



Economic and Social Council

Distr.: General
28 April 2026

English only

Economic Commission for Europe

Steering Committee on Trade Capacity and Standards

Working Party on Agricultural Quality Standards

Specialized Section on Standardization

of Dry and Dried Produce

Seventy-third session

Geneva, 13–15 May 2026

Item 8 of the provisional agenda

Explanatory materials

Draft explanatory material for almond kernels

Submitted by the delegation of the United States of America

Summary

At its 2025 session, the Specialized Section agreed to develop explanatory brochures for the ECE standards on almonds.

The Specialized Section is invited to review the draft explanatory brochure for almond kernels, developed by the delegation of the United States of America.

EXPLANATORY BROCHURE

ALMOND KERNELS



NOTE

Commercial quality standards for agricultural produce are developed and approved by the United Nations Economic Commission for Europe through its Working Party on Agricultural Quality Standards. These international standards facilitate trade, encourage high-quality production, improve profitability and protect consumer interests. They are used by governments, producers, traders, importers and exporters, as well as international organizations. They cover a wide range of agricultural products, including fresh fruit and vegetables, dry and dried produce, seed potatoes, meat, cut flowers, eggs and egg products.

The Explanatory Brochure on the Standard for Almond Kernels has been developed to harmonize the interpretation of the Standard, thereby facilitating international as well as national trade. It addresses producers and traders, as well as inspection authorities.

All members of the United Nations can participate, on an equal footing, in the activities of the Working Party on Agricultural Quality Standards.

For more information, please visit our website
<<http://www.unece.org/trade/agr/welcome.html>>.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the United Nations Secretariat concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Mention of company names or commercial products does not imply endorsement by the United Nations.

All material may be freely quoted or reprinted, but acknowledgement is requested.

CONTENTS

I. DEFINITION OF PRODUCE	1
II. PROVISIONS CONCERNING QUALITY	3
III. PROVISIONS CONCERNING SIZING (STYLES)	8
IV. PROVISIONS CONCERNING TOLERANCES	10
V. PROVISIONS CONCERNING PRESENTATION	14
VI. PROVISIONS CONCERNING MARKING	17
ANNEX: UNECE STANDARD DDP-06 CONCERNING THE MARKETING AND COMMERCIAL QUALITY CONTROL OF ALMOND KERNELS	20



Note: Throughout this brochure, the official text of the standard is indicated in Roman type; the interpretative text of the standard is indicated in black italic. References to photos representing the visual interpretation are printed in black bold. The entire text of the standard without the interpretative text appears in the annex.

ACKNOWLEDGEMENTS

UNECE would like to acknowledge the contributions of all delegations of the Specialized Section on Standardization of Dry and Dried Produce during the development of this publication.

UNECE would also like to thank the Almond Board of California for preparing and printing the explanatory brochure on almond kernels.

I. DEFINITION OF PRODUCE



DEFINITION OF PRODUCE



DEFINITION OF PRODUCE

I. DEFINITION OF PRODUCE

This standard applies to sweet whole almond kernels of varieties (cultivars) grown from *Prunus amygdalus* Batsch, syn. *Prunus dulcis* (Mill.) D.A. Webb. The standard does not apply to almond halves, pieces, sticks, slices, dices or to almond kernels that are processed by salting, sugaring, flavouring, or roasting, that are blanched or for industrial processing.

INTERPRETATION

Almond kernels vary in sizes and shapes (Photo 1).



Photo 1: Representation of kernels sizes and shapes



II. PROVISIONS CONCERNING QUALITY

II. PROVISIONS CONCERNING QUALITY

The purpose of the standard is to define the quality requirements of almond kernels after preparation and packaging.

However, if applied at stages following export or dispatch, the holder/seller shall be responsible for observing the requirements of the standard. The holder/seller of products may not display such products or offer them for sale, or deliver or market them in any manner other than in conformity with this standard.

A. MINIMUM REQUIREMENTS¹

In all classes, subject to the special provisions for each class and the tolerances allowed, the almond kernels must display the following characteristics observed by the naked eye or corrected 20/20 vision² when appropriate:

The kernel must be:

- intact; however, kernels with less than 1/8th missing are considered as whole
- sound; produce affected by rotting or deterioration such as to make it unfit for human consumption is excluded
- clean; practically free of any visible foreign matter
- sufficiently developed; no shrunken or shrivelled kernels which are extremely wrinkled, or with desiccated, dried out or tough portions affecting more than 25 per cent of the kernel



Photo 2: Whole/intact; less than 1/8th missing

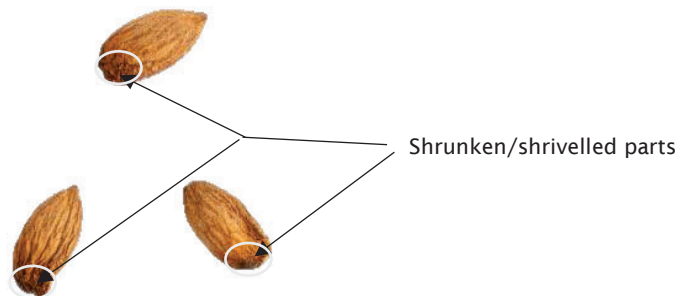


Photo 3: Shrunken/shrivelled (Variety characteristic not a defect)

¹ Definitions of terms and defects are listed in Annex III of the Standard Layout – Recommended terms and definition of defects for standards of dry (Inshell Nuts and Nut Kernels) and dried produce <http://www.unece.org/trade/agr/standard/dry/StandardLayout/StandardLayoutDDP_e.pdf>.

² Loupe, binocular or other magnifying equipment should not be used when assessing defects.

II. PROVISIONS CONCERNING QUALITY



Photo 5: Sufficiently developed kernels



Photo 6: Foreign, extraneous matter

- free from blemishes, areas of discolouration, yellowing, fat diffusion or spread stains in pronounced contrast with the rest of the kernel affecting in aggregate no more than 25 per cent of the surface of the kernel

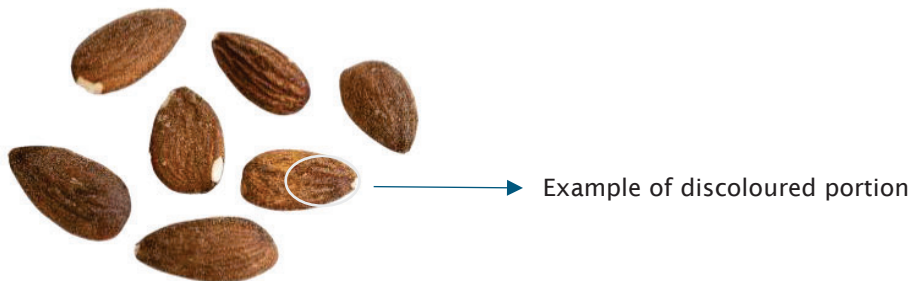


Photo 7: Blemishes and discolouration

- free from gummy resinous substance covering an area greater than 7 mm in diameter or 38 mm^2
- free from brown spots covering an area greater than 8 mm^2



Photo 8: GUMMY: Resinous substance covering area $> 38 \text{ mm}^2$



Photo 9: BROWN SPOT: Sunken discoloured area $> 8 \text{ mm}^2$

II. PROVISIONS CONCERNING QUALITY

- free from chipped and scratched areas greater than 7 mm in diameter
- well formed
- free from living pests, whatever their stage of development
- free from damage caused by pests, including the presence of dead insects and/or mites, their debris or excreta
- free from mould filaments visible to the naked eye



Photo 10: Chipped and scratched



Photo 11: Insect/pest damage



Photo 12: Mould filament visible to the naked eye

- free from rancidity
- free of abnormal external moisture
- free of foreign smell and/or taste

The condition of the almond kernels must be such as to enable them:

- to withstand transportation and handling
- to arrive in satisfactory condition at the place of destination

B. Moisture content³

The almond kernels shall have a moisture content not exceeding 6.5 per cent.

3 The moisture content is determined by Method 1 and/or 2 in Annex II of the Standard Layout for UNECE Standards on Dry and Dried Produce. The laboratory reference method shall be used in cases of dispute.

II. PROVISIONS CONCERNING QUALITY

C. Classification

In accordance with the defects allowed in section “IV. Provisions concerning tolerances”, almond kernels are classified into the following classes: “Extra” Class, Class I and Class II. The defects allowed must not affect the general appearance of the produce as regards quality, keeping quality and presentation in the package



III. PROVISIONS CONCERNING SIZING

III. PROVISIONS CONCERNING SIZING

Sizing or screening is mandatory for “Extra” Class and Class I, and optional for Class II.

Sizing and screening are determined by the maximum diameter of the equatorial section of the almond kernel, by means of round-holed or elongated-holed screens. Other sizing and screening systems may be used, such as those based on the number of almond kernels per 100g or per ounce (28,3495 grams).

- Sizing is expressed by an interval defined by a minimum and maximum size in millimetres, which must not exceed 2 mm of difference. When a range in count is specified, the almond kernels shall be fairly uniform in size, and the average count shall be within the range specified.
- Screening is expressed by a reference to a minimum size, in millimetres, followed by the words “and plus” or other equivalent wording, or by a reference to a maximum number of kernels per 100 g or per ounce, followed by the words “and less” or other equivalent wording.

Alternatively, screening could be expressed by a reference to a maximum size, in millimetres, followed by the words “and less” or other equivalent wording, or by a reference to a minimum number of kernels per 100g or per ounce, followed by the words “and plus” or other equivalent wording. For produce presented to the final consumer under on “screened”, this alternative reference is not allowed.

INTERPRETATION

Almond kernels come in different sizes. The UNECE standard applies to whole kernels, i.e. with less than 1/8 missing.

In international trade, certain parameters (‘styles’) are used to differentiate and describe whole kernels versus pieces as follows:

- *Whole: Intact or less than 1/8 missing*
- *Pieces: greater than 1/8 missing*

Examples related to different styles are shown in Photos 13 to 17, under “Tolerances”.



IV. PROVISIONS CONCERNING TOLERANCES

IV. PROVISIONS CONCERNING TOLERANCES

At all marketing stages, tolerances in respect of quality and size shall be allowed in each lot for produce not satisfying the minimum requirements of the class indicated.

INTERPRETATION

Tolerances are provided to allow for deviation in handling and for natural deterioration of produce over time.

Conformity with tolerances should be determined using at a minimum the operating rules for the conformity checks as set out in Annex II of the Council Decision Revising the OECD "Scheme" for the Application of International Standards for Fruit and Vegetables [C(2006)95] (downloadable from <http://www.oecd.org/agriculture/fruit-vegetables>).

Decision on conformity of the lot is taken depending on the percentage of non-conforming produce in the bulk sample (Photo 18).

A. QUALITY TOLERANCES

Defects allowed	Tolerances allowed, percentage of defective produce, by number or weight		
	"Extra"	Class I	Class II
(a) Tolerances for almond kernels not satisfying the minimum requirements of which no more than:	5	10	15
Not sufficiently developed, shrunken and shrivelled	1	2	4
Mouldy	0.5	0.5	1
Rancid or damaged by pests, rotten or deteriorated	1	2	3
Gummy, brown spot, blemishes and discolouration	2	3	6
Pieces	1	1	3
Split and broken	1	3	5
Living pests	0	0	0
(b) Size tolerances (if sized)			
For produce not conforming to the size indicated, in total	10	10	15
(c) Tolerances for other defects			
Extraneous matter (of organic origin) such as loose shells, shell fragments, fragments of hull, dust (by weight) and foreign matter (of inorganic origin) such as stones, metal, and glass (by weight)	0.15	0.25	0.25
Chipped and scratched	5	10	20
Doubles or twins	5	15	20
Almond kernels belonging to varieties or commercial types other than that indicated	5	5	5
Bitter almond kernels	1	1	2

IV. PROVISIONS CONCERNING TOLERANCES

INTERPRETATION - PIECES

Almond kernels come in different sizes. The UNECE standard applies to whole kernels, i.e. with less than 1/8 missing.

In international trade, these definitions are used to describe whole kernels and pieces particularly on conformity certificates.

- *Whole: Intact or less than 1/8 missing*
- *Pieces: greater than 1/8 missing*
- *Large Pieces: $\frac{1}{2}$ - $\frac{7}{8}$ kernel*
- *Small Broken Pieces: Less than $\frac{1}{2}$ kernel*
- *Doubles: Kernels that developed in shells containing two kernels*

Examples related to different styles are shown in Photos 13 to 17.



Photo 13: Whole/intact; less than 1/8th missing



Photo 14: Pieces; greater than 1/8th missing



Photo 15: Large Pieces; $\frac{1}{2}$ - $\frac{7}{8}$ kernel

IV. PROVISIONS CONCERNING TOLERANCES



Photo 16: Small broken pieces; less than 1/2 kernel



Photo 17: Doubles; kernels that developed in shells containing two kernels



Photo 18: Example of foreign, extraneous matter



V. PROVISIONS CONCERNING PRESENTATION

V. PROVISIONS CONCERNING PRESENTATION

A. Uniformity

The contents of each package⁴ must be uniform and contain only almond kernels of the same origin, quality, variety or commercial type, crop year (if indicated), and size (if sized).

The visible part of the contents of the package must be representative of its entire contents.

INTERPRETATION

Presentation should not be misleading, i.e. concealing in the lower layers of the package produce inferior in quality and size to that displayed and marked. Examples related to uniformity are shown in Photo 19.



Photo 19 : Example of uniformity in colour of almond kernels

B. Packaging

Almond kernels must be packed in such a way as to protect the produce properly.

The materials used inside the package must be 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.

Packages must be practically free of all foreign and extraneous matter in accordance with the table of tolerances in section “IV. Provisions concerning tolerances”.

4 The term “packages” is defined in Annex III of the Standard Layout for UNECE Standards on Dry and Dried Produce.

V. PROVISIONS CONCERNING PRESENTATION

INTERPRETATION

Packaging must be of such quality and strength as to protect the kernels during transportation and handling.

This provision is designed to ensure that the materials inside the package protect the produce suitably. Clean materials should be used to protect the produce from foreign matter, such as leaves, sand or soil which could cause a negative impact on the produce and its presentation. A visible lack of cleanliness in several packages could result in the goods being rejected.

Examples of packaging are shown in Photos 20 to 21



Photo 20: Example of almond kernels in 1-ton super sacs



Photo 21: Example of almond kernels in 22 kg (50 lbs) cartons



VI. PROVISIONS CONCERNING MARKING

VI. PROVISIONS CONCERNING MARKING

Each package⁵ must bear the following particulars in letters grouped on the same side, legibly and indelibly marked and visible from the outside:

INTERPRETATION

On each package, all particulars must be grouped on the same side of the package, either on a label attached to or printed on the package with water insoluble ink.

In case of re-used packages, all previous labels must be carefully removed and/or previous indications deleted.

Examples related to marking are shown in Photos 22 and 23.

A. IDENTIFICATION

Packer and/or dispatcher:

Name and physical address (e.g. street/city/region/postal code and, if different from the country of origin, the country) or a code mark officially recognized by the national authority⁶ if a country applying such a system is listed in the UNECE Code Mark Registry.

INTERPRETATION

For inspection purposes, the “packer” is the person or firm responsible for the packaging of the produce (this does not mean the staff that actually carry out the work, who are responsible only to their employer).

The code mark is not a trademark but an official control system enabling the person or firm responsible for packaging to be readily identified. The dispatcher (shipper or exporter) may, however, assume sole responsibility, in which case identification of the “packer” as defined above is optional.

B. NATURE OF PRODUCE

“Almond kernels”

Name of variety or commercial type (optional).

C. ORIGIN OF PRODUCE

Country of origin⁷ and, optionally, district where grown or national, regional or local place name.

D. COMMERCIAL SPECIFICATIONS

⁵ These marking provisions do not apply to sales packages presented in packages.

⁶ The national legislation of a number of countries requires the explicit declaration of the name and address. However, in cases where a code mark is used, the reference “packer and/or dispatcher” (or equivalent abbreviations) must be indicated in close connection with the code mark, and the code mark should be preceded with the ISO 3166 alpha country code of the recognizing country, if not the country of origin.

⁷ The full or a commonly used name should be indicated.

VI. PROVISIONS CONCERNING MARKING

Class

Size (if sized): expressed in accordance with section III

Crop year (optional)

“Best before” followed by the date (optional).

E. OFFICIAL CONTROL MARK (OPTIONAL)

Adopted 1986

Last revised 2024



Photo 22: Example of marking on super sacs



Photo 23: Example of marking on 22 kg (50 lbs) cartons

ANNEX



ANNEX

**UNECE STANDARD DDP-06 CONCERNING THE MARKETING AND COMMERCIAL
QUALITY CONTROL OF ALMOND KERNELS CAN BE FOUND AT THE FOLLOWING
WEBSITE**

https://unece.org/sites/default/files/2025-02/DDP-06_Almond_kernels_2024_e.pdf