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Quinoa grains— Specification

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Foreword

Rwanda Standards are prepared by Technical Committees and approved by Rwanda Standards Board (RSB) Board of Directors in accordance with the procedures of RSB, in compliance with Annex 3 of the WTO/TBT agreement on the preparation, adoption and application of standards.

The main task of technical committees is to prepare national standards. Final Draft Rwanda Standards adopted by Technical committees are ratified by members of RSB Board of Directors for publication and gazettment as Rwanda Standards.

DRS 599 was prepared by Technical Committee RSB/TC 3 on *Cereals, pulses, legumes and derived products*.

In the preparation of this standard, reference was made to the following standard:

- 1) CXS 333: 2019 Standard for quinoa

The assistance derived from the above source is hereby acknowledged with thanks.

Committee membership

The following organizations were represented on the Technical Committee on Cereals, pulses, legumes and derived products (RSB/TC 3) in the preparation of this standard.

ADMA International Ltd

Enix CT Co Ltd

GATSIBO Rice Company Ltd

Inyange Industries Ltd- Milk Powder Plant

ISHYO Foods Ltd

J1 Ambia Company Ltd

Lenz Family Ltd

MINIMEX Ltd

Mount Meru Soyco Ltd

Mukunguri Rice Promotion and Investment Company Ltd

Norbert Business Group Ltd

RWABUYE Rice Ltd

Rwanda Agriculture Board (RAB)

Rwanda Consumer's Rights Protection Organization (ADECOR)

SOSOMA Industries Ltd

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University of Rwanda, College of Medicine and Health Sciences (UR-CMHS)

Rwanda Standards Board (RSB) – Secretariat

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Quinoa grains — Specification

1 Scope

This Draft Rwanda Standard specifies requirements, sampling and test methods for quinoa grains (*Chenopodium quinoa* Willd.) intended for human consumption.

This standard does not apply to quinoa used as seeds for propagation, products derived from quinoa such as flour, flakes).

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.

AOAC 999.11, Determination of Lead, Cadmium, Copper, Iron, and Zinc in foods. Atomic absorption spectrophotometry after dry ashing.

EAS 901, *Cereals, pulses and their products — Test methods*

RS CXC 1, *General principles of food hygiene*

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

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

RS EAS 803, *Nutrition labelling — Requirements*

RS EAS 804, *Claims on foods — General requirements*

RS EAS 805, *Use of nutrition and health claims — Requirements*

RS ISO 16050, *Foodstuffs — Determination of aflatoxin B1, and the total content of aflatoxins B1, B2, G1 and G2 in cereals, nuts and derived products — High-performance liquid chromatographic method*

RS 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*

RS 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*

RS ISO 24333, *Cereals and cereal products — Sampling*

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

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

3 Terms and definitions

For the purposes of this standard, the following terms and definitions apply.

3.1

quinoa grains

grains obtained from varieties of *Chenopodium quinoa* Willd

3.2

food grade packaging material

packaging 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

3.3

broken grains

pieces of grains with sizes less than three quarters of the whole grain, resulting from mechanical action.

3.4

damaged grains

grains that differ from others in their form or structure, because they have been altered by physical, chemical or biological agents.

3.5

germinated grains

grains that show development of the radicle (embryo).

3.6

coated grains

grains that retain the shell (perigone) or part of the flower attached to the grain.

3.7**immature grains**

grains that have not reached physiological maturity, characterized by small size and greenish coloration.

3.8**extraneous matter**

all organic and inorganic materials other than quinoa

3.9**inorganic matter**

stones, glass, pieces of soil and other mineral matter

3.10**Saponin**

board class of bitter-tasting and foaming compounds that are found in many species including *Chenopodium quinoa* Willd.(quinoa) seeds.

3.11**Immature Grains**

grains that have not reached physiological maturity, characterized by small size and greenish coloration.

3.12**filth**

impurities of animal origin

4 Requirements**4.1 General requirements**

Quinoa grains shall:

- a) be safe and suitable for human consumption.
- b) be free from abnormal flavours and odours.

c) be free from living insects and mites.

d) have characteristic colour of the variety, where the most common are white (pearly, pale, grayish), black and red, among others.

4.2 Specific requirements

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

Table 1 —Specific requirements for quinoa grains

S/N	Characteristic	Requirement	Test method
1.	Broken Grains, %, max	3.0	EAS 901
2.	Damaged grains, %, max	2.5	
3.	Germinated Grains, %, max	0.5	
4.	Coated grains, %, max	0.3	
5.	Immature grains, %, max	0.9	
6.	Inorganic matter, %, max.	0.1	
7.	Moisture content, % m/m max	13.0	
8.	Protein content, % on a dry matter basis, min	10.0	
9.	Saponin content, % max.	0.12	
10.	Filth, %, m/m max.	0.1	

5 Food additives

The use of food additives shall not be permitted.

6 Hygiene

6.1 Quinoa grains shall be produced, prepared and handled in accordance with RS CXC 1.

6.2 Quinoa grains shall comply with the microbiological limits given in Table 2 when tested in accordance with the test methods specified therein.

Table 2—Microbiological limits in Quinoa grains

S/N	Microorganism	Limit	Test method
1.	<i>Salmonella</i> spp in 25g	Absent	RS ISO 6579-1
2.	<i>Escherichia coli</i> , CFU/g	Absent	RS ISO 16649-2
3.	<i>Staphylococcus aureus</i> , CFU/g	Absent	RS ISO 6888-1
4.	Yeast and moulds, CFU/g	10 ³	RS ISO 21527-2

7 Contaminants

7.1 Pesticides residues

Quinoa grains shall comply with the maximum residue limits for pesticides established by the Codex Alimentarius Commission.

7.2 Heavy metals

Quinoa grains shall not exceed maximum levels for heavy metals when tested in accordance with test methods specified therein.

Table 3—Heavy metal limits in Quinoa grains

S/N	Heavy metal	Maximum Limit (mg/kg)	Test method
1.	Cadmium	0.1	AOAC 999.11
2.	Lead	0.2	

7.3 Aflatoxin

Total Aflatoxin shall not exceed 10 µg/kg while aflatoxin B1 content shall not exceed 5 µg/kg when tested in accordance with RS ISO 16050.

7.4 Other contaminants

Quinoa grains shall comply with the maximum levels of Contaminants and Toxins specified in RS CXS 193.

8 Packaging

8.1 Quinoa grains shall be packaged in food grade packaging materials that will safeguard the hygienic, nutritional and organoleptic qualities of the product.

8.2 When sacks are used for packaging, they shall be clean, sturdy and securely sewn or sealed

9 Labelling

9.1 General

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

- e) name of product as "Quinoa grains"
- f) name and address of the manufacturer/packer/importer;

- g) batch number/lot number;
- h) net content in SI units;
- i) storage instructions
- j) the statement "Food for human consumption";
- k) country of origin;
- l) best before date; and
- m) crop year
- n) packing date
- o) instructions for disposal of used package.
- p) Declaration whether the quinoa grains were genetically modified,

9.2 Labelling of non-retail containers

Information for non-retail containers 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 manufacturer or packer shall appear on the container. However, lot identification, and the name and address of the manufacturer or packer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

9.3 Nutrition and health claims

9.3.1 The declaration of nutrition information shall be in accordance with RS EAS 803

9.3.2 The product may have claims on nutrition and health. Such claims when declared shall comply with RS EAS 804 and RS EAS 805.

10 Sampling

Sampling shall be done in accordance with RS ISO 24333.

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