaceae* family, to be supplied fresh to the consumer, after preparation and packaging. Cape gooseberries for industrial processing are 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 Description

A herbaceous shrub usually reaching up to 0.5-2 m in height and 2 m in diameter, with spreading branches. The fruit is a globose berry, 1-2 cm in diameter, orange-yellow, enclosed in an inflated calyx or husk.

4 Provisions concerning quality

4.1 General

The purpose of the standard is to define the quality requirements of cape gooseberries 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 cape gooseberries must be:

- (a) whole, with or without calyx;
- (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;
- (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 taste²;
- (h) firm;
- (i) fresh in appearance;
- (j) with a smooth and shiny skin.

If the calyx is present, the peduncle must not exceed 25 mm in length.

4.2.2 The cape gooseberries must have been carefully picked and have reached an appropriate degree of development and ripeness account being taken of the characteristics of the variety and the area in which they are grown.

4.2.3 The development and condition of the cape gooseberries must be such as to enable them:

- (a) to withstand transport and handling; and
- (b) to arrive in satisfactory condition at the place of destination.

4.2.4 Maturity requirements

The maturity of the cape gooseberry can be visually assessed from its external colouring, which changes from green to orange as the fruit ripens. Its condition can be confirmed by determining total soluble solids.

A change in colouring of the calyx is not indicative of ripening of the fruit.

The soluble solids content should be at least 14.0°Brix.

1 Commonly known in certain regions by: physalis, capuli, groseilles du Cap, Amour en cage, baguenaude, Lanterne japonaise, etc.

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

4.3 Classification

Cape gooseberries are classified in three classes defined below, regardless of size and colour:

4.3.1 "Extra" Class

Cape gooseberries in this class must be of superior quality. They must be characteristic of the variety and/or commercial type. They must be free of defects, with the exception of very slight superficial defects, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package.

4.3.2 Class I

Cape gooseberries in this class must be of good quality. They must be characteristic of the variety and/or commercial type. The following slight defects, however, may be allowed, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package:

- slight defects in shape;
- slight defects in colouring;
- slight skin defects.

The defects must not, in any case, affect the pulp of the fruit.

4.3.3 Class II

This class includes cape gooseberries which do not qualify for inclusion in the higher classes, but satisfy the minimum requirements specified in 4.2. The following defects, however, may be allowed, provided the cape gooseberries retain their essential characteristics as regards the quality, the keeping quality, the general appearance and presentation:

- defects in shape;
- defects in colouring;
- skin defects;
- small healed cracks not covering more than 5% of the total surface area of the fruit.

The defects must not, in any case, affect the pulp of the fruit.

5 Provisions concerning sizing

Size is determined by the maximum diameter of the equatorial section of the fruit, with a minimum diameter of 15 mm, in accordance with the following table:

Size Code	Diameter (mm)
A	15.0 – 18.0
B	18.1 – 20.0
C	20.1 – 22.0
D	>22.1

6 Provisions concerning tolerances

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

6.1 Quality tolerances

6.1.1 "Extra" Class

Five percent by number or weight of cape gooseberries with or without calyx not satisfying the requirements of the class, but meeting those of Class I or, exceptionally, coming within the tolerances of that class.

6.1.2 Class I

Ten percent by number or weight of cape gooseberries with or without calyx not satisfying the requirements of the class, but meeting those of Class II or, exceptionally, coming within the tolerances of that class.

6.1.3 Class II

Ten percent by number or weight of cape gooseberries with or without calyx satisfying neither the requirements of the class nor the minimum requirements, with the exception of produce affected by severe bruising, rotting or any other deterioration rendering it unfit for consumption. Up to a maximum of 20% by number or weight of fruit with small healed cracks covering an area greater than 5% is accepted in this class.

6.2 Size tolerances

For all classes, 10% by number or weight of cape gooseberries corresponding to the size immediately above and/or below that indicated on the package.

7 Provisions concerning presentation

7.1 Uniformity

The contents of each package must be uniform and contain only cape gooseberries of the same origin, variety, quality, colouring, size and type of presentation (with or without calyx). The visible part of the contents of the package must be representative of the entire contents.

7.2 Packaging

Cape gooseberries must be packed in such a way as to protect the produce properly. The materials used inside the package must be new¹, 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.

Cape gooseberries 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 cape gooseberries. 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-retail 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).²

8.2.2 Nature of produce

Name of the produce if the contents are not visible from the outside. Name of the variety (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

- Class;
- Size (size code or minimum and maximum diameter in millimeters);

¹ For the purposes of this Standard, this includes recycled material of food-grade quality.

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.

- Number of units (optional);
- Net weight (optional).

8.2.5 Official inspection mark (optional)

9 Contaminants

9.1 Heavy metals

Cape gooseberries 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

Cape gooseberries 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 cape gooseberry (current as at 2009-06-09)

Type	Unit symbol	Limit	Method of test	Notes
DICHOFLUANID	MRL (mg/kg)	7		
FENHEXAMID	MRL (undef)	5		
PERMETHRIN	MRL (mg/kg)	2		
TRIFORINE	MRL (mg/kg)	1		
VINCLOZOLIN	MRL (mg/kg)	5		

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.



Packaged fresh cape gooseberries



Ripe cape gooseberries



Immature cape gooseberry



Mature Cherry of Cape Gooseberries




Cape Gooseberries (or *Physalis peruviana*)



Chinese gooseberry

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/038:2010, Fresh cape gooseberry — Specification and grading</u> <hr style="width: 50%; margin-left: 0;"/> 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)

Gooseberries (including hybrids with other ribes species) — Fact sheet

The genus *Physalis*, of the family Solanaceae, includes annual and perennial herbs bearing globular fruits, each enclosed in a bladderlike husk which becomes papery on maturity. Of the more than 70 species, only a very few are of economic value. One is the strawberry tomato, husk tomato or ground cherry, *P. Pruinosa* L., grown for its small yellow fruits used for sauce, pies and preserves in mild-temperate climates. Though more popular with former generations than at present, it is still offered by seedsmen. Various species of *Physalis* have been subject to much confusion in literature and in the trade. A species which bears a superior fruit and has become widely known is the cape gooseberry, *P. Peruviana* L. (*P. edulis* Sims). It has many colloquial names in Latin America: *capuli*, *aguaymanto*, *tomate sylvestre*, or *uchuba*, in Peru; *capuli* or *motojobobo embolsado* in Bolivia; *uvilla* in Ecuador; *uvilla*, *uchuva*, *vejigón* or *guchavo* in Colombia; *topotopo*, or *chuchuva* in Venezuela; *capuli*, *amor en bolsa*, or *bolsa de amor*, in Chile; *cereza del Peru* in Mexico. It is called cape gooseberry, golden berry, *pompelmoes* or *apelliefie* in South Africa; *alkekengi* or *coqueret* in Gabon; *lobolobohan* in the Philippines; *teparee*, *tiparee*, *makowi*, etc., in India; cape gooseberry or *poha* in Hawaii.

Description

This herbaceous or soft-wooded, perennial plant usually reaches 1.6-0.9 m in height but occasionally may attain 1.8 m. It has ribbed, often purplish, spreading branches, and nearly opposite, velvety, heart-shaped, pointed, randomly-toothed leaves 6-15 cm long and 4-10 cm wide, and, in the leaf axils, bell-shaped, nodding flowers to 2 cm wide, yellow with 5 dark purple-brown spots in the throat, and cupped by a purplish-green, hairy, 5-pointed calyx. After the flower falls, the calyx expands, ultimately forming a straw-colored husk much larger than the fruit it encloses. The berry is globose, 1.25-2 cm wide, with smooth, glossy, orange-yellow skin and juicy pulp containing numerous very small yellowish seeds. When fully ripe, the fruit is sweet but with a pleasing grape-like tang. The husk is bitter and inedible.

Origin and Distribution

Reportedly native to Peru and Chile, where the fruits are casually eaten and occasionally sold in markets but the plant is still not an important crop, it has been widely introduced into cultivation in other tropical, subtropical and even temperate areas. It is said to succeed wherever tomatoes can be grown. The plant was grown by early settlers at the Cape of Good Hope before 1807. In South Africa it is commercially cultivated and common as an escape and the jam and canned whole fruits are staple commodities, often exported. It is cultivated and naturalized on a small scale in Gabon and other parts of Central Africa.

Soon after its adoption in the Cape of Good Hope it was carried to Australia and there acquired its common English name. It was one of the few fresh fruits of the early settlers in New South Wales. There it has long been grown on a large scale and is abundantly naturalized, as it is also in Queensland, Victoria, South Australia, Western Australia and Northern Tasmania. It was welcomed in New Zealand where it is said that "the housewife is sometimes embarrassed by the quantity of berries [cape gooseberries] in the garden," and government agencies actively promote increased culinary use.

In China, India and Malaya, the cape gooseberry is commonly grown but on a lesser scale. In India, it is often interplanted with vegetables. It is naturalized on the island of Luzon in the Philippines. Seeds were taken to Hawaii before 1825 and the plant is naturalized on all the islands at medium and somewhat higher elevations. It was at one time extensively cultivated in Hawaii. By 1966, commercial culture had nearly disappeared and processors had to buy the fruit from backyard growers at high prices. It is widespread as an exotic weed in the South Sea Islands but not seriously cultivated. The first seeds were planted in Israel in 1933. The plants grew and bore very well in cultivation and soon

spread as escapes, but the fruit did not appeal to consumers, either fresh or preserved, and promotional efforts ceased.

In England, the cape gooseberry was first reported in 1774. Since that time, it has been grown there in a small way in home gardens, and after World War II was canned commercially to a limited extent. Despite this background, early in 1952, the Stanford Nursery, of Sussex, announced the "Cape Gooseberry, the wonderful new fruit, especially developed in Britain by Richard J. Cahn." Concurrently, jars of cape gooseberry jam from England appeared in South Florida markets and the product was found to be attractive and delicious. It is surprising that this useful little fruit has received so little attention in the United States in view of its having been reported on with enthusiasm by the late Dr. David Fairchild in his well-loved book, *The World Was My Garden*. He there tells of its fruiting "enormously" in the garden of his home, "In The Woods", in Maryland, and of the cook's putting up over a hundred jars of what he called "Inca Conserve" which "met with universal favor." It is also remarkable that it is so little known in the Caribbean islands, though naturalized plants were growing profusely along roadsides in the Blue Mountains of Jamaica before 1913.

With a view to encouraging cape gooseberry culture in Florida, the Bahamas, and the West Indies, seeds have been repeatedly purchased from the Stanford Nursery and distributed for trial. Good crops have been obtained. Nevertheless there was no incentive to make further plantings.

Pollination

In England, growers shake the flowers gently in summer to improve distribution of the pollen, or they will give the plants a very light spraying with water.

Climate

The cape gooseberry is an annual in temperate regions and a perennial in the tropics. In Venezuela, it grows wild in the Andes and the coastal range between 2,500 and 10,000 ft (800-3,000 m). It grows wild in Hawaii at 1,000 to 8,000 ft (300-2,400 m). In northern India, it is not possible to cultivate it above 4,000 ft (1,200 m), but in South India it thrives up to 6,000 ft (1,800 m).

In England, the plants have been undamaged by 3 degrees of frost. In South Africa, plants have been killed to the ground and failed to recover after a temperature drop to 30.5° F (-0.75° C).

The plant needs full sun but protection from strong winds; plenty of rain throughout its growing season, very little when the fruits are maturing.

Soil

The cape gooseberry will grow in any well-drained soil but does best on sandy to gravelly loam. On highly fertile alluvial soil, there is much vegetative growth and the fruits fail to color properly. Very good crops are obtained on rather poor sandy ground. Where drainage is a problem, the plantings should be on gentle slopes or the rows should be mounded. The plants become dormant in drought.

Propagation

The plant is widely grown from seed. There are 5,000 to 8,000 seeds to the ounce (28 g) and, since germination rate is low, this amount is needed to raise enough plants for an acre—2 1/2 oz (70 g) for a hectare. In India, the seeds are mixed with wood ash or pulverized soil for uniform sowing.

Sometimes propagation is done by means of 1-year-old stem cuttings treated with hormones to promote rooting, and 37.7% success has been achieved. The plants thus grown flower early and yield well but are less vigorous than seedlings. Air-layering is also successful but not often practiced.

Culture

It is necessary to determine the time of planting for each area. In India, seeds are broadcast from March through May. In Hong Kong, planting in seedbeds is done in September/October and again in March/April. In the Bahamas the first seeds planted in late summer of 1952 produced healthy plants

and a continuous crop of fruits for 3 months during the following winter. Additional seeds procured from England were planted in April of 1953. The plants started to blossom in mid-July and from September on continued to flower and set fruit, although no fruits remained on the plants to maturity until the cooler months of winter when a good yield was obtained. Seeds were again planted the following November. Thirteen weeks later, the first fruits were ripening, and by mid-May of the following year a heavy crop was harvested. In late June, the plants were still growing and flowering profusely but only a few fruits were being set and these failed to develop to maturity. This condition continued into September, by which time some of the more robust plants had reached 6 ft (1.8 m) in height with much lateral growth.

In Jamaica, the initial planting of cape gooseberries in late January of 1954 made slow growth until June when development accelerated. By mid-August the plants had reached 15 in (37.5 cm) in height with much lateral growth, and were flowering and setting fruit. It would appear that the heat of summer is unfavorable for fruit development and, therefore, the best time to plant the cape gooseberry is in the fall so that fruit can be set during the cooler weather and harvested in late spring or early summer. In California, the plants do not fruit heavily until the second year unless started early in greenhouses.

Some growers have kept plants in production for as long as 4 years by cutting back after each harvest, but these plants have been found more susceptible to pests and diseases.

In India, plants 6 to 8 in (15-20 cm) high are set out 18 in (45 cm) apart in rows 3 ft (0.9 m) apart. Farmers in South Africa space the plants 2 to 3 ft (0.6-0.9 m) apart in rows 4 to 6 ft (1.2-1.8 m) or even 8 ft (2.4 m) apart in very rich soil. They apply 200 to 400 lbs (90-180 kg) of complete fertilizer per acre (approx. = kg/ha) on sandy loam. Foliar spraying of 1% potassium chloride solution before and just after blooming enhances fruit quality.

In dry seasons, irrigation is necessary to keep the cape gooseberry plant in production.

Season

In parts of India, the fruits ripen in February, but, in the South, the main crop extends from January to May. In Central and southern Africa, the crop extends from the beginning of April to the end of June. In England, plants from seeds sown in spring begin to fruit in August and continue until there is a strong frost.

Harvesting and Yield

In rainy or dewy weather, the fruit is not picked until the plants are dry. Berries that are already wet need to be lightly dried in the sun. The fruits are usually picked from the plants by hand every 2 to 3 weeks, although some growers prefer to shake the plants and gather the fallen fruits from the ground in order to obtain those of more uniform maturity. At the peak of the season, a worker can pick 2 1/2 bushels (90 liters) a day, but at the beginning and end of the season, when the crop is light, only 1/2 bushel (18 liters).

A single plant may yield 300 fruits. Seedlings set 1,800 to 2,150 to the acre (228-900/ha) yield approximately 3,000 lbs of fruit per acre (approx. = kg/ha). The fruits are usually dehusked before delivery to markets or processors. Manual workers can produce only 10 to 12 lbs. (4.5-5.5 kg) of husked fruits per hour. Therefore, a mechanical husker, 4 to 5 times more efficient, has been designed at the University of Hawaii.

Keeping Quality

Cape gooseberries are long-lasting. The fresh fruits can be stored in a sealed container and kept in a dry atmosphere for several months. They will still be in good condition. If the fresh fruits are to be shipped, it is best to leave the husk on for protection.

Pests and Diseases

In South Africa, the most important of the many insect pests that attack the cape gooseberry are cutworms, in seedbeds; red spider after plants have been established in the field; the potato tuber

moth if the cape gooseberry is in the vicinity of potato fields. Hares damage young plants and birds (francolins) devour the fruits if not repelled. In India, mites may cause defoliation. In Jamaica, the leaves were suddenly riddled by what were apparently flea beetles of the family Chrysomelidae. In the Bahamas, whitefly attacks on the very young plants and flea beetles on the flowering plants required control.

In South Africa, the most troublesome diseases are powdery mildew and soft brown scale. The plants are prone to root rots and viruses if on poorly-drained soil or if carried over to a second year. Therefore, farmers favor biennial plantings. Bacterial leaf spot (*Xanthomonas* spp.) occurs in Queensland. A strain of tobacco mosaic may affect plants in India.

Food Uses

In addition to being canned whole and preserved as jam, the cape gooseberry is made into sauce, used in pies, puddings, chutneys and ice cream, and eaten fresh in fruit salads and fruit cocktails. In Colombia, the fruits are stewed with honey and eaten as dessert. The British use the husk as a handle for dipping the fruit in icing.

Food Value Per 100 g of Edible Portion*

Moisture	78.9 g
Protein	0.054 g
Fat	0.16 g
Fiber	4.9 g
Ash	1.01 g
Calcium	8.0 mg
Phosphorus	55.3 mg
Iron	1.23 mg
Carotene	1.613 mg
Thiamine	0.101 mg
Riboflavin	0.032 mg
Niacin	1.73 mg
Ascorbic Acid	43.0 mg
*According to analyses of husked fruits made in Ecuador.	

The ripe fruits are considered a good source of Vitamin P and are rich in pectin.

Toxicity

Unripe fruits are poisonous. The plant is believed to have caused illness and death in cattle in Australia.

Other Uses

Fruits: In the 18th Century, the fruits were perfumed and worn for adornment by native women in Peru.

Medicinal Uses: In Colombia, the leaf decoction is taken as a diuretic and antiasthmatic. In South Africa, the heated leaves are applied as poultices on inflammations and the Zulus administer the leaf infusion as an enema to relieve abdominal ailments in children.

Indian chemists have isolated from the leaves a minor steroidal constituent, *physalolactone C*.

Physalis peruviana

Authority	L.
Family	Magnoliopsida:Asteridae:Solanales:Solanaceae
Synonyms	
Common names	Andean uvilla
Editor	
Ecocrop code	1686

Notes**Uses**

Fruits are eaten fresh, whole or sliced, mixed in fruit salad and fruit cocktails, used for jams and preserves, or stewed and used in pies, puddings, chutneys, and ice-cream. They are a good source of vitamins A, C, and B complex, protein, phosphorous, and iron. The leaves have medicinal properties.

Killing temperature

Tolerant of light frosts.

Growing period

Perennial, normally grown as an annual. Flowering occurs 65-75 days after planting and first fruits may be harvested after about 80-100 days. The plant flower year-round in frost-free areas. The full economical life is about 2-3 years.

Common names

Goldenberry, Cape gooseberry, Ground tomato, Ground cherry, Husk tomato, Peruvian cherry, Tang lung kwoh, Ceylon-gooseberry, Ketembilla, Quetembilla, Topotopo, Uchuba, Cuchuva, Uvilla, Cappuli, Uchuva, Aguaymanto, Amor en bolsa, Cereza del Peru, Cuchuva, Lengua de vaca, Motojobobo embolsado, Sacabuche, Tomate silvestre, Yuyo de ojas, Giant ground cherry, Peruvian groundcherry, Peruvian cherry, Poha, Jam fruit, Physalis, Ananaskirsche, Essbare Judaskirsche, Kap-stachelbeere, Lampion, Coquerelle, Coqueret, Coueret du Perou, Alkeken

Annex E (informative)

Gooseberries (including hybrids with other ribes species) — 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 *Red 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 2	EU 3
2,4-D	0.2	<i>{0.1}</i>	<i>{0.05}</i>
	1. United States does not maintain a specific MRL for the 2,4-D/Gooseberry combination, but does maintain an MRL of 0.2 PPM for its "Berry, Group 13" group. 2. Codex does not maintain a specific MRL for the 2,4-D/Gooseberry combination, but does maintain an MRL of 0.1 PPM for its "Berries and other small fruits" group. 3. European Union does not maintain a specific MRL for the 2,4-D/Gooseberry combination, but does maintain an MRL of 0.05 PPM for its "Berries and small fruit" group.		
Acetamiprid	US 4	Cod	EU 5
	1.6		<i>{0.01}</i>
	4. United States does not maintain a specific MRL for the Acetamiprid/Gooseberry combination, but does maintain an MRL of 1.6 PPM for its "Bushberry subgroup 13-07B" group. 5. European Union does not maintain a specific MRL for the Acetamiprid/Gooseberry combination, but does maintain an MRL of 0.01 PPM for its "Berries and small fruit" group.		
Azoxystrobin	US 6	Cod	EU 7
	3	---	<i>{0.05}</i>
	6. United States does not maintain a specific MRL for the Azoxystrobin/Gooseberry combination, but does maintain an MRL of 3 PPM for its "Bushberry, Subgroup 13B" group. 7. European Union does not maintain a specific MRL for the Azoxystrobin/Gooseberry combination, but does maintain an MRL of 0.05 PPM for its "Other small fruit and berries" group.		
Bifenthrin	US 8	Cod	EU
	1.8	---	<i>{0.05}</i>
	8. United States does not maintain a specific MRL for the Bifenthrin/Gooseberry combination, but does maintain an MRL of 1.8 PPM for its "Bushberry subgroup 13-07B" group.		
Boscalid	US 9	Cod 10	EU 11
	13	<i>{10}</i>	<i>{10}</i>
	9. United States does not maintain a specific MRL for the Boscalid/Gooseberry combination, but does maintain an MRL of 13 PPM for its "Bushberry, Subgroup 13B" group. 10. Codex does not maintain a specific MRL for the Boscalid/Gooseberry combination, but does maintain an MRL of 10 PPM for its "Berries and other small fruits" group. 11. European Union does not maintain a specific MRL for the Boscalid/Gooseberry combination, but does maintain an MRL of 10 PPM for its "Other small fruit and berries" group.		
Carbaryl	US 12	Cod	EU
	3	---	<i>{0.05}</i>
	12. United States does not maintain a specific MRL for the Carbaryl/Gooseberry combination, but does maintain an MRL of 3 PPM for its "Bushberry subgroup 13-07B" group.		
Carfentrazone-ethyl	US 13	Cod	EU 14
	0.1	---	<i>{0.01}</i>
	13. United States does not maintain a specific MRL for the Carfentrazone-ethyl/Gooseberry combination, but does maintain an MRL of 0.1 PPM for its "Berry, Group 13" group. 14. European Union does not maintain a specific MRL for the Carfentrazone-ethyl/Gooseberry combination, but does maintain an MRL of 0.01 PPM for its "Fruit Fresh or Frozen; Nuts" group.		

	US 15	Cod	EU
Cyprodinil	3	---	5
	15. United States does not maintain a specific MRL for the Cyprodinil/Gooseberry combination, but does maintain an MRL of 3 PPM for its "Bushberry, Subgroup 13B" group.		
	US 16	Cod	EU 17
Dichlobenil	0.15	---	{0.1}
	16. United States does not maintain a specific MRL for the Dichlobenil/Gooseberry combination, but does maintain an MRL of 0.15 PPM for its "Bushberry subgroup 13-07B" group.		
	17. European Union does not maintain a specific MRL for the Dichlobenil/Gooseberry combination, but does maintain an MRL of 0.1 PPM for its "Berries and small fruit" group.		
	US 18	Cod	EU 19
Diuron	0.1	---	{0.05}
	18. United States does not maintain a specific MRL for the Diuron/Gooseberry combination, but does maintain an MRL of 0.1 PPM for its "Berry, Group 13" group.		
	19. European Union does not maintain a specific MRL for the Diuron/Gooseberry combination, but does maintain an MRL of 0.05 PPM for its "Berries and small fruit" group.		
	US 20	Cod	EU 21
EPTC	0.1	---	{0.05}
	20. United States does not maintain a specific MRL for the EPTC/Gooseberry combination, but does maintain an MRL of 0.1 PPM for its "Small Fruits" group.		
	21. European Union does not maintain a specific MRL for the EPTC/Gooseberry combination, but does maintain an MRL of 0.05 PPM for its "Fruit Fresh or Frozen; Nuts" group.		
	US	Cod	EU
Fenbuconazole	0.3	---	{0.05}
	US	Cod	EU
Fenhexamid	5	5	5
	US 22	Cod	EU 23
Fenpropathrin	3	---	{0.01}
	22. United States does not maintain a specific MRL for the Fenpropathrin/Gooseberry combination, but does maintain an MRL of 3 PPM for its "Bushberry, Subgroup 13B" group.		
	23. European Union does not maintain a specific MRL for the Fenpropathrin/Gooseberry combination, but does maintain an MRL of 0.01 PPM for its "Other small fruit and berries" group.		
	US	Cod 24	EU 25
Fenvalerate	3	{1}	{0.02}
	24. Codex does not maintain a specific MRL for the Fenvalerate/Gooseberry combination, but does maintain an MRL of 1 PPM for its "Berries and other small fruits" group.		
	25. European Union does not maintain a specific MRL for the Fenvalerate/Gooseberry combination, but does maintain an MRL of 0.02 PPM for its "Fruit Fresh or Frozen; Nuts" group.		
	US 26	Cod	EU 27
Fluazinam	7	---	{0.05}
	26. United States does not maintain a specific MRL for the Fluazinam/Gooseberry combination, but does maintain an MRL of 7 PPM for its "Bushberry, Subgroup 13B" group.		
	27. European Union does not maintain a specific MRL for the Fluazinam/Gooseberry combination, but does maintain an MRL of 0.05 PPM for its "Other small fruit and berries" group.		
	US 28	Cod	EU
Fludioxonil	2	---	3
	28. United States does not maintain a specific MRL for the Fludioxonil/Gooseberry combination, but does maintain an MRL of 2 PPM for its "Bushberry, Subgroup 13B" group.		
	US 29	Cod	EU 30
Flumioxazin	0.02	---	0.05
	29. United States does not maintain a specific MRL for the Flumioxazin/Gooseberry combination, but does maintain an MRL of 0.02 PPM for its "Bushberry subgroup 13-07B" group.		
	30. European Union does not maintain a specific MRL for the Flumioxazin/Gooseberry combination, but does maintain an MRL of 0.05 PPM for its "Fruit Fresh or Frozen; Nuts" group.		
	US 31	Cod	EU 32
Forchlorfenuron	0.01	---	0.05
	31. United States does not maintain a specific MRL for the Forchlorfenuron/Gooseberry combination, but does maintain an MRL of 0.01 PPM for its "Bushberry subgroup 13-07B" group.		
	32. European Union does not maintain a specific MRL for the Forchlorfenuron/Gooseberry combination, but does maintain an MRL of 0.05 PPM for its "Fruit Fresh or Frozen; Nuts" group.		

	US 33	Cod	EU 34
Fosetyl-Al	40	---	{2}
	33. United States does not maintain a specific MRL for the Fosetyl-Al/Gooseberry combination, but does maintain an MRL of 40 PPM for its "Bushberry, Subgroup 13B" group.		
	34. European Union does not maintain a specific MRL for the Fosetyl-Al/Gooseberry combination, but does maintain an MRL of 2 PPM for its "Other small fruit and berries" group.		
	US 35	Cod 36	EU 37
Glufosinate-ammonium	0.15	{0.1}	0.5
	35. United States does not maintain a specific MRL for the Glufosinate-ammonium/Gooseberry combination, but does maintain an MRL of 0.15 PPM for its "Bushberry, Subgroup 13B" group.		
	36. Codex does not maintain a specific MRL for the Glufosinate-ammonium/Gooseberry combination, but does maintain an MRL of 0.1 PPM for its "Berries and other small fruits" group.		
	37. European Union does not maintain a specific MRL for the Glufosinate-ammonium/Gooseberry combination, but does maintain an MRL of 0.5 PPM for its "Other small fruit and berries" group.		
	US 38	Cod	EU 39
Glyphosate	0.2	---	{0.1}
	38. United States does not maintain a specific MRL for the Glyphosate/Gooseberry combination, but does maintain an MRL of 0.2 PPM for its "Berry, Group 13" group.		
	39. European Union does not maintain a specific MRL for the Glyphosate/Gooseberry combination, but does maintain an MRL of 0.1 PPM for its "Berries and small fruit" group.		
	US	Cod	EU
Imidacloprid	3.5	---	{3}
	US	Cod	EU 40
Malathion	8	---	{0.02}
	40. European Union does not maintain a specific MRL for the Malathion/Gooseberry combination, but does maintain an MRL of 0.02 PPM for its "Other small fruit and berries" group.		
	US 41	Cod	EU 42
Mesotrione	0.01	---	0.05
	41. United States does not maintain a specific MRL for the Mesotrione/Gooseberry combination, but does maintain an MRL of 0.01 PPM for its "Berry, Group 13" group.		
	42. European Union does not maintain a specific MRL for the Mesotrione/Gooseberry combination, but does maintain an MRL of 0.05 PPM for its "Fruit Fresh or Frozen; Nuts" group.		
	US 43	Cod	EU 44
Metaldehyde	0.15	---	{0.05}
	43. United States does not maintain a specific MRL for the Metaldehyde/Gooseberry combination, but does maintain an MRL of 0.15 PPM for its "Berry, Group 13" group.		
	44. European Union does not maintain a specific MRL for the Metaldehyde/Gooseberry combination, but does maintain an MRL of 0.05 PPM for its "Other small fruit and berries" group.		
	US 45	Cod	EU 46
Methoxyfenozide	3	---	{0.02}
	45. United States does not maintain a specific MRL for the Methoxyfenozide/Gooseberry combination, but does maintain an MRL of 3 PPM for its "Bushberry subgroup 13-07B" group.		
	46. European Union does not maintain a specific MRL for the Methoxyfenozide/Gooseberry combination, but does maintain an MRL of 0.02 PPM for its "Other small fruit and berries" group.		
	US	Cod	EU
Myclobutanil	2	---	{1}
	US 47	Cod	EU 48
Napropamide	0.1	---	0.1
	47. United States does not maintain a specific MRL for the Napropamide/Gooseberry combination, but does maintain an MRL of 0.1 PPM for its "Berry, Group 13" group.		
	48. European Union does not maintain a specific MRL for the Napropamide/Gooseberry combination, but does maintain an MRL of 0.1 PPM for its "Other small fruit and berries" group.		
	US 49	Cod	EU
Oryzalin	0.05	---	{0.01}
	49. United States does not maintain a specific MRL for the Oryzalin/Gooseberry combination, but does maintain an MRL of 0.05 PPM for its "Berry, Group 13" group.		

	US 50	Cod 51	EU 52
Paraquat dichloride	0.05	{0.01}	{0.02}
	50. United States does not maintain a specific MRL for the Paraquat dichloride/Gooseberry combination, but does maintain an MRL of 0.05 PPM for its "Berry, Group 13" group.		
	51. Codex does not maintain a specific MRL for the Paraquat dichloride/Gooseberry combination, but does maintain an MRL of 0.01 PPM for its "Berries and other small fruits" group.		
	US	Cod	EU
Piperonyl Butoxide	8	---	---
	US 53	Cod	EU 54
Propiconazole	1	---	{0.05}
	53. United States does not maintain a specific MRL for the Propiconazole/Gooseberry combination, but does maintain an MRL of 1 PPM for its "Berry, Group 13" group.		
	54. European Union does not maintain a specific MRL for the Propiconazole/Gooseberry combination, but does maintain an MRL of 0.05 PPM for its "Berries and small fruit" group.		
	US 55	Cod	EU
Pyraclostrobin	4	---	{0.5}
	55. United States does not maintain a specific MRL for the Pyraclostrobin/Gooseberry combination, but does maintain an MRL of 4 PPM for its "Berry, Group 13" group.		
	US	Cod	EU 56
Pyrethrins	1	---	1
	56. European Union does not maintain a specific MRL for the Pyrethrins/Gooseberry combination, but does maintain an MRL of 1 PPM for its "Fruit Fresh or Frozen; Nuts" group.		
	US 57	Cod	EU
Pyriproxyfen	1	---	{0.05}
	57. United States does not maintain a specific MRL for the Pyriproxyfen/Gooseberry combination, but does maintain an MRL of 1 PPM for its "Bushberry, Subgroup 13B" group.		
	US 58	Cod	EU 59
Spinetoram	0.25	---	{0.05}
	58. United States does not maintain a specific MRL for the Spinetoram/Gooseberry combination, but does maintain an MRL of 0.25 PPM for its "Bushberry, Subgroup 13B" group.		
	59. European Union does not maintain a specific MRL for the Spinetoram/Gooseberry combination, but does maintain an MRL of 0.05 PPM for its "Other small fruit and berries" group.		
	US 60	Cod	EU
Spinosad	0.25	---	0.3
	60. United States does not maintain a specific MRL for the Spinosad/Gooseberry combination, but does maintain an MRL of 0.25 PPM for its "Bushberry, Subgroup 13B" group.		
	US 61	Cod	EU 62
Spirotetramat	1.3	---	{0.1}
	61. United States does not maintain a specific MRL for the Spirotetramat/Gooseberry combination, but does maintain an MRL of 1.3 PPM for its "Fruit, small, vine climbing, subgroup 13-07F, except fuzzy kiwifruit" group.		
	62. European Union does not maintain a specific MRL for the Spirotetramat/Gooseberry combination, but does maintain an MRL of 0.1 PPM for its "Fruit Fresh or Frozen; Nuts" group.		
	US 63	Cod	EU
Tebufenozide	3	---	{0.05}
	63. United States does not maintain a specific MRL for the Tebufenozide/Gooseberry combination, but does maintain an MRL of 3 PPM for its "Berry, Group 13" group.		
	US 64	Cod	EU 65
Thiamethoxam	0.2	---	{0.05}
	64. United States does not maintain a specific MRL for the Thiamethoxam/Gooseberry combination, but does maintain an MRL of 0.2 PPM for its "Bushberry, Subgroup 13B" group.		
	65. European Union does not maintain a specific MRL for the Thiamethoxam/Gooseberry combination, but does maintain an MRL of 0.05 PPM for its "Other small fruit and berries" group.		
	US 66	Cod 67	EU 68
Zeta-Cypermethrin	0.8	{0.5}	{0.05}
	66. United States does not maintain a specific MRL for the Zeta-Cypermethrin/Gooseberry combination, but does maintain an MRL of 0.8 PPM for its "Berry, Group 13" group.		
	67. The MRL is established for the sum of cypermethrin and zeta-cypermethrin. Codex does not maintain a specific MRL for the Zeta-Cypermethrin/Gooseberry combination, but does maintain an MRL of 0.5 PPM for its "Berries and other small fruits" group.		
	68. European Union does not maintain a specific MRL for the Zeta-Cypermethrin/Gooseberry combination, but does maintain an MRL of 0.05 PPM for its "Other small fruit and berries" group.		

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