ICS 67.060

DMS 244:2022
Third edition

DRAFT MALAWI STANDARD

Soybeans – Specification

NOTE: This is a draft Malawi standard and it shall neither be used nor regarded as a Malawi

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Soybeans – Specification

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FOREWORD

This draft Malawi standard is a revision of MS 244:2017, Soybeans – Specification. In preparing this draft standard, reference was made to the following East African Community Standard:

EAS 762:2017*, Dry soybeans – Specification***.**

Acknowledgement is made for the use of the information.

TECHNICAL COMMITTEE

This draft Malawi standard was prepared by the Technical Committee MBS/TC 16, *Cereals, pulses, legumes and their products,* and the following companies, organizations and institutions were consulted:

Agricultural Development and Marketing Corporation;

Agricultural Commodity Exchange;

Auction Holdings Limited Commodity Exchange;

Consumer Association of Malawi;

Export Trading Limited;

Grain Traders and Processors Association;

Lilongwe University of Agriculture and Natural Resources;

Malawi Bureau of Standards;

Ministry of Agriculture – Bvumbwe Agricultural Research Station,

Ministry of Health – Department of Nutrition, HIV and AIDS;

Ministry of Industry and Trade;

National Smallholders Farmers Association of Malawi;

Rab Processors Limited;

Trademark East Africa; and

University of Malawi.

NOTICE

This standard shall be reviewed every five years, or earlier when it is necessary, in order to keep abreast of progress. Comments are welcome and shall be considered when the standard is being reviewed.

DRAFT MALAWI STANDARD

Soybeans – Specification

1 SCOPE

This draft Malawi standard specifies the requirements and methods of sampling and test for dry whole soybeans (*Glycine max* (*L*.) *Merr.*) intended for human consumption.

2 NORMATIVE REFERENCES

The following standards contain provisions, which through reference in this text, constitute provisions of this Malawi standard. All standards are subject to revision and, since any reference to a standard is deemed to be a reference to the latest edition of that standard, parties to agreements based on this standard are encouraged to take steps to ensure the use of the most recent edition of the standard indicated below. Information on current valid national and international standards can be obtained from the Malawi Bureau of Standards.

MS 19: *Labelling of pre-packed foods – General standard;*

MS 21: *Food and food processing units – Code of hygienic conditions;*

MS 145: *Cereals and pulses – Methods of sampling as milled products;*

MS 146: *Cereals and pulses – Methods of sampling as grain;*

MS 302: *Contaminants and toxins in foods – General 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 6579: *Microbiology of food and animal feeding stuff – Horizontal method for the determination 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 7251: *Microbiology of food and animal feeding stuffs – Horizontal method for the detection and enumeration of presumptive Escherichia coli – Most probable number technique;*

ISO 16050: *Foodstuffs – Determination of aflatoxin B*1*, and the total content of aflatoxin B*1*, B*2*, G*1 *and G2 in cereals, nuts and derived products – High performance liquid chromatographic method;*

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; and*

AOAC Official Method 2001.04: *Determination of Fumonisins B1 and B2 in corn and corn flakes – Liquid chromatography with immunoaffinity column cleanup.*

3 TERMS AND DEFINITIONS

For the purpose of this draft standard, the following definitions shall apply:

3.1
soybean (*Glycine max (L.) Merr.)*
mature dry seeds of varieties

3.2
defective beans
soybeans that have been broken, pest damaged, shrivelled, immature, rotten, mouldy, diseased, discoloured and heat damaged

3.3
foreign matter
unwanted inorganic and organic matter

3.3.1
inorganic matter
stones, glass, pieces of soil, metal and other mineral matter

3.3.2
organic matter
any plant matter (seed coats, straws, weeds) other than grains of soybeans, damaged soybean grains and other grains

3.4
contrasting colours
other colours that are of a different colour from the colour of the designated bean

3.5
other edible grains
grain other than soybean, whole or broken such as maize, sorghum, wheat, etc.

3.6
pest damaged
soybeans which show damage owing to attack by rodents, insects, mites or other pests

3.7
heat damaged
soybeans and pieces of soybeans that are materially discolored and damaged by heat. Soybeans with a light to dark brown cotyledon when cut in cross section are considered heat damaged

3.8
harmful matter/toxic matter
any substances in soybean that can have a damaging or dangerous effect on human health

3.9
harmful/noxious seeds
seeds such as Crotolaria (*Crotalaria* spp.), Corn cockle (*Agrostemma githago* L.), Castor bean (*Ricinus communis* L.), Jimson weed (*Datura* spp.) which, if present in quantities above a certain limit, can have a damaging or dangerous effect on health, sensory properties or technological performance

3.10
immature
unripe and undeveloped soybean weather whole or broken

3.11
splits/broken
broken soybean seeds that are less than three-quarters of the whole seed, and cotyledons that are loosely held together by the seed coat

3.12
filth
impurities of animal and plant origin

3.13
wholesome/sound
soybeans which are free from disease, serious 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

3.14
clean soybeans
practically free of visible soil, dust, or other visible foreign matter, except substances used to prolong its shelf life

4 QUALITY REQUIREMENTS

4.1 General requirements

Soybeans shall:

a) Be hard, clean, wholesome, uniform in size, shape and colour;

Note: The seed coat colour of soybeans may be yellow, green, brown or black.

b) Be safe and suitable for human consumption;

c) Be free from abnormal flavours, obnoxious smell and discolouration; and

d) Be practically free from foreign odours, moulds, live pests, rat droppings, toxic or noxious weed seeds and other injurious contaminants as determined from samples representative of the lot.

4.2 Specific requirements

4.2.1 Grading

Soybeans 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 soybeans

These shall be soybeans which do not fall within the requirements of Grades 1, 2, and 3 of this standard but are not rejected soybeans.

4.2.3 Reject grade soybeans

This comprises soybeans 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 soybeans and shall be graded as reject soybeans and shall be regarded as unfit for human consumption.

5 CONTAMINANTS

5.1 Heavy metals

Products covered by this Malawi Standard shall comply with the maximum limits in MS 302, and those established by the Codex Alimentarius Commission.

5.2 Pesticide residues

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

5.3 Mycotoxin limits

Soybeans shall comply with those maximum mycotoxin limits set in **Table 1**, and those established by the Codex Alimentarius Commission for this commodity when tested according to ISO 16050.

Table 1: Specific requirements for soybeans

S/N	Characteristic	Maximum limits			Methods of test
		Grade 1	Grade 2	Grade 3	
1	Moisture, % (m/m), max.	14.0	14.0	14.0	ISO 711 ISO 712
2	Test weight kg/h (g/0.5L), min.	70(357)	68(347)	66(337)	ISO 605
3	Total foreign matter, % m/m, max.	1	2	3	
4	Inorganic matter, % m/m, max.	0.1	0.3	0.5	
5	Other edible grains, % m/m, max.	0.1	0.2	0.5	
6	Broken/split grains, % m/m, max.	1	2.5	5	
7	Pest damaged grains, % m/m, max.	0.3	0.8	1.5	
8	Rotten & diseased grains, % m/m, max.	0.2	0.5	1.0	
9	Heat damaged grains %m/m, max.	0.1	0.2	0.5	
10	Contrasting colours, % m/m, max.	2	3	5	
11	Immature/shrivelled grains, % m/m, max.	0.1	0.2	0.5	
12	Filth, % m/m, max.	0.1	0.1	0.1	
13	Total defective grains, % m/m, max.	2	3	5	
14	Total aflatoxin (AFB1+AFB2+AFG1 +AFG2)), ppb, max	10			ISO 16050
15	Aflatoxin B1 only, ppb, max	5			
16	Fumonisin, ppm, max	2			AOAC 2001.04
NOTE: The parameter, "Total defective grains" is not the sum total of the individual defects. It is limited to70 % of the sum total of individual defects.					

6 HYGIENE

6.1 It is recommended that the product covered by the provisions of this draft standard be prepared and handled in accordance with the appropriate sections of the MS 21.

6.2 When tested by appropriate methods of sampling and examination, the product:

a) Shall be free from microorganisms in amounts which may represent a hazard to health;

b) Shall be free from parasites which may represent a hazard to health, and

c) Shall not contain any substance originating from microorganisms, including fungi, in amounts which may represent a hazard to health.

7 PACKAGING

7.1 Soybeans shall be packed in suitable packages which shall be clean, free from insect, fungal infestation and the packing material shall be of food grade quality.

7.2 Soybeans 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 soybeans of the same grade designation.

7.5 If soybeans 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 LABELLING

In addition to the provisions prescribed in MS 19, each package shall be legibly and indelibly marked with the following:

a) Product name as “Dry Soybeans”;

b) Colour;

c) Grade;

d) Name, address and physical location of the producer/ packer/importer;

e) Lot/batch/code number;

f) Net weight, in metric units;

g) Storage instruction as “Store in a cool dry place away from any contaminants”;

h) Crop year;

i) Packing date;

j) Instructions on disposal of used package;

k) Country of origin; and

l) A declaration on whether the soybeans were genetically modified or not.

9 METHODS OF ANALYSIS AND SAMPLING

Sampling for testing as required in this standard shall be done according to MS 145 and MS 146 or any other equivalent test methods. Soybeans shall be tested in accordance with the methods outlined in this draft standard**.**

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THE MALAWI BUREAU OF STANDARDS

The Malawi Bureau of Standards is the standardizing body in Malawi under the aegis of the Ministry of Industry and Trade. Set up in 1972 by the Malawi Bureau of Standards Act (Cap: 51:02), the Bureau is a parastatal body whose activities aim at formulating and promoting the general adoption of standards relating to structures, commodities, materials, practices, operations and from time to time revise, alter and amend the same to incorporate advanced technology.

CERTIFICATION MARK SCHEME

To bring the advantages of standardization within the reach of the common consumer, the Bureau operates a Certification Mark Scheme. Under this scheme, manufacturers who produce goods that conform to national standards are granted permits to use the Bureau's "Mark of Quality" depicted below on their products. This Mark gives confidence to the consumer of the commodity's reliability.