



THAI AGRICULTURAL STANDARD

TAS 18-2011

COCONUT

**National Bureau of Agricultural Commodity and Food Standards
Ministry of Agriculture and Cooperatives**

ICS 67.080.10

ISBN XXX-XXX-XXX-XXX-X

UNOFFICIAL TRANSLATION



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National Bureau of Agricultural Commodity and Food Standards

Ministry of Agriculture and Cooperatives

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Published in the Royal Gazette Vol.129 Section 12D Special,

Dated 10 January B.E.2555 (2012)

Technical Committee on the Elaboration of Thai Agricultural Standard for Coconut

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(3)

Coconut is an agricultural commodity that Thailand has potential for production. Mature coconut meat is the raw material of many products such as copra, coconut oil, desiccated coconut and coconut milk. Furthermore, other parts of coconut fruits can be utilized for other industries. Therefore, the Agricultural Standards Committee deems it necessary to establish an agricultural standard for Coconut as a reference in production and trade.



NOTIFICATION OF THE MINISTRY OF AGRICULTURE AND COOPERATIVES

SUBJECT: THAI AGRICULTURAL STANDARD:

COCONUT

UNDER THE AGRICULTURAL STANDARDS ACT B.E. 2551 (2008)

Whereas the Agricultural Standards Committee deems it necessary to establish an agricultural standard for Coconut as a voluntary standard in accordance with the Agricultural Standards Act B.E. 2551 (2008) to promote such agricultural commodity to meet its standard on quality and safety.

By virtue of Section 5, Section 15 and Section 16 of the Agricultural Standards Act B.E. 2551(2008), the Minister of Agriculture and Cooperatives hereby issues this Notification on Establishment of Agricultural Standard: Coconut (TAS 18-2011) as a voluntary standard, details of which are attached herewith.

Notified on 25 October B.E. 2554 (2011)

(Mr. Theera Wongsamut)

Minister of Agriculture and Cooperatives

THAI AGRICULTURAL STANDARD**COCONUT****1. SCOPE**

1.1 This standard applies to commercial varieties^{1/} of mature coconut grown from *Cocos nucifera* L. of Arecaceae family for fresh consumption or raw material for manufacturing purposes.

1.2 This standard does not include young and aromatic coconut fruits as stated in the Thai Agricultural Standard for Aromatic Coconut (TAS 15 – 2007)

2. DEFINITIONS

2.1 **Whole mature coconut** means mature coconut fruit that is not husked. The exocarp and mesocarp are intact and covered the coconut shell (endocarp).

2.2 **Semi-dehusked mature coconut**^{2/} means mature coconut fruit that the exocarp is dehusked. Part of the mesocarp is left to cover the coconut shell.

2.3 **Dehusked mature coconut except the perianth area** means mature coconut fruit that the exocarp and mesocarp are dehusked, except the mesocarp covered the shell around the perianth area.

2.4 **Fully dehusked mature coconut** means mature coconut fruit that all the exocarp and mesocarp are dehusked and only the coconut shell remains.

3. TYPES

Commercially mature coconut is classified into 4 types as follows:

3.1 Whole mature coconut

3.2 Semi-dehusked mature coconut

3.3 Dehusked mature coconut except the perianth area

3.4 Fully dehusked mature coconut

^{1/} Commercial varieties for harvesting mature fruits that have pulp quality suitable for producing coconut milk, copra, coconut oil and food ingredient are such as varieties of Thai Tall, Sawi hybrid No.1, Chumphon Hybrid No.60, Chumphon Hybrid No.2, Ka Thi Hybrid Chumphon 84-1 and Ka Thi Hybrid Chumphon 84-2.

^{2/} Local name is called Maphrao Pok Plueak Yoi or Maphrao Yoi.

4. QUALITY

4.1 General requirements for every type of mature coconut shall be as follows:

- 4.1.1 Characteristics of the variety
- 4.1.2 Free from germination ^{3/}
- 4.1.3 Free of crack affecting meat quality
- 4.1.4 Free of decay or quality deterioration
- 4.1.5 Free of pest affecting the general appearance of the fruit
- 4.1.6 Free of damage caused by pests affecting the meat quality
- 4.1.7 Free of any abnormal odour

4.2 Mature coconut shall be harvested at proper maturity index of the variety (detail in Appendix B) and properly post-harvest handled, stored and transported so that mature coconut is acceptable at the destination.

5 SIZING

Fruit size is determined by weight as follows:

Table 1 Mature Coconut Fruit Size ^{4/}

(Section 5)

Size Code	Whole Fruit Weight ^{5/} (Type 3.1) (kg)	Dehusked Fruit Weight ^{6/} (Types 3.2, 3.3 and 3.4) (kg)
1	>2.0	>1.2
2	>1.0 to 2.0	>0.8 to 1.2
3	0.5 to 1.0	0.3 to 0.8

Note: Size classification of this standard is considered in trade to stipulate trade classification. Trade partners may name the trade classification differently depending on their requirements or seasonal limitations.

^{3/} Mature coconut stored for 45 days will germinate affecting the meat resulting in inferior quality. Germination period depends on varieties. Generally, Thai varieties germinate faster than those of hybrid varieties.

^{4/} Data were obtained from producers, traders, exporters and the Study on Significant Characteristic Indices Used as Criteria to Identify Quality of Mature Coconut Fruits and Copra of the National Bureau of Agricultural Commodity and Food Standards in collaboration with King Mongkut's University of Technology Thonburi.

^{5/} Whole fruit weight is the weight of whole coconut fruit harvested at the proper harvesting maturity according to Section 4.2. Determination of proper harvesting index is recommended in Appendix B.

^{6/} Dehusked fruit weight is the weight of fully dehusked mature coconut and dehusked mature coconut except the perianth area. In case of semi-dehusked mature coconut, the fruit is totally dehusked prior to weighing.

6 TOLERANCES

Tolerances according to sizes are allowed in each lot. For unsatisfied mature coconut sizes of the indicated class, the allowable tolerances shall be as follows:

For all size code, ten percent by number or weight of mature coconut corresponding to the size code immediately above or below that indicated on the package.

7 ACCOMPANIED DOCUMENTS

Information in accompanied documents shall be legible, clear, indelible and without false or deceptive as follows:

- (1) Name and address of producer or collector or producing country
- (2) Size code (if any)

8 OFFICIAL INSPECTION MARK OR CERTIFICATION MARK

This provision shall be complied with the requirements of the Agricultural Standards Committee or the criteria and conditions of inspection body or certification body.

9 CONTAMINANTS

Maximum Limits (MLs) of contaminants in mature coconut shall be in compliance with the relevant laws and regulations.

10 PESTICIDE RESIDUES

Maximum Residue Limits (MRLs) of pesticides in mature coconut shall be in compliance with the relevant laws and regulations as well as the requirements under the Thai Agricultural Standard on Pesticide Residues: Maximum Residue Limits (TAS 9002) and Pesticide Residues: Extraneous Maximum Residue Limits (TAS 9003).

11 HYGIENE

Mature coconut shall be hygienically handled including harvest, storage, packing and transport in order to prevent contamination that may be harmful to the consumer.

12 METHODS OF ANALYSIS AND SAMPLING

This provision shall be complied with relevant laws and regulations and the requirements under the Thai Agricultural Standards on Methods of Analysis and Sampling.

APPENDIX A

PHOTOS OF MATURE COCONUT FRUITS

(Section 3 and Section 4.1)



(a) Whole mature coconut



(b) Semi-dehusked mature coconut



(c) Dehusked mature coconut except the perianth area



(d) Fully dehusked mature coconut

Figure A.1 Types of commercial mature coconut fruits.



(a) Germinating mature coconut fruits



(b) Mature coconut fruit with crack scar

(c) Mature coconut fruit with decay lesions

Figure A.2 Mature coconut fruits with unacceptable defects



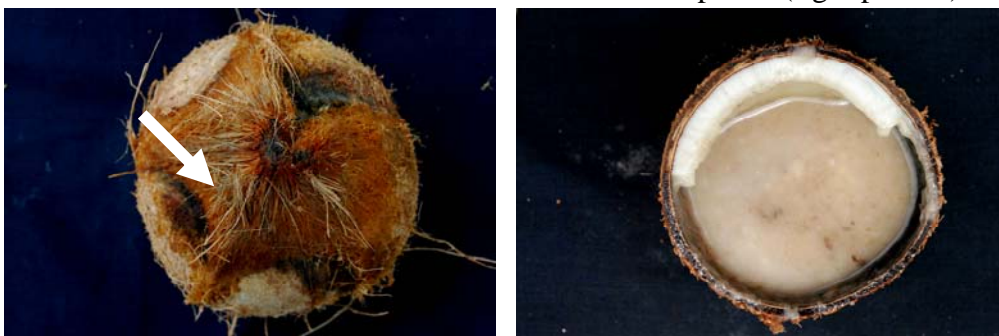
(a) Germinating dehusked mature coconut (left picture), cotyledon shown after crosscut opened (right picture)



(b) Dehusked mature coconut with crack scars



(c) Dehusked mature coconut with open hilum (left picture), mould and a larva are revealed after cut opened (right picture)



(d) Dehusked mature coconut with decay symptom, observable at the water soaked appearance of the perianth area (left picture), coconut meat is decayed with mould after cut opened (right picture)

Figure A.3 Dehusked mature coconut with different appearance of unacceptable defects

APPENDIX B

Determination of Proper Harvesting Index of Mature Coconut Fruit

(Section 4.2)

Proper harvesting index of mature coconut fruit is considered using the following factors:

- (1) Fruit age: coconut fruit will be mature at the age of approximately 11-12 months after 50% receptive female flowers. Period of maturity depends on varieties.
- (2) Colour of fruit peel: when the fruit starts mature, the peel colour will become brown (crab claw like colour).
- (3) Water content in the fruit: When the fruit starts mature, the water content in the fruit decreases. Therefore, when the fruit is shaken, loose coconut water content can be heard.



Figure B.1 Mature coconut fruit peel of brown or crab claw like colour

Source: Narong Chomchaloa. B.E. 2551. Coconut Glossary: Dictionary explaining definition of coconut glossaries. Thailand Network for the Conservation and Enhancement of Landraces of Cultivated Plants. Published under the project on enhancement of taxonomy efficiency and world strategy on plant conservation. Bureau of Policy and Plan of Environment and Natural Resources. (Figure B.1.)