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ICS 67.060

FINAL DRAFT EAST AFRICAN STANDARD

Finger millet grains — Specification

EAST AFRICAN COMMUNITY

HS 1008.20.00 [HS 1008.20.39]

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;

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Finger millet grains — Specification

1 Scope

This East African Standard specifies the requirements and methods of sampling and test for finger millet grains of varieties (cultivars) grown from *Eleusine coracana* (L.) Gaertner intended for human consumption, i.e., ready for its intended use as human food, presented in packaged form or sold loose from the package directly to the consumer. It does not apply to other products derived from finger millet grains.

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 B₁, and the total content of aflatoxin B₁, B₂, G₁ and G₂ 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 finger millet grain

dried grain having the characteristics of the species *Eleusine coracana* (L.) Gaertner

3.2 whole grains

grains of finger millet obtained after proper threshing with no mechanical treatment

3.3 foreign matter

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

3.4 other edible grains

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

3.5 damaged grains

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

3.6 immature and shrivelled grains

grains that are not properly developed

3.7 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

3.8 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 Finger 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 *Eleusine coracana* (L.) Gaertner;
- 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 Finger millet grains shall be in form of well-filled seeds of uniform colour.

4.2 Specific requirements

4.2.1 Grading

Finger 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 finger millet

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

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

4.2.3 Reject grade finger millet

This comprises finger 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 finger millet grains and shall be classified as reject finger millet grains and shall be condemned as unfit for human consumption.

Table 1 — Specific requirements

| 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 | |
| Other edible grains, % by mass, <i>max.</i> | | 1.5 | 2.0 | 4.0 | |
| Damaged grain, % by mass, <i>max.</i> | | 2.0 | 3.0 | 5.0 | |
| Immature and shrivelled, % by mass, <i>max.</i> | | 3.0 | 4.0 | 4.0 | |
| Weevilled grains per cent by count | | 0.2 | 0.3 | 0.5 | |
| Moisture content | | 12.0 | 13.0 | 14.0 | |
| Crude protein, % by dry mass basis, <i>min</i> | | 8.0 | | | EAS 82 |
| Ergot affected grains %m/m | | 0.05 | | | EAS 82 |
| 1000 Kernel weight, g | | | | | |
| Whole millet grains | | 5.0 to 10.0 | | | Undefined |
| Decorticated millet grains | | 4.0 to 8.0 | | | Undefined |
| 1 litre weight, g | | 750 to 820 | | | Undefined |
| Decortication %m/m max | | 20 | | | Undefined |
| Fat content, % by dry mass basis | | 3.5 to 6.0 | | | ISO 5986 |
| Tannin content, % by mass, <i>max.</i> | | 0.5 | | | ISO 9648 |
| Crude fibre, % by dry mass basis: | | 3.0 to 4.5 | | | ISO 5498 |
| Total Aflatoxin (AFB1+AFB2+AFG1 +AFG2)), ppb max | | 10 | | | ISO 16050 |
| Aflatoxin B1 only, ppb max | | 5 | | | |
| Fumonisin ppm max | | 2 | | | |
| <p>NOTE Foreign matter is mineral or organic matter (dust, twigs, seedcoats, seeds of other species, dead insects, fragments, or remains of insects, other impurities of animal origin). Finger 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.</p> | | | | | |

5 Contaminants

5.1 Heavy metals

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

5.2 Pesticide residues

Finger 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

Finger millet grains shall comply with those maximum mycotoxin limits established by the Codex Alimentarius Commission for this commodity. In particular, total aflatoxin levels in finger millet grains

for human consumption shall not exceed 10 µg/kg (ppb) with B₁ not exceeding 5 µg/kg (ppb) when tested according to ISO 16050.

6 Hygiene

6.1 Finger 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 ⁴ | 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 Finger millet grains shall be packed in gunny bags/jute bags, poly woven bags, poly pouches, cloth bags or other suitable packages which shall be clean, sound, free from insect, fungal infestation and the packing material shall be of food grade quality.

7.2 Finger millet grains shall be packed in containers which will safeguard the hygienic, nutritional, technological 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 flavour to the product.

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

7.5 If finger 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 Finger Millet Grains” or “Decorticated Finger 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 finger millet was genetically modified or not.

9 Sampling

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

