

CODEX ALIMENTARIUS

INTERNATIONAL FOOD STANDARDS



Food and Agriculture
Organization of
the United Nations



World Health
Organization

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REGIONAL STANDARD FOR LUCUMA

Latin America and the Caribbean

CXS 305R-2011

Adopted in 2011. Amended in 2023.

Amendments 2023

Following decisions taken at the Forty-sixth Session of the Codex Alimentarius Commission in December 2023, amendments were made in Section 6.2 Labelling of non-retail containers and Section 7 Food additives was added.

1. DEFINITION OF PRODUCE

This standard applies to the fruit of commercial varieties of lucuma grown from the *Pouteria lucuma* (R. y P.) species, of the Sapotaceae family, to be supplied fresh to the consumer, after preparation and packaging. Lucuma for industrial processing are excluded.

2. PROVISIONS CONCERNING QUALITY

2.1 Minimum requirements

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

- whole, and preferably with its stalk which must always be attached to the calyx; the stalk should not exceed 5 mm and should be cleanly cut;
- sound; produce affected by rotting, mould, or deterioration such as to make it unfit for consumption is excluded;
- clean, practically free of any visible foreign matter;
- practically free of pests, and damage caused by them, affecting the general appearance of the produce;
- free of abnormal external moisture, excluding condensation following removal from cold storage;
- free of any foreign smell and/or taste;
- free of damage caused by low and/or high temperatures;
- free of physical damage including deep bruising, cuts, abrasions, etc. Superficial natural cracking due to ripening is acceptable at the time of commerce; and
- free of sunburn.

In addition, the lucuma must be fresh in appearance and characteristic of the variety in shape and external colour.

2.1.1 The lucuma must have been carefully picked and have reached an appropriate physiological degree of development and ripeness, in accordance with the characteristics of the variety and/or commercial type, the time of picking, and the area in which it is grown.

The development and condition of the lucuma must be such as to enable it to:

- withstand transport and handling; and
- arrive in satisfactory condition at the place of destination.

2.2 Classification

Lucuma is classified into the three classes defined below:

2.2.1 *Extra class*

Lucuma in this class must be of superior quality. The produce must be characteristic of the variety in shape, development and colouring, allowing for the district in which it is grown. It 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.ⁱ

The maximum number of seeds in this class is two, the firmness of 'silk' lucuma is soft while that of 'stick' lucuma is semi-hard.

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

ⁱ Slight defects: cracking, scratches from branch movement due to the wind, superficial marking due to treatments or pests that do not cause degenerative damage affecting the pulp of the fruit.

2.2.2 Class I

Lucuma in this class must be of good quality. The produce must be characteristic of the variety in shape, development and colouring, allowing for the district in which they are grown. 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 not corresponding to the variety, slight skin defects not exceeding 1 cm² in total for all sizes of lucuma.

The maximum number of seeds in this class is three, the firmness of 'silk' lucuma is soft, while that of 'stick' lucuma is semi-hard.

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

2.2.3 Class II

This class includes lucuma which does not qualify for inclusion in the higher classes, but satisfies the minimum requirements specified in Section 2.1 above. The following defects, however, may be allowed, provided the lucuma retains its essential characteristics as regards quality, keeping quality and presentation:

- defects in shape not corresponding to the variety, slight skin defects not exceeding 2 cm² in total for all sizes of lucuma.

The maximum number of seeds in this class is three, the firmness of 'silk' lucuma is semi-hard while that of 'stick' lucuma is hard.

3. PROVISIONS CONCERNING SIZING

Size is determined by the weight of the fruit. Lucumas are graded according to the following table.

Table 1. Size specifications for lucumaⁱⁱ

Size code	Average unit weight (g)	Weight range (g)
A	-	Under 55
B	90	50–130
C	160	120–200
D	230	190–270
E	300	260–340
F	-	Over 330

Table 2. Size classes for lucuma

	Classes		
	Extra	I	II
Diameter of equatorial section (cm)	From 6 to 9	Over 9, or more than or equal to 4 and less than 6	Less than 4
Weight (g)	120 to 300	Over 300, or more than or equal to 50 and less than 120	Less than 50

4. 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.

ⁱⁱ The specified ranges include size tolerance of \pm 10 percent weight of fruit contained in each package.

4.1 Quality tolerances

4.1.1 *Extra class*

Five percent, by number or weight, of lucuma, not satisfying the requirements of the class, but meeting those of class I or, exceptionally, coming within the tolerances of that class.

4.1.2 *Class I*

Ten percent, by number or weight of lucuma, not satisfying the requirements of the class, but meeting those of class II or, exceptionally, coming within the tolerances of that class.

4.1.3 *Class II*

Ten percent, by number or weight of lucuma, satisfying neither the requirements of the class nor the minimum requirements, with the exception of produce affected by rotting, or any other deterioration, rendering it unfit for consumption.

4.2 Size tolerances

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

5. PROVISIONS CONCERNING PRESENTATION

5.1 Uniformity

The contents of each package must be uniform and contain only lucuma of the same origin, variety, quality, size, and appreciably of the same degree of ripeness and development. The visible part of the contents of the package must be representative of the entire contents.

5.2 Packaging

The lucuma must be packed in such a way as to protect the produce properly. The materials used inside the package must be new,ⁱⁱⁱ 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.

The lucuma shall be packed in each container in compliance with the *Code of Practice for Packaging and Transport of Fresh Fruits and Vegetables* (CXC 44-1995).¹

5.2.1 *Description of containers*

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

6. MARKING OR LABELLING

6.1 Consumer packages

In addition to the requirements of the *General Standard for the Labelling of Pre-packaged Foods* (CXS 1-1985),² the following specific provisions apply:

6.1.1 *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.

6.2 Labelling of non-retail containers

The labelling of non-retail containers should be in accordance with the *General Standard for the Labelling of Non-Retail Containers of Foods* (CXS 346-2021).³

In addition, the following specific requirement shall apply:

6.2.1 *Nature of produce*

Name of the produce "Lucuma" if the contents are not visible from the outside. Name of the variety (optional).

7. FOOD ADDITIVES

No food additives are permitted in foods conforming to this standard.

ⁱⁱⁱ For the purposes of this standard, this includes recycled material of food-grade quality.

8. CONTAMINANTS

- 8.1** The produce covered by this standard shall comply with the maximum levels of the *General Standard for Contaminants and Toxins in Food and Feed* (CXS 193-1995).⁴
- 8.2** The produce covered by this standard shall comply with the maximum residue limits for pesticides established by the Codex Alimentarius Commission.

9. HYGIENE

- 9.1** It is recommended that the produce covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the *General Principles of Food Hygiene* (CXC 1-1969),⁵ the *Code of Hygienic Practice for Fresh Fruits and Vegetables* (CXC 53-2003),⁶ and other relevant Codex texts such as codes of hygienic practice and codes of practice.
- 9.2** The produce should comply with any microbiological criteria established in accordance with the *Principles and Guidelines for the Establishment and Application of Microbiological Criteria Related to Foods* (CXG 21-1997).⁷

ANNEX**1. DESCRIPTION**

Lucuma is a native fruit of the Andean part of Peru, where it exists in numerous biotypes, many of them wild. The fruit is a berry or drupe that is round, ovoid, conical, flattened or with a spinning-top shape, approximately 4 cm to 9 cm in diameter and with a characteristic odour and colour. It is generally asymmetrical with a pointed apex that is usually surrounded with a brown to light green areola. The exocarp or skin is very thin and delicate, hairless and somewhat scaly. The mesocarp or pulp is of variable thickness, floury to mealy in texture, and soft to hard in firmness. The seed is round and flattish, 2 cm to 4 cm in diameter and covered with a thick light or dark brown episperm. It has an opaque whitish hilum and is covered with a thin light-yellow endocarp.

The following definitions apply for this standard:

- 1.1 Biotype: group of individuals whose phenotypes correspond to the same genotype (heritage).
- 1.2 Areola: small, more or less circular, ridge, depression or mark that appears in certain organs or the wall of certain cells.
- 1.3 Silk lucuma: lucuma with a soft or semi-hard firmness of pulp. See Table 1.
- 1.4 Stick lucuma: lucuma with a hard firmness of pulp. See Table 1.

Table 1 – State of pulp firmness

Firmness		State of firmness
In Kg-f	In N	
0 to 6	0 to 60	Soft
Over 6 and under 11	Over 60 and under 110	Semi-hard
More than or equal to 11	More than or equal to 110	Hard

Note: 1 kg-f = 9.80665 N (\approx 10 N).

NOTES

¹ FAO and WHO. 1995. *Code of Practice for Packaging and Transport of Fresh Fruits and Vegetables*. Codex Alimentarius Code of Practice, No. CXC 44-1995. Codex Alimentarius Commission. Rome.

² FAO and WHO. 1985. *General Standard for the Labelling of Pre-packaged Foods*. Codex Alimentarius Standard, No. CXS 1-1985. Codex Alimentarius Commission. Rome.

³ FAO and WHO. 2021. *General Standard for the Labelling of Non-Retail Containers of Foods*. Standard, No. CXS 346-2021. Codex Alimentarius Commission. Rome.

⁴ FAO and WHO. 1995. *General Standard for Contaminants and Toxins in Food and Feed*. Codex Alimentarius Standard, No. CXS 193-1995. Codex Alimentarius Commission. Rome.

⁵ FAO and WHO. 1969. *General Principles of Food Hygiene*. Codex Alimentarius Code of Practice, No. CXC 1-1969. Codex Alimentarius Commission. Rome.

⁶ FAO and WHO. 2003. *Code of Hygienic Practice for Fresh Fruits and Vegetables*. Codex Alimentarius Code of Practice, No. CXC 53-2003. Codex Alimentarius Commission. Rome.

⁷ FAO and WHO. 1997. *Principles and Guidelines for the Establishment and Application of Microbiological Criteria Related to Foods*. Codex Alimentarius Guideline, No. CXG 21-1997. Codex Alimentarius Commission. Rome.

Members of the Codex Alimentarius Commission in the Region of Latin America and the Caribbean are indicated on the Codex website at <https://www.fao.org/fao-who-codexalimentarius>.