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# EAST AFRICAN STANDARD

## Dry soybeans — Specification and grading

## EAST AFRICAN COMMUNITY

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## Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in East Africa. It is envisaged that through harmonized standardization, trade barriers which are encountered when goods and services are exchanged within the Community will be removed.

In order to meet the above objectives, the EAC Partner States have enacted an East African Standardization, Quality Assurance, Metrology and Test Act, 2006 (EAC SQMT Act, 2006) to make provisions for ensuring standardization, quality assurance, metrology and testing of products produced or originating in a third country and traded in the Community in order to facilitate industrial development and trade as well as helping to protect the health and safety of society and the environment in the Community.

East African Standards are formulated in accordance with the procedures established by the East African Standards Committee. The East African Standards Committee is established under the provisions of Article 4 of the EAC SQMT Act, 2006. The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the procedures of the Community.

Article 15(1) of the EAC SQMT Act, 2006 provides that "Within six months of the declaration of an East African Standard, the Partner States shall adopt, without deviation from the approved text of the standard, the East African Standard as a national standard and withdraw any existing national standard with similar scope and purpose".

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.



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## Introduction

In the preparation of this East African Standard, the following sources were consulted extensively:

*United States Standards for Soybeans*, Effective September, 2007

*Soybeans,* Official Grain Grading Guide, August 1, 2009, Canadian Grain Commission

CODEX STAN 193:1995 (Rev.5:2009), *General Standard for Contaminants and Toxins in Foods*

CODEX STAN 228:2001 (Rev.1:2004), *General methods of analysis for contaminants*

Codex Alimentarius website: http://www.codexalimentarius.net/mrls/pestdes/jsp/pest_q-e.jsp

USDA Foreign Agricultural Service website: http://www.mrldatabase.com

USDA Agricultural Marketing Service website: http://www.ams.usda.gov/AMSv1.0/Standards

USDA Plant Inspectorate Service website: http://www.aphis.usda.gov/import_export/plants

Grain Inspection, Packers and Stockyards Administration: http://www.gipsa.usda.gov/GIPSA/webapp

European Union: http://ec.europa.eu/sanco_pesticides/public

Assistance derived from these sources and others inadvertently not mentioned is hereby acknowledged.

This standard has been developed to take into account:

— the needs of the market for the product;

— the need to facilitate fair domestic, regional and international trade and prevent technical barriers to trade by establishing a common trading language for buyers and sellers.

— the structure of the CODEX, UNECE, USA, ISO and other internationally significant standards;

— the needs of the producers in gaining knowledge of market standards, conformity assessment, commercial cultivars and crop production process;

— the need to transport the product in a manner that ensures keeping of quality until it reaches the consumer;

— the need for the plant protection authority to certify, through a simplified form, that the product is fit for crossborder and international trade without carrying plant disease vectors;

— the need to promote good agricultural practices that will enhance wider market access, involvement of small-scale traders and hence making farming a viable means of wealth creation; and

— the need to ensure a reliable production base of consistent and safe crops that meet customer requirements.

## Contents

# Dry soybeans — Specification and grading

## 1 Scope

This East African Standard specifies the quality and grading requirements and methods of test for dry whole soybeans of varieties (cultivars) grown from *Glycine max* (L.) Merr. intended for human consumption and industrial processing.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 605, *Pulses — Determination of impurities, size, foreign odours, insects, and species and variety — Test methods*

ISO 711, *Cereals and cereal products — Determination of moisture content (Basic reference method)*

ISO 712, *Cereals and cereal products — Determination of moisture content — Routine reference method*

ISO 5223, *Test sieves for cereals*

ISO 6639-1, *Cereals and pulses — Determination of hidden insect infestation — Part 1: General principles*

ISO 6639-2, *Cereals and pulses — Determination of hidden insect infestation — Part 2: Sampling*

ISO 6639-3, *Cereals and pulses — Determination of hidden insect infestation — Part 3: Reference method*

ISO 6639-4, *Cereals and pulses — Determination of hidden insect infestation — Part 4: Rapid methods*

ISO 13690, *Cereals, pulses and milled products — Sampling of static batches*

ISO 16050, *Foodstuffs — Determination of aflatoxin $B_1$, and the total content of aflatoxin $B_1$, $B_2$, $G_1$ and $G_2$ in cereals, nuts and derived products — High performance liquid chromatographic method*

CAC/RCP 1, *Recommended international code of practice — General principles of food hygiene*

EAS 38, *Labelling of prepackaged foods — Specification*

EAS 79, *Cereals and pulses as grain — Methods of sampling*

EAS 217, *Methods for the microbiological examination of foods*

ISO 22000:2005, *Food safety management systems — Requirements for any organization in the food chain*

OIML R87:2004, *Quantity of product in prepackages*

## 3 Definitions and description

For the purpose of this East African Standard, the following definitions shall apply.



 

**3.1**
**soybeans**
grain that consists of 50 percent or more of whole or broken soybeans (*Glycine max* (L.) Merr.) that will not pass through an 3.2 mm round-hole sieve and not more than 10.0 percent of other grains for which standards have been established

**3.2**
**classes**
There are two classes of soybeans: yellow soybeans and mixed soybeans.

(1) **yellow soybeans** — Soybeans that have yellow or green seed coats and which in cross section, are yellow or have a yellow tinge, and may include not more than 10.0 percent of soybeans of other colours

(2) **mixed soybeans** — Soybeans that do not meet the requirements of the class yellow soybeans

**3.3**
**cleaning for grade improvement**
if the grade of a delivery can be improved by additional cleaning, perform the cleaning and add the additional material to dockage. Cleaning for grade improvement can be done at any time.

**3.4**
**colour**
Soybeans may be yellow, green, brown or black. Colour is part of the grade name.

**Bicoloured or mixed soybeans**

— Mixed soybeans are samples containing bicoloured soybeans or soybeans of another colour.
— Bicoloured soybeans are yellow or green soybeans with black or brown pigmented streaks or blotches in the seed coats.

**3.5**
**contaminated grain**
grain containing any substance in sufficient quantity that the grain is unfit for consumption by persons or animals or is adulterated within the meaning of the regulations on food safety

**3.6**
**damaged kernels**
soybeans and pieces of soybeans that are badly ground-damaged, badly weather-damaged, diseased, frost-damaged, germ-damaged, heat-damaged, insect-bored, mould-damaged, sprout-damaged, stinkbug-stung, or otherwise materially damaged. Stinkbug-stung kernels are considered damaged kernels at the rate of one-fourth of the actual percentage of the stung kernels.

**3.7**
**distinctly low quality**
whole dry soybeans which are obviously of inferior quality because they are stained by an unknown foreign substance; or because they otherwise contain a known toxic substance(s) or an unknown foreign substance(s); or because they are in an unusual state or condition, and which cannot be graded by use of the other grading factors provided in the standards

**3.8**
**dockage**
all matter other than peas that can be removed from the original sample by use of an approved device and procedure. Dockage includes

— Material passing through the No. 8 round-hole sieve

— Up to 10.0% by weight of soft earth pellets handpicked from the sample

— Stems, pods, hulls, loose soybean seed coats, and coarse vegetable matter removed through aspiration with the Carter dockage tester, or handpicked from the sample.

**3.9**
**downy mildew**
downy mildew is a superficial coating of downy or powdery fungal growth. An individual soybean is considered affected only if all of the fungal growth could be pulled together and the growth covers 50% or more of the surface area of the soybean.

**3.10**
**net weight of sample**
the sample after cleaning and removal of dockage is referred to as the cleaned sample. Its weight is the net weight of the sample. Percentages by weight for grading refer to percentages of net weight.

**3.11**
**kernel counts (K)**
— To do kernel counts you must have 500 grams of cleaned sample.
— All grading is done on representative portions divided down from the cleaned sample using a Boerner-type divider.

**3.12**
**gross weight sample**
the sample as it arrives is referred to as the uncleaned sample. Its weight is the gross weight of the sample.

**3.13**
**hazardous substances in samples**
any pesticide, herbicide or desiccant

**3.14**
**earth pellets**
— Hard earth pellets are pellets that do not crumble under light pressure. See *Stones.*

— Soft earth pellets are pellets that crumble under light pressure. See *Soft earth pellets.*

**3.15**
**ergot**
a plant disease producing elongated fungal bodies that have a purplish-black exterior, a purplish-white to off white interior, and a relatively smooth surface texture. Ergot attacks cereal crops and is not usually present in soybeans, which are a broadleaf crop.

**3.16**
**fertilizer pellets**
fertilizer pellets are typically either small, round and white or irregular shaped and pink or red. Fertilizer pellets are not considered a hazardous substance however there is no visible means of assuring that material resembling fertilizer pellets is not some other contaminant.

**3.17**
**fireburnt soybeans**
Fireburnt soybeans are seeds charred or scorched by fire. A cross-section of a fireburnt seed resembles charcoal with numerous air holes. The air holes result in a low weight seed which crumbles easily under pressure.

**3.18**
**foreign matter**
any material other than whole soybeans or split soybeans left in the sample after the removal of dockage

**3.19**
**foreign material other than grain**
foreign material other than grain does not include ergot or stones, but does include
— Large weed seeds that did not pass through the No. 8 round-hole sieve
— Soft earth pellets which crumble under light pressure



 

— Soft fertilizer pellets
— Any other non-toxic material of a similar consistency
— Sclerotinia

**3.20**
**frost**
frost-damaged soybeans, when cut in cross-section, are
— Soybeans whose cotyledons are green or greenish-brown with a glassy wax-like appearance are considered frost-damaged.
— Seeds that are yellow or very pale green are considered sound, even if they are superficially affected by weathering.

**3.21**
**heated**
— Soybeans with a light to dark brown cotyledon when cut in cross section are considered heated.
— Soybeans with a very light tan cotyledon when cut in cross section are considered damaged. See *Damage*.
— Soybeans with light pink seed coats are considered in the overall assessment of colour.

**3.22**
**immature**
immature damaged soybeans are characterized by a green exterior appearance in conjunction with green discolouration penetrating the cotyledon. Examination of the cotyledons is determined by cutting the soybeans in cross section. For grading purposes, immature damaged soybeans are considered as part of the “Total Damage” grade specification. Soybeans that are green in appearance and have no discolouration of the cotyledon or just a halo of green around the outside of the cotyledon are to be assessed against the overall colour of the sample.

**3.23**
**inert material**
mineral matter such as stones, coal shale and hard and soft earth pellets

**3.26**
**insect damage**
insect damaged kernels are characterized by a perforation of the seed coat in conjunction with a discoloration penetrating into the cotyledon

**3.27**
**moisture**
water content in soybeans as determined by an approved device and procedures

**3.28**
**mouldy**
mouldy soybeans are wrinkled and misshapen, and range in colour from medium to dark brown. Large areas of the affected bean are superficially covered with a grey mould. Mouldy beans often have a spongy texture and usually give off an unpleasant odour. They are included in the tolerance for *Heated.*

**3.29**
**mudball soybean**
a soybean completely covered with caked-on mud is considered damaged

**3.30**
**odour**
there is no numeric tolerance for odour. Consider
— The basic quality of the sample
— The type and degree of the odour
— The presence of visible residue causing the odour