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DRAFT EAST AFRICAN STANDARD

Quinoa grains — Specification

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 the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. 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 Principles and procedures for development of East African Standards.

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.

The committee responsible for this document is Technical Committee EASC/TC 014, *Cereals, Pulses and their derived products*.

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.

Introduction

Quinoa is an increasingly popular crop, particularly due to its nutritional benefits and its adaptability to various environmental conditions. While quinoa's primary production areas are in South America (mainly Peru and Bolivia), its cultivation and trade are expanding globally, including in the East African region. East Africa is witnessing rising interest in quinoa for both local consumption and export, as the demand for nutritious, gluten-free, and high-protein food ingredients continues to grow.

The quinoa trade in East Africa is emerging as a promising sector, driven by the crop's nutritional benefits and adaptability to diverse climates. Countries like Uganda, Kenya, and Tanzania are exploring quinoa cultivation, particularly in high-altitude regions where the climate is suitable. As demand for gluten-free and high-protein foods rises, quinoa's popularity in the region is growing, with increasing interest from both local consumers and international markets.

The East African region is focusing on developing local processing capabilities, such as quinoa flour production, to add value to the crop before export. Quinoa flour is seen as a key product for international markets, including Europe and North America, where demand for superfoods is high.

However, the region faces challenges such as price volatility and limited processing infrastructure compared to leading quinoa producers in South America. East African exporters must adhere to international food safety and quality standards, such as Codex Alimentarius and ISO, to ensure access to global markets.

The EAC's regional integration efforts, including the removal of trade barriers, are beneficial for boosting intra-regional quinoa trade. Increased consumer awareness of quinoa's health benefits could also drive domestic consumption within East Africa. Despite challenges, the quinoa trade in East Africa presents a significant opportunity for both economic growth and food security in the region.

Quinoa grains— Specification

1 Scope

This draft East Africa specifies the requirements, sampling and test methods for dried matured quinoa grain (*Chenopodium quinoa)* intended for human consumption.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

CXS 193*, General standard for contaminants and toxins in food and feed*

EAS 38*, Labelling of pre-packaged foods — General requirements*

EAS 39*, Hygiene in the food and drink manufacturing industry — Code of practice*

EAS 900*, Cereals and pulses — Sampling*

EAS 901*, Cereals and pulses — Test methods*

ISO 6579-1*, Microbiology of the food chain — Horizontal method for the detection, enumeration and serotyping of Salmonella — Part 1: Detection of Salmonella spp.*

ISO 6888-1*, Microbiology of the food chain — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) — Part 1: Method using Baird-Parker agar medium*

ISO 16649-2*, Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli — Part 2: Colony-count technique at 44 degrees C using 5-bromo-4-chloro-3-indolyl beta-D-glucuronide*

ISO 21527-2*, Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds — Part 2: Colony count technique in products with water activity less than or equal to 0,95*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.
ISO and IEC maintain terminological databases for use in standardization at the following addresses:
— ISO Online browsing platform: available at http://www.iso.org/obp

3.1 Quinoa grains
dried matured grain obtained from the plant of *Chenopodium quinoa willd*

3.2
wholesome/sound
free from disease, deterioration (such as but not limited to decay, breakdown) or adulteration/contamination, that appreciably affects their appearance, the keeping quality of the produce or market value

3.3 clean
practically free from visible soil, fungal contamination, dust, or other visible foreign matter

3.4 foreign matter/ extraneous matter
all organic and inorganic material other than quinoa grain, broken kernels and other grai**n**

3.5 inorganic matter
stones, glass, pieces of soil and other mineral matter

3.6 organic matter
any animal or plant matter (seed coats, straws, weeds) other than grain of quinoa, damaged quinoa grain, other grain, inorganic extraneous matter and harmful/toxic seeds

3.7
ergot
sclerotium of the fungus *Claviceps purpurea*

3.8
filth
impurities of plant and animal origin including dead insects, rodent hair and excreta

3.9
test weight
the weight of a hundred litre volume of Quinoa grains expressed as kilograms per hectolitre

3.10
damaged kernels
includes pieces of kernels that show visible deterioration due to moisture, weather, disease, insects, mould, heating, fermentation, sprouting or other causes

3.11
insect bored kernels
kernels which have been visibly bored or tunnelled by insects.

3.12

defective/damaged grain pest damaged, discoloured, stained, rotten and diseased, immature and shrivelled grain and broken grain

3.13
pest damaged grain
grain which shows damage or owing attack by rodents, insects, mites or other pests

3.14
broken kernels
pieces of quinoa grains that are less than three-quarters of a whole kernel and include grains of quinoa grains in which part of the endosperm is exposed or quinoa grains without a germ.
If the piece is more than three-quarters of a grain, it is considered as whole grain.

3.15
food grade packaging material
material, made of substances which are safe and suitable for their intended use and which will not impart any toxic substance or undesirable odour or flavour to the product

3.16
other grain
edible grain, whole or broken, other than quinoa, that is, cereals, pulses and other edible legumes

4 Requirements

4.1 General requirements

4.1.1 Quinoa grains shall be:

a) clean, wholesome, uniform in appearance ,

b) characteristic colour of Quinoa grains

c) safe and suitable for human consumption;

d) free from abnormal flavour, musty, or other undesirable odour;

e) free from live pests; and

f) free from Toxic or noxious seeds in amounts which may represent a hazard to human health. NOTE: An indicative list of these seeds is given in Annex A

4.2 Specific requirements

Quinoa grains shall comply with the maximum limits given in Table 1 when tested in accordance with the test methods specified therein.

Table 1 — Specific requirements for Quinoa grains

S/No.	Characteristic	limit	Test method
i.			EAS 901
ii.	Protein, % m/m, min	10%	
iii.	Organic matter, % m/m, max	1.5	
iv.	Inorganic matter, % m/m, max	0.5	
v.	Edible grains other than Quinoa grains, % m/m max	0.5	
vi.	Damaged kernels, % m/m max	3.0	
vii.	Wild Quinoa grains: % m/m max	0.2	
viii.	Ergot, % m/m, max.	0.05	
ix.	filth, % m/m, max.	0.1	
x.	Moisture, % m/m, max	13	

5. Hygiene

Quinoa grains shall be produced, prepared and handled in accordance with EAS 39

6.0 Contaminants

6.1 Pesticide residues

Quinoa grains shall comply with pesticide residue limits established by the Codex Alimentarius Commission for this commodity.

6.2 Heavy metals

Quinoa grains shall be free from heavy metals in amounts which may represent a hazard to health If present, they shall not exceed the limits established in CXS 193

6.3 Mycotoxin

Quinoa grains shall comply with the maximum limits for mycotoxins given in Table 4 when tested in accordance with the test methods prescribed therein.

Table 4 — Mycotoxin limits for Quinoa grains

S/No	Mycotoxin	limit (max)	Test method
i.	Total aflatoxins µg/kg	10	EAS 901
ii.	Aflatoxin B_1, µg/kg	5	
iii.	Ochratoxin A µg/kg	5	
iv.	Fumonisns µg/kg	2000	

7.0 Packaging

Quinoa grains shall be packaged in food grade packaging material which safeguards the hygienic, nutritional and organoleptic qualities of the product.

8.0 Labelling

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

a) product name as “Quinoa grains”;

b) color and variety/common name;

c) name, address and physical location of the producer/ packer/importer;

d) lot/batch/code number;

e) net weight, in metric units;

f) the declaration “Food for Human Consumption’’;

g) storage instruction’;

h) crop year;

i) best before date ;

j) instructions for use and on disposal of used package; and

k) country of origin.

l) declaration of GMO, where applicable

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8.2 Labelling of non-retail containers

Information detailed in 8.1 shall be given either on the container or in accompanying documents, except that the name of the product, lot identification and the name and address of the processor or packer as well as storage instructions, shall appear on the container.

However, lot identification and the name and address of the processor or packer may be replaced by an identification mark provided that such a mark is clearly identifiable with the accompanying documents.

8.3 Each container may be marked with the standards mark of quality.

9.0 Sampling

Sampling shall be done in accordance with EAS 900

AnnexA
(informative)

List of harmful and toxic seeds

A.1 Toxic seeds

Botanical name	**Common name**
Acroptilon repens (L.)DC.	

Agrostemma githago L.	Corn-cockle
Coronilla varia L.	Coronilla, Crown vetch
Crotalaria spp.	Crotalaria
Datura fastuosa L.	
Datura stramonium L.	Stramony, thorn apple
Heliotropium lasiocarpum Fisher et C.A.	Meyer Heliotrope
Lolium temulentum L.	Darnel
Ricinus communis L.	Castor-oil plant
Sophora alopecuroides L.	Stagger bush, Russian centaury
Sophora pachycarpa Schrank ex C.A. Meyer	
Thermopsis montana	Buffalo pen
Thermopsis lanceolata R. Br. In Aiton	
Trichoderma incanum	

A.2 Harmful seeds

Botanical name	**Common name**
Allium sativum L.	Garlic
Cephalaria syriaca (L.) Roemer et Shultes	Teasel
Melampyrum arvense L.	Cow-cockle
Melilotus spp.	Melilot
Sorghum halepense (L.) Pers.	Johnson grass
Trogonella foenum-graecum L.	Fenugreek

NOTE This is a non-exhaustive list which can be augmented as necessary

Bibliography

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