



**THAI AGRICULTURAL STANDARD
TAS 4701-2013**

SOYBEANS

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

ICS 67.060

ISBN 978-974-403-986-6

UNOFFICIAL TRANSLATION



**THAI AGRICULTURAL STANDARD
TAS 4701-2013**

SOYBEANS

National Bureau of Agricultural Commodity and Food Standards

Ministry of Agriculture and Cooperatives

50 Phaholyothin Road, Ladyao, Chatuchak, Bangkok 10900

Telephone (662) 561 3384 Fax (662) 561 3357

www.acfs.go.th

Published in the Royal Gazette Vol.130 Section 76D,

dated 25 June B.E. 2556 (2013)

Technical Committee on the Elaboration of Thai Agricultural Standard for Soybeans

- | | | |
|-----|--|----------------------|
| 1. | Mrs. Wantana Tangpremsri
Department of Agriculture | Chairperson |
| 2. | Mr. Narin Chatrunghewan
Department of Foreign Trade, Ministry of Commerce | Member |
| 3. | Mrs. Pornthip Jeebjong
Department of Internal Trade, Ministry of Commerce | Member |
| 4. | Mr. Thanabadee Rodsom
Department of Livestock Development | Member |
| 5. | Mrs. Srisuda Taechasan
Department of Agricultural Extension | Member |
| 6. | Mrs. Ing-on Punyakit
National Bureau of Agricultural Commodity and Food Standards | Member |
| 7. | Associated Professor Somchai Jomduang
Chiangmai University | Member |
| 8. | Mr. Supadej Chirasavinuprapand
Food Processing Industry Club
The Federation of Thai Industries | Member |
| 9. | Mr. Kamtorn Ekmetipunth
Soybean and Rice Bran Oil Processor Association | Member |
| 10. | Mrs. Ubon Chamroonrat
Thai Feed Mill Association | Member |
| 11. | Mr. Sikhant Pongsapipatana
The Animal Husbandry Association of Thailand | Member |
| 12. | Mr. Sukkasem Wirax
The Mae Taeng Land Settlement Agricultural Cooperative | Member |
| 13. | Mr. Somchai Pa-oblek
Seed Research and Development Expert | Member |
| 14. | Mr. Nicom Lounsai
Crop Production Expert | Member |
| 15. | Ms. Chutima Sornsumrarn
Office of Standard Development,
National Bureau of Agricultural Commodity and Food Standards | Member and Secretary |

(3)

Soybeans are high in protein and oil content which are suitable for human consumption, processing for various kinds of food products as well as animal feed. Therefore, the Agricultural Standards Committee deems it necessary to establish the standard for soybeans so that soybeans used in the country meet the quality and safety requirements.

This standard is based on the following document:

Department of Internal Trade. 2005. Policy and Measures for Soybeans B.E. 2548 (2005). Bureau of Agricultural Trading Promotion. Department of Internal Trade. Ministry of Commerce. Bangkok.



NOTIFICATION OF THE MINISTRY OF AGRICULTURE AND COOPERATIVES
SUBJECT: ESTABLISHMENT OF AGRICULTURAL STANDARD:
SOYBEANS
UNDER THE AGRICULTURAL STANDARDS ACT B.E. 2551(2008)

Whereas the Agricultural Standards Committee, by the resolution at the first session of B.E. 2556 (2013) on 6 March B.E. 2556 (2013), deems it necessary to establish an agricultural standard for soybeans as a voluntary standard in accordance with the Agricultural Standards Act B.E. 2551 (2008) to promote such agricultural commodity to meet its quality and safety standards.

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 Thai Agricultural Standard for Soybeans (TAS 4701-2013), as voluntary standard, details of which are attached herewith.

Notified on 6 April B.E. 2556 (2013)

(Mr. Yukol Limlamthong)
Minister of Agriculture and Cooperatives

THAI AGRICULTURAL STANDARD

FOR SOYBEANS

1 SCOPE

This Thai Agricultural Standard applies to commercial variety of soybean grains of *Glycine max* L. Merrill, family Leguminosae, for human consumption, animal feed or oil extraction.

2. QUALITY

2.1 Minimum requirements

- (1) Grain colour of the variety characteristic,
- (2) Free from abnormal odour,
- (3) Moisture content not to exceed 13% by weight.

2.2 Classification

2.1.1 All classes of soybeans shall meet the minimum requirements as of Section 2.1. Classification of classes shall be based on grain size graded by sieve and protein content as in Table 1.

Table 1 Classification of soybeans

(Section 2.2)

Items	Requirements		
	Class 1	Class 2	Class 3
Grain size	Diameter not less than 4.8 mm.	Diameter not less than 4.5 mm.	Mixed size
Protein content	36% or above	Less than 36%	Less than 36%

3. DEFECTS

3.1 Definitions of soybean defects are as follows:

3.1.1 Foreign matter means other matters other than soybeans such as parts of stem, leaf, hull, stone, dirt, wood or other seeds.

3.1.2 Damaged kernel means soybean which has physical deterioration and/or deformity such as shrivelled, insect-damaged, and immature kernel.

3.1.3 Broken kernel means soybean with more than one-fourth of whole kernel removed or split.

3.2 Defect tolerances

The tolerances for each class are shown in Table 2.

Table 2 Defect tolerances

(Section 3.2)

Defects	Tolerance limits in each class (%)		
	Class 1	Class 2	Class 3
Foreign matter	1 Stone and dirt not to exceed 0.5	2 Stone and dirt not to exceed 1	3 Stone and dirt not to exceed 1
Damaged kernel	3	5	8
Broken kernel	3	8	10

4. SIZE TOLERANCES

Tolerances according to the unsatisfied size of class 1 and class 2 shall not be more than 10% by weight.

5. PACKAGING

Soybeans shall be packed in a clean container and be able to prevent external contamination. The containers shall be durable against handling from transportation, able to protect and maintain soybean quality as well as the contamination which may harm the consumers.

6. MARKING AND LABELLING

6.1 Retail container for direct consumers.

The following information shall appear on the container, package, fastening material or tag. They shall be easily and clearly visible without false or deceptive as follows:

- (1) Name of the produce
“Soybean grains” or “Soybeans” and soybean variety
- (2) Class
- (3) Net weight and date of production and/or packing
- (4) Information of producer, and/or re-packer, and/or distributor

Indicate name and address of the producer or re-packer or distributor. Name and address of head office of producer or re-packer or distributor may be provided. For imported soybeans, the importer’s name and address shall be indicated.

- (5) Source of origin

Indicate country of production, except local production for domestic market.

- (6) Language

In case of domestic market, label shall be in Thai. However, foreign language may be added. In case of exported produce, label can be in foreign language.

6.2 Non-retail containers

The following information shall be specified in the document accompanying the shipment, adhered on the label or container. They shall be legible, indelible and not be false or deceptive as follows:

- (1) Name of the produce
“Soybean grains” or “Soybeans” and soybean variety
- (2) Class
- (3) Net weight and date of production and/or packing
- (4) Information of producer, and/or packer, and/or distributor

Indicate name and address of the producer or packer or distributor and identification code (if any). Name and address of head office of producer or packer or distributor may be provided. For imported produce, the name and address of importer shall be indicated.

- (5) Source of origin

Indicate country of production, except produce for domestic market

- (6) Language

In case of domestic market, label shall be in Thai. However, foreign language may be added. In case of exported produce, label can be in foreign language.

6.3 Certification mark

The use of certification mark shall be complied with the Ministerial Regulation on Characteristic of Mark, Application and Display B.E 2553 (2010) and the related Notifications of National Bureau of Agricultural Commodity and Food Standards.

7. CONTAMINANTS

Type and level of contaminants in soybeans shall be complied with the relevant laws.

8. PESTICIDE RESIDUES

Pesticide residues in soybeans 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).

9. HYGEINIC

Soybeans shall be harvested, handled including stored and transported with hygienic practices so as to prevent contamination that may be harmful to consumers.

10. METHODS OF ANALYSIS AND SAMPLING

10.1 Analytical methods are shown in Table 3:

Table 3 Methods of Analysis

Items	Methods of analysis	Principle
Defects (section 3)	Take at least 1 kg of soybean sample then subsample to the final weight of 125 gm. Inspect foreign matter, damaged and broken kernel and calculate the percentage by weight.	Visual inspection
Moisture content (section 2.1)	ISO 6540 or other equivalent analytical methods shall be applied. In case other moisture analytical method i.e., moisture measuring device is used, it must be verified against the hot air oven method. The frequency of verification depends on various factors such as frequency of measurement, number of samples and error of measurement.	Gravimetry By hot air oven method
Protein content (section 2.2)	AOAC 955.04D or other equivalent analytical methods shall be applied.	Titrimetry, Kjeldahl digestion or other methods that are accurate and being accepted shall be used to analyse the percentage of protein content.

Note:**Principles for the selection of other methods of analysis shall be as follows:**

1. The methods of analysis notified by national organization or international organization on standardization or published manual or publications which are internationally recognised.
2. The methods shall be validated by the collaborative study in compliance with the criteria of the recognisably international organization.
3. In case of neither point 1 nor point 2 is not available, methods of analysis shall be in accordance with the single laboratory validation which is internationally recognised.

10.2 Sampling

Sampling shall follow methods in Appendix B. The use of other essential sampling methods shall comply with relevant laws and regulations.

APPENDIX A
ILLUSTRATION OF SOYBEAN DEFECTS



Figure A.1 Normal kernels



Figure A.2 Damaged kernels



Figure A.3 Mouldy kernels



Figure A.4 Broken kernels

APPENDIX B

SAMPLING METHODS

B.1 DEFINITION

Definitions used for sampling of soybeans are as follows:

B.1.1 Lot means a quantity of soybeans delivered at one time and presumes the same characteristics such as origin, type, packing, packer and consigner.

B.1.2 Incremental sample means soybean randomly sampled at certain spots from each lot. The number of spots for sample is calculated by the methods given in Tables B1 and B2.

B.1.3 Aggregate sample or composite sample means total sample obtained from a combination of the incremental samples.

B.1.4 Laboratory sample means an aggregate sample which is mixed homogeneously and reduced in sufficient amount size for laboratory analysis or testing.

B.2 PROCEDURES

Sampling of soybeans shall be properly practiced to obtain a well representative of a lot. For incremental samples, sampling shall be picked regarding the number of spots/locations depends on a frequency according to pre-calculated information. The spots of sampling shall be distributed entirely the lot. Incremental samples are mixed homogenously for preparation of aggregate sample. An aggregate sample is reduced the size until its weight is double for laboratory sample. The laboratory sample is divided in two parts and placed in a sealed bag. One of sample bag is delivered to laboratory. The rest is kept for traceability in case of problem arising.

B.2.1 Sampling of product in packed units

The frequency of incremental samples taken from packed units shall be calculated by the following formula:

$$F(n) = \frac{m_B m_l}{m_A m_p}$$

where;

F(n) = frequency of sampling from every (n) bag for incremental sample

n = number of packed units per each sampling

m_B = weight of soybeans of the lot in kg

m_i = weight of incremental sample specified as 0.1 kg

m_A = weight of aggregate sample in kg ; in general approximate at 3 kg

m_p = weight of soybeans in each bag in kg

Table B.1 Example of frequency for taking incremental samples in bag as of proper representative samples for laboratory testing. Samples were taken from lots of 25, 50 and 100 tonnes where incremental sample weight is 0.1 kg.

Soybeans weight in each lot (kg)	Weight in each packed units (kg)	Frequency of incremental sampling (one sample from every n bag)
25,000	1	833
25,000	5	167
25,000	25	33
25,000	40	21
25,000	50	17
50,000	1	1,667
50,000	5	333
50,000	25	67
50,000	40	42
50,000	50	33
100,000	1	3,333
100,000	5	667
100,000	25	133
100,000	40	83
100,000	50	67

Note: Additional incremental samples can be taken in case of composite sample's weight is less than 3 kg which is not sufficient for analysis in the laboratory.

B.2.2 Soybean sampling from bulk

Sampling number for laboratory analysis shall be agreed by the contract parties. Number and size of incremental samples are illustrated in Table B.2. If sample weight for laboratory analysis is not sufficient, number of incremental samples shall be increased.

Table B.2 Number of spots for sampling incremental sample in huge amount (i.e. truck, barge, train wagon, warehouse)

Size of lot (tonnes)	Incremental sample (g)	Number of spots for incremental sample (spots)	Minimum sample for contaminant Analysis in laboratory (kg)	Minimum sample for other laboratory analysis (kg)
≤ 15	400-3,000	3	- Orchratoxin A and Aflatoxins : 10 - Pesticides, heavy metal and dioxins : 1 - Contaminants: 3	1- 3 According to specification for analysis
>15- 30		8		
>30-45		11		
>45-100		15		
>100-300		18		
>300-500		20		
>500-1,500		25		

The detail of instruction for sampling equipment or device, methods of analysis and method of reducing size of aggregate sample to obtain laboratory sample shall be in accordance with ISO 24333:2009 Cereals and cereal product-sampling.