



FDEAS 284:2011  
ICS 67.060

## FINAL DRAFT EAST AFRICAN STANDARD

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Pearl millet grains — Specification

**EAST AFRICAN COMMUNITY**

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HS 1008.20.00 [HS 1008.20.29]

## 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

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 cross-border 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.

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*Draft for comments only — Not to be cited as East African Standard*

## Pearl millet grains — Specification

### 1 Scope

This East African Standard specifies the requirements and methods of sampling and test for whole and decorticated pearl millet of the Senegalese varieties (cultivars) "souna" and "sanio" grown from *Pennisetum glaucum* (L.) R.Br. intended for human consumption.

### 2 Normative references

The following normative documents contain provisions which, through reference in this text constitute provisions of this East African Standard

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<sub>1</sub>, and the total content of aflatoxin B<sub>1</sub>, B<sub>2</sub>, G<sub>1</sub> and G<sub>2</sub> in cereals, nuts and derived products — High performance liquid chromatographic method*

EAS 38, *Labelling of pre-packaged foods — Specification*

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

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

EAS 39, *Code of Hygiene Practice in Food and Drink Manufacturing Industry*

CODEX Stan 193, *Codex general Standards for contaminants and toxins in Food and Feed*

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## 3 Terms and Definitions

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

### 3.1

#### **pearl millet grain**

the whole or decorticated grain of the species *Pennisetum glaucum* (L.) R.Br.

### 3.2

#### **whole grains**

grains of pearl millet obtained after proper threshing

### 3.3

#### **decorticated grains**

grains of pearl millet from which the outer parts have been removed in an appropriate manner using mechanical treatment (for example abrasion).

### 3.4

#### **foreign matter**

all organic and inorganic material other than pearl millet, broken kernels, other grains and filth. Foreign matter includes loose Pearl millet seed coats.

### 3.5

#### **other edible grains**

any edible grains (including oil seeds) other than the one which is under consideration

### 3.6

#### **damaged grains**

grains that are broken, sprouted or damaged as a result of heat, microbe, moisture or weather

### 3.7

#### **immature and shriveled grains**

grains that are not properly developed

### 3.8

#### **weevilled grains**

grains that are partially or wholly bored by insects injurious to grains but does not include germ eaten grains and egg spotted grains

### 3.9

#### **poisonous, toxic and/or harmful seeds**

any seed which if present in quantities above permissible limit may have damaging or dangerous effect on health, organoleptic properties or technological performance such as Jimson weed — *Datura* (*D. fastuosa* Linn and *D. stramonium* Linn.) corn cokle (*Agrostemma githago* L., *Machai Lallium remulenum* Linn.) Akra (*Vicia* species), *Argemone mexicana*, Khesari and other seeds that are commonly recognized as harmful to health

## 4 Quality requirements

### 4.1 General requirements

4.1.1 Pearl millet shall meet the following general requirements/limits as determined using the relevant standards listed in Clause 2:

- a) shall be the dried mature grains of *Pennisetum (glaucum) americanum* Linn;
- b) shall be hard, clean, wholesome, uniform in size, colour and in sound merchantable condition;
- c) shall be safe and suitable for human consumption;
- d) shall be free from abnormal flavours, obnoxious smell and discolouration.
- e) shall be free from micro-organisms and substances originating from micro-organisms or other poisonous or deleterious substances in amounts that may constitute a hazard to human health.

4.1.2 Pearl millet grains shall be in form of well-filled seeds of uniform colour.

### 4.2 Specific requirements

#### 4.2.1 Graded pearl millet

Pearl millet shall be graded into three grades on the basis of the tolerable limits established in Table 1 which shall be additional to the general requirements set out in this standard.

#### 4.2.2 Ungraded pearl millet

Shall be pearl millet which do not fall within the requirements of Grades 1, 2, and 3 of this standard but are not rejected pearl millet.

*Note: For Tanzania and Burundi this requirement shall not apply.*

#### 4.2.3 Reject grade pearl millet

This comprises pearl millet grains which have objectionable odour, off flavour, living insects or which do not possess the quality characteristics specified in Table 1. They cannot satisfy the conditions of ungraded pearl millet grains and shall be graded as reject pearl millet grains and shall be regarded as unfit for human consumption.

Table 1 — Specific requirements for pearl millet grains

Characteristic		Grade			Method of test
		1	2	3	
Foreign matter, whole grains, % by mass, <i>max.</i>	Organic	0.25	0.50	0.75	ISO 605
	Inorganic	0.10	0.25	0.25	
Foreign matter, decorticated, % by mass, <i>max.</i>		0.5			ISO 711/712
Other edible grains, % by mass, <i>max.</i>		2.0	2.5	3.0	
Damaged grain, % by mass, <i>max.</i>		1.0	2.0	4.0	EAS 82
Immature and shrivelled, % by mass, <i>max.</i>		3.0	5.0	8.0	
Weevilled grains per cent by count		2.5	4.0	6.0	EAS 82
Moisture content		12.0	13.0	13	
Crude protein, % by dry mass basis, <i>min</i>		8.0			EAS 82
Ergot affected grains %m/m		0.05			EAS 82
<b>Fat content, % by dry mass basis</b>					
whole millet grains		3.5 to 6.0			ISO 5986:1983
decorticated millet grains		2.0 to 4.0			ISO 5986:1983
Total ash (decorticated) % by dry mass, <i>max</i>		1.0			EAS 82
Tannin content, % by mass, <i>max.</i>		0.5			ISO 9648
<b>1000 Kernel weight, g</b>					
Whole millet grains		5.0 to 10.0			Undefined
Decorticated millet grains		4.0 to 8.0			Undefined
<b>1 litre weight, g</b>		750 to 820			Undefined
<b>Decortication %m/m max</b>		20			Undefined
<b>Crude fibre, % by dry mass basis:</b>					
whole millet grains		3.0 to 4.5			ISO 5498
decorticated millet grains %m/m max		2.0			
Total Aflatoxin (AFB1+AFB2+AFG1 +AFG2), ppb max		10			ISO 16050
Aflatoxin B1 only, ppb max		5			
Fumonisin ppm max		2			
NOTE <b>Foreign matter</b> is mineral or organic matter (dust, twigs, seed coats, seeds of other species, dead insects, fragments, or remains of insects, other impurities of animal origin). Pearl millet grains shall have not more than 1% extraneous matter of which not more than 0.25% shall be mineral matter and not more than 0.10% shall be dead insects, fragments or remains of insects, and/or other impurities of animal origin.					

## 5 Contaminants

### 5.1 Heavy metals

Pearl millet grains shall comply with those maximum limits for heavy metals established by the Codex Alimentarius Commission for this commodity.

### 5.2 Pesticide residues

Pearl millet grains shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for this commodity.

NOTE Where the use of certain pesticides is prohibited by some Partner States, then it shall be notified to all Partner States accordingly.

### 5.3 Mycotoxin limits

Pearl millet grains shall comply with those maximum mycotoxin limits established by the Codex Alimentarius Commission for this commodity. In particular, total aflatoxin levels in pearl millet grains for human consumption shall not exceed 10 µg/kg (ppb) with B<sub>1</sub> not exceeding 5 µg/kg (ppb) when tested according to ISO 16050.

## 6 Hygiene

**6.1** Pearl millet shall be produced, prepared and handled in accordance with the provisions of appropriate sections of EAS 39

**6.2** When tested by appropriate standards of sampling and examination listed in Clause 2, the products:

- shall be free from microorganisms in amounts which may represent a hazard to health and shall not exceed the limits stipulated in Table 2;
- shall be free from parasites which may represent a hazard to health; and
- shall not contain any substance originating from microorganisms in amounts which may represent a hazard to health.

**Table 2 — Microbiological limits**

	Type of micro-organism	Limits	Test method
i)	Yeasts and moulds, max. per g	10 <sup>4</sup>	EAS 217
ii)	<i>S.aureus</i> per 25 g	Not detectable	
iii)	<i>E. Coli</i> , max. per g	Not detectable	
iv)	<i>Salmonella</i> , max. per 25 g	Not detectable	

## 7 Packaging

**7.1** Pearl millet grains shall be packed in suitable packages which shall be clean, sound, free from insect, fungal infestation and the packing material shall be of food grade quality

**7.2** Pearl millet grains shall be packed in containers which will safeguard the hygienic, nutritional, and organoleptic qualities of the products.

**7.3** The containers, including packaging material, shall be made of substances which are safe and suitable for their intended use. They shall not impart any toxic substance or undesirable odour or flavor to the product.

**7.4** Each package shall contain pearl millet grains of the same type and of the same grade designation.

**7.5** If pearl millet grains are presented in bags, the bags shall also be free of pests and contaminants.

**7.6** Each package shall be securely closed and sealed.

## 8 Marking or labelling

**8.1** In addition to the requirements in EAS 38, each package shall be legibly and indelibly marked with the following:

- i) product name as “Whole Pearl Millet Grains” or “Decorticated Pearl Millet Grains;

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- ii) variety;
- iii) grade;
- iv) name, address and physical location of the producer/ packer/importer;
- v) lot/batch/code number;
- vi) net weight, in kg;

*Note: EAC partner states are signatory to the International Labour Organizations (ILO) for maximum package weight of 50kg where human loading and offloading is involved.*

- vii) the declaration "Food for Human Consumption";
- viii) storage instruction as "Store in a cool dry place away from any contaminants";
- ix) crop year;
- x) packing date;
- xi) instructions on disposal of used package;
- xii) country of origin;
- xiii) a declaration on whether the pearl millet was genetically modified or not.

### **9 Sampling**

Sampling shall be done in accordance with the EAS 79/ISO 13690.

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