ICS 67.060

DMS 244:2016
Second Edition

DRAFT MALAWI STANDARD

REVI

Soya beans – Specification

(First draft: 2016-04)

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

ICS 67.060 DMS 244:2016

Soya beans – Specification

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FOREWORD

This draft standard is a revision of MS 244:1991, Soya beans – Specification. In preparing this draft standard, reference was made to the following East African Community Standard:

EAS 762:2011*, Dry soybeans — Specification***.**

Acknowledgement is made for the use of the information.

TECHNICAL COMMITTEE

This draft standard was prepared by the Technical Committee *MBS/TC 16, Primary Agricultural Products* and the following companies, organizations and institutions were represented:

- ADMARC Limited;
- Agricultural Commodity Exchange for Africa;
- Auction Holdings Commodity Exchange;
- Bakhresa Grain Milling Malawi Limited;
- Blantyre Agricultural Development Division;
- Bvumbwe Agricultural Research Station;
- Lilongwe University of Agriculture and Natural Resources (LUANAR) – Bunda Campus;
- Malawi Bureau of Standards;
- National Smallholder Farmers' Association of Malawi (NASFAM);
- Rab Processors Limited; and
- Transglobe Produce Export Limited.

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.

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1 SCOPE

This draft Malawi Standard specifies the requirements and methods of sampling and test for dry whole soya beans of varieties (cultivars) grown from *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;*

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 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;*

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
soya bean
whole mature dry seeds of varieties (*Glycine max* (L.) Merr.)

3.2
colour
soya beans may be yellow, green, brown or black

3.3
damaged/defective grains
soya beans and pieces of soya beans that are badly ground-damaged, badly weather-damaged, diseased, frost-damaged, germ-damaged, heat-damaged, insect-bored, mould-damaged, sprout-damaged, stinkbug-

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stung, or otherwise materially damaged. Stinkbug-stung kernels are considered damaged kernels at the rate of one-fourth of the actual percentage of the stung kernels

3.4
foreign matter
any extraneous matter than dry soya beans or other food grains comprising of:

a. "inorganic matter" includes metallic pieces, shale, glass, dust, sand, gravel, stones, dirt, pebbles, lumps or earth, clay, mud and animal filth etc.;

b. "organic matter" consisting of detached seedcoats, straws, weeds and other inedible grains etc.

3.5
immature
immature damaged soya beans are characterized by a green exterior appearance in conjunction with green discolouration penetrating the cotyledon. Examination of the cotyledons is determined by cutting the soya beans in cross section. For grading purposes, immature damaged soya beans are considered as part of the "Total Damage" grade specification. Soya beans that are green in appearance and have no discolouration of the cotyledon or just a halo of green around the outside of the cotyledon are to be assessed against the overall colour of the sample

3.6
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 — dhatura (*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

3.7
rancid
soya beans in various stages of rancidity are characterized by a deep pink discolouration on the seed coat and varying degrees of discolouration of the cotyledon

3.8
splits
broken soybean seeds that are less than three-quarters of the whole seed, and cotyledons that are loosely held together by the seed coat

4 QUALITY REQUIREMENTS

4.1 General requirements

Soya beans shall meet the following general requirements/limits as determined using the relevant standards:

a) shall consist of grain that consists of 50 percent or more of whole or broken soya beans (*Glycine max* (L.) Merr.) that will not pass through an 8/64 round-hole sieve and not more than 10.0 percent of other grains for which standards have been established;

b) shall be hard, clean, wholesome, uniform in size, shape, colour and in sound merchantable condition; 2

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.

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4.2 Specific requirements

4.2.1 Grading

Soya beans 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 soya beans Table

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

4.2.3 Reject grade soya beans

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

Table 1: Specific requirements for soya beans

S/No.	Characteristic	Maximum limits			Methods of test
		Grade 1	Grade 2	Grade 3	
1	Moisture, % (m/m)	13.0	13.0	13.0	ISO 711 ISO 712
2	Test weight kg/h (g/0.5L) min.	70(357)	68(347)	66(337)	ISO 605
3	Foreign matter, % m/m	1	2	3	
4	Inorganic matter, % m/m	0.1	0.3	0.5	
5	Broken/split grains, % m/m	1	2.5	5	
6	Pest damaged grains, % m/m	0.3	0.8	1.5	
7	Rotten & diseased grains, % m/m	0.2	0.5	1.0	
9	Heat damaged grains %m/m	0.1	0.2	0.5	
10	Contrasting colours, % m/m	2	3	5	
11	Immature/shrivelled grains, % m/m	0.1	0.2	0.5	
12	Filth, % m/m	0.1	0.1	0.1	
13	Total defective grains, % m/m	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

5 CONTAMINANTS

5.1 Heavy metals

Soya beans shall comply with those maximum limits established by the Codex Alimentarius Commission for this commodity.

5.2 Pesticide residues

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

5.3 Mycotoxin limits

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

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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 and other Codes of practice relevant to this product established by the Codex Alimentarius Commission.

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 and shall not exceed the limits stipulated in Table 2;

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.

Table 2: Microbiological limits

S/No.	Type of micro-organism	Limits
1	Yeasts and moulds, max. per g	10^4
2	*Staphylococcus aureus* per 25 g	Absent
3	*Escherichia coli*, max. per g	Absent
4	*Salmonella,* max. per 25 g	Absent

7 PACKAGING

7.1 Soya beans 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 Soya beans 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 soya beans of the same type and of the same grade designation.

7.5 If soya beans 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 Soya beans”;

b) variety;

c) grade;

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

e) lot/batch/code number;

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f) net weight, in kg;

g) the declaration “Food for Human Consumption”

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

i) crop year;

j) packing date;

k) instructions on disposal of used package;

l) country of origin;

m) a declaration on whether the soya beans 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.

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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.