THAI AGRICULTURAL STANDARD

TAS 17-2011

JAVA APPLE

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

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50 Phaholyothin Road, Ladyao, Chatuchak, Bangkok 10900
Telephone (662) 561 2277  www.acfs.go.th

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Technical Committee on the Elaboration of Thai Agricultural Standard for Java Apple

1. Mr. Suchat Vichitrnananda  
   Chairperson  
2. Ms. Ninlawan Leaungculsatien  
   Department of Agriculture  
3. Mr. Kissana Tancharoen  
   Department of Agriculture Extension  
4. Ms. Nalinthip Peanee  
   National Bureau of Agricultural Commodity and Food Standards,  
5. Mrs. Supattra Lertwatanakiat  
   Horticulture Research Institute, Department of Agriculture  
6. Mrs. Walaiporn Chairidchai  
   Office of Agricultural Research and development Phetchaburi, Department of Agriculture  
7. Associate Professor Pravate Tuitemwong  
   King Mongkut's University of Technology Thonburi  
8. Associate Professor Chalongchai Babprasertth  
   Kasetsart University  
9. Mrs. Araya Phaoleangtong  
   Thai Retailers Association  
10. Mr. Paiboon Wongchotsathit  
    Thai Fresh Fruit Traders and Exporters Association  
11. Mr. Kawit Wanichkul  
    Member  
12. Mr. Ophat Kasetsuanphet  
    Member  
13. Mr. Manoch Moungthai  
    Member  
14. Ms. Torporn Sattabus  
    Member and Secretary  
    Office of Commodity and System Standards,  
    National Bureau of Agricultural Commodity and Food Standards
Java apple is an economically important fruit crop of Thailand. The crops grown in Thailand are generally under different scientific names, i.e., *Syzygium samarangense*, *Syzygium jambos*, *Syzygium malaccense* and *Syzygium aqueum*. However, the fruits of *S. samarangense* is the major commercial species for export. In order to develop and promote the quality and safety in production and to build up the confidence of produce to be better accepted by both domestic and international markets, the Agricultural Standards Committee deems it necessary to establish a standard for Java apple.
NOTIFICATION OF THE MINISTRY OF AGRICULTURE AND COOPERATIVES

SUBJECT: THAI AGRICULTURAL STANDARD:

JAVA APPLE

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

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Whereas the Agricultural Standards Committee deems it necessary to establish an agricultural standard on Java Apples as voluntary standard in accordance with the Agricultural Standards Act B.E. 2551 (2008) to promote such agricultural commodity standard to meet its quality standard 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: Java Apple (TAS 17-2011) as voluntary standard, details of which are attached herewith.

Notified on B.E. 2554 (2011)

(Mr. Theera Wongsamut)
Minister of Agriculture and Cooperatives
THAI AGRICULTURAL STANDARD

JAVA APPLE

1 SCOPE

This standard applies to Java apple or wax apple 1/ fruits which are commercially grown from the *Syzygium samarangense* (Blume) Merr. et L. M. Perry, (synonym: *Eugenia javanica* L.) in the family of Myrtaceae for fresh consumption.

2 QUALITY

2.1 Minimum requirements

2.1.1 In all classes, subject to the special provisions for each class and the tolerances allowed, the Java apple shall be as follows:

(1) whole;
(2) fresh;
(3) free of bruising that may make it unfit for consumption, and free of deterioration in quality, or rotting;
(4) free of crack;
(5) clean and practically free of any visible foreign matter;
(6) practically free of pests affecting the general appearance of fruits;
(7) practically free of damage caused by pests affecting the fruit quality;
(8) free of abnormal external moisture, excluding condensation following removal of fruits from cold storage;
(9) free of any foreign smell and/or taste;
(10) free of damage caused by low and/or high temperature.

2.1.2 The Java apple shall be carefully picked and have reached an appropriate degree of ripening development according to the variety, season and the area in which they are grown. Consequently the fruits are in appropriate condition for transferring and transportation.

1/ For some instance, Thai exporters call “rose apple” for java apple of *S. samarangense* (Blume) Merr. et L.M. Perry. covered under this standard. However, rose apple is actually the common name of *Syzygium jambos* (L.) Alston, (synonym: *Eugenia jambos* L.).
2.2 Classification

Java apple are classified into 3 classes as follows:

2.2.1 “Extra” Class

Java apple in this class shall be of superior quality. They shall be characteristic of the variety. They shall be free of defects, with the exception of very slight superficial defects, provided these do not affect the general appearance of the Java apple, the flesh quality, the keeping quality and presentation in the package.

2.2.2 Class I

Java apple in this class shall be of good quality. They shall be characteristic of the variety. The following slight defects or abnormality may be allowed:

(1) slight abnormality in shape and color;
(2) slight defects on the skin due to scratches, rubbing and shallow scars not exceeding 5% of the total surface area of the fruit.

The abnormality or defects shall not affect the general appearance of the fruit, the flesh quality, the keeping quality and presentation in the package.

2.2.3 Class II

Java apple in this class include fruits which do not qualify for inclusion in the higher classes, but satisfy the minimum requirements specified in Section 2.1. The following defects or abnormality may be allowed:

(1) abnormality in shape and color;
(2) defects on the skin due to scratches, rubbing and shallow scars not exceeding 10% of the total surface area of the fruit.

The abnormality or defects shall not affect the general appearance of the fruit, the flesh quality, the keeping quality and presentation in the package.

3. SIZING

Fruit size is determined either by the weight in gram per fruit or by number of fruits per kilogram as the followings:
Table 1 Size of Java Apple

(Section 3)

<table>
<thead>
<tr>
<th>Size Code</th>
<th>Weight/Fruit (g)</th>
<th>Number of Fruits/Kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&gt; 150</td>
<td>5 to 6</td>
</tr>
<tr>
<td>2</td>
<td>&gt; 135 to 150</td>
<td>6 to 7</td>
</tr>
<tr>
<td>3</td>
<td>&gt; 120 to 135</td>
<td>7 to 8</td>
</tr>
<tr>
<td>4</td>
<td>&gt; 105 to 120</td>
<td>8 to 9</td>
</tr>
<tr>
<td>5</td>
<td>&gt; 90 to 105</td>
<td>9 to 10</td>
</tr>
<tr>
<td>6</td>
<td>&gt; 75 to 90</td>
<td>10 to 11</td>
</tr>
<tr>
<td>7</td>
<td>60 to 75</td>
<td>11 to 12</td>
</tr>
</tbody>
</table>

Note
Provisions concerning classification and sizing of this standard are normally combined for commercial purpose. Trade partners may name the trade classification differently depending on their requirements or seasonal limitations.

4 TOLERANCES

Tolerances according to quality and sizes shall be allowed in each package for Java apple not satisfying the requirements of the class indicated.

4.1 Quality tolerances

4.1.1 “Extra” Class

Five percent by number or weight of Java apple not satisfying the requirements of “Extra” Class (Section 2.2.1), but meeting those of Class I (Section 2.2.2) or, exceptionally, coming within the tolerances of Class I (Section 4.1.2).

4.1.2 Class I

Ten percent by number or weight of Java apple not satisfying the requirements of Class I (Section 2.2.2), but meeting those of Class II (Section 2.2.3) or, exceptionally, coming within the tolerances of Class II (Section 4.1.3).

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2/ Data are from producers, traders, exporters and the Collaborative project with the Kasetsart University on Important Characteristic Indices for Quality Indication, Classification and Size Code Determination of Fruits and Vegetables (Papaya, Java apple and Guava) of the National Bureau of Agricultural Commodity and Food Standards.
4.1.3 Class II

Ten percent by number or weight of Java apple satisfying neither the requirements of Class II (Section 2.2.3) nor the minimum requirements (Section 2.1), with the exception of produce affected by bruising, rotting or any other deterioration rendering it unfit for consumption.

4.2 Size tolerances

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

5 PACKAGING

5.1 Uniformity

The contents of each package shall be uniform and contain only Java apple of the same variety, quality, size and colour. The visible part of the contents of the package shall be representative of the entire contents.

5.2 Packaging

Java apple shall be packed in such a way as to store the produce properly. The materials used inside the package shall be clean, and of a quality such as to prevent any damage that affects the produce quality. The use of materials, particularly of paper or stamps bearing trade specification is allowed, provided the printing or labelling has been done with non-toxic ink or glue.

5.3 Description of containers

The containers shall meet the quality and hygiene as well as being free of any foreign matter and smell. They shall have resistance characteristics to ensure suitable handling, shipping and preserving fruit quality at the destination.

6 MARKING AND LABELLING

6.1 Retail containers for direct consumers

The following information shall appear on the package for Java apple in a manner that is legible and clear without false or deceptive information:

(1) Type of produce

Indicate the word “Java apple” and/or “Java apple variety”.

(2) Net weight in gram or kilogram.

(3) Information of producer and/or distributor.

Indicate name and address of production or repacking or distribution. Name and address of head office of producer or re-packer may be given. If the produce is imported, importer’s name and address shall be given.
(4) Data of origin
Indicate country of origin, except the java apple domestically produced for local market.

(5) Language
Label of produce for domestic market shall be in Thai. However, foreign languages may be added. Label of produce for export can be in foreign language.

6.2 Non-retail Containers
Each package shall bear the following particulars, in the documents accompanying the shipment, in the label or on package, with legibly, indelibly marked and without false or deceptive information as follows:

(1) Type of produce
Indicate the word “Java apple” and/or “Java apple variety”.

(2) Class;

(3) Size code (optional);

(4) Net weight in gram or kilogram;

(5) Information of producer and/or distributor
Indicate name and address of production or repacking or distribution, and identification code (optional). Name and address of head office of producer or re-packer may be given. If the produce is imported, importer’s name and address shall be given.

(6) Data of origin
Indicate country of origin, except the java apple domestically produced for local market.

(7) Language
Label of produce for domestic market shall be in Thai. However, foreign languages may be added. Label of produce for export can be in foreign language.

7 OFFICIAL INSPECTION MARK OR CERTIFICATION MARK (S)
This produce shall be complied with the requirements of the Agricultural Standards Committee or the inspection or certification bodies.

8 CONTAMINANTS
The Java apple shall be in compliance with relevant regulations and the Thai Agricultural Standard on Contaminants.

9 PESTICIDE RESIDUES
The Java apple shall be in compliance with the relevant laws and the requirements under the Thai Agricultural Standard on Pesticide Residues: Maximum Residues Limits (TAS 9002) and Pesticide Residues: Extraneous Maximum Residues Limits (TAS 9003).
10 HYGIENE
Java apple shall be harvested, handled, stored and transported in compliance with hygienic practices so as to prevent contamination that may be harmful to consumers.

11 METHODS OF ANALYSIS AND SAMPLING
This provision shall be complied with relevant laws and requirements under the Thai Agricultural Standards on Methods of Analysis and Sampling.
APPENDIX A

SAMPLES OF JAVA APPLE CULTIVARS AND FRUIT DEFECTS (Section 2)

Fig A.1 Thunklao

Fig A.2 Thapthimchan or Thongsamsi

Fig A.3 Phetsairung

Fig A.4 Phetsamphran

Fig A.5 Phetsuwan

Fig A.6 Phetnamphueng
Fig A.7 Bruises (rejected).

Fig A.8 Cracks (rejected).

Fig A.9 Damaged fruit caused by fruit fly (rejected).
Fig. A.10 Damaged fruit caused by plant diseases (rejected).

new lesion of scratched-off skin.

dry lesion of scratched-off skin.

Fig A.11 Skin defects due to scratched-off skin (rejected).

superficial scratched scars (accepted)

scratched scar (rejected)

Fig A.12 Skin defects due to scratched scars (rejected).
Fig A.13 Malformed fruits (rejected).

Fig A.14 Abnormal skin-color fruits (rejected).

Sources: Fig A.1, with the courtesy of Mr. Sa-ngiam Buaphun, Chok Anan Java Apple Orchard, Bueng Sam Pan District, Petchabun Province. Fig A.2 to A.14, with the courtesy of the project on Important Characteristic Indices for Quality Indication, Classification and Size Code Determination of Fruits and Vegetables (Papaya, Java apple and Guava).