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Government Notice

MINISTRY OF AGRICULTURE, WATER AND FORESTRY

No. 97 2016

REGULATIONS RELATING TO COMPOSITION AND QUALITY OF PEARL MILLET (MAHANGU) PRODUCTS: AGRONOMIC INDUSTRY ACT, 1992

Under section 24 of the Agronomic Industry Act, 1992 (Act No. 20 of 1992), I have made the regulations set out in the Schedule.

J. MUTORWA

MINISTER OF AGRICULTURE, WATER AND FORESTRY

Windhoek, 19 April 2016

SCHEDULE

Definitions

1. In these regulations a word or an expression to which a meaning has been assigned in the Act has that meaning, and unless the context otherwise indicates -

“coliform count” means the result of the test of water contamination in which the number of the colonies of coliform-bacteria *Escherichia coli* (*E. coli*) per 100 milliliter of water is counted;

“commercial” means production for profit and marketing, and excludes service milling;

“commercial mahangu millers” means a producer of mahangu flour or meal or agronomic products of mahangu flour or meal for commercial purposes registered under the Act”;

“dehulling” means a milling process during which the grain coat and germ are removed from pearl millet (mahangu) grains;

“dry weight basis” means the weight of the product on the basis of having been naturally dried until reaching a constant mass of essentially 100 % solids;

“organoleptic properties” means the aspects of food or other substances as experienced by the senses, including taste, sight, smell, and touch, in cases where dryness, moisture, and stale-fresh factors are to be considered;

“milling” means the process of grinding and crushing grain into flour;

“mycotoxins” means any toxic substance produced by fungus;

“pearl millet (mahangu)” means pearl millet grains of the species *Pennisetum glaucum* (L.) R.Br. also called *Pennisetum americanum* (L.)K. Schum.;

“pearl millet (mahangu) flour or meal” means a product obtained from dehulled mahangu grains where the endosperm is reduced to a suitable degree of fitness resulting either in a mahangu flour which is finer or mahangu meal which is relatively courser in granulation;

“pearl millet (mahangu) products” means product containing pearl millet (mahangu) flour or meal mixed with other ingredients, and includes pearl millet (mahangu) flour or meal;

“pH level” means the measure of acidity or alkalinity of water soluble substances, a pH value is a number from 1 to 14, with 7 as the neutral point. Values below 7 indicate acidity which increases as the number decreases, 1 being the most acidic and values above 7 indicate alkalinity which increases as the number increases, 14 being the most alkaline;

“rancidity” means the degree of the chemical decomposition of fats, oils and other lipids in pearl millet (mahangu) flour and meal resulting in a rank, unpleasant, stale smell or taste;

“tannins” means the yellowish or brownish bitter-tasting organic substance present in some galls, barks, and other plant tissues, including pearl millet (mahangu) grain consisting of derivatives of gallic acid;

“the Act” means the Agronomic Industry Act, 1992 (Act No. 20 of 1992); and

“wet weight basis” means the formula where the weight of an article wet is divided by weight of an article dry and multiplied by 100 giving a percentage weight increase.

Application of regulations

2. (1) These regulations apply to -
 - (a) pearl millet (mahangu) flour or meal for human consumption;
 - (b) pearl millet (mahangu) products for human consumption,

which are commercially produced and marketed by commercial mahangu millers.

- (2) These regulations do not apply to -
- (a) pearl millet (mahangu) flour or meal processed in service mills;
 - (b) homemade pearl millet (mahangu) flour or meal or homemade pearl millet (mahangu) products or by-products; and
 - (c) by-products of dehulling of pearl millet (mahangu) grains.

General quality requirements of pearl millet (mahangu) products

3. (1) A commercial mahangu miller must ensure that the pearl millet (mahangu) products -

- (a) are safe and suitable for human consumption;
- (b) are prepared from pearl millet (mahangu) grain properly cleaned of impurities;
- (c) are free of filth and are not hazardous for human health;
- (d) are free of living insects including but not limited to worms, larvae, pupae, nymphs or adults;
- (e) are in sound merchantable quality free from abnormal flavours and odours;
- (f) show no sign of moulding, rancidity and other quality deteriorations which may make them unfit for human consumption; and
- (g) are free of contaminants, including but not limited to heavy metals, pesticide residue and mycotoxins and are not hazardous to human health.

(2) If an inspector when performing his or her functions in terms of section 13 of the Act is of the opinion that the pearl millet (mahangu) product does not comply with the requirement of subregulation (1) the inspector must take samples of such pearl millet (mahangu) product for purposes of analysis under regulation 13.

Moisture content of pearl millet (mahangu) products

4. When packaging pearl millet (mahangu) products, a commercial mahangu miller must ensure that the moisture content may not exceed 14 percent as determined on a wet weight basis.

Dehulling of pearl millet (mahangu) grain

- 5.** A commercial mahangu miller must ensure that -
- (a) pearl millet (mahangu) grains are dehulled completely as possible in order to reduce crude fiber content and fat and oil content contained in the grains and to significantly lessen tannins and other phenolic materials contained in the grain envelopes; and
 - (b) that dehulled pearl millet (mahangu) grains contain virtually no sand, soil particles and other particles.

Pure pearl millet (mahangu) flour or meal and other pearl millet (mahangu) products

6. (1) In order for a pearl millet (mahangu) flour or meal to qualify as pure pearl millet (mahangu) flour or meal under these regulations, the pearl millet (mahangu) flour or meal must be prepared from pure pearl millet (mahangu) grains under the following conditions -

- (a) the pearl millet (mahangu) grains may contain a limited amount of other edible grain which are of the same size as pearl millet (mahangu) grain;
- (b) other edible grain referred to in paragraph (a) must have been already present in the raw pearl millet (mahangu) grain during the process of milling and it was not removed from the pearl millet (mahangu) grain using mechanical grain pre-cleaning operations;
- (c) the other edible grains, referred to in paragraph (a) contained in the pearl millet (mahangu) grain may not -
 - (i) exceed five percent as determined on a dry weight basis; and
 - (ii) have been intentionally mixed into the pearl millet (mahangu) grain.

(2) If an inspector when performing his or her functions in terms of section 13 of the Act is of the opinion that the pearl millet (mahangu) flour or meal does not comply with the requirement of subregulation (1) the inspector must take samples of such pearl millet (mahangu) product for purposes of analysis under regulation 13.

(3) A pearl millet (mahangu) product, other than pure pearl millet (mahangu) flour or meal referred to in subregulation (1) which does not qualify as pure pearl millet (mahangu) flour or meal under that subregulation must be labeled as a blend or a mixed pearl millet (mahangu) product and the composition of such pearl millet (mahangu) products must be marked and labelled in percentage on the packaging of the pearl millet (mahangu) product in accordance with regulation 12.

Classification of pure pearl millet (mahangu) flour or meal

7. (1) For the purposes of these regulations, the pearl millet (mahangu) flour or meal is classified into the following classes -

- (a) fermented pearl millet (mahangu) flour or meal which have a maximum pH level of 5.0;
- (b) unfermented pearl millet (mahangu) flour or meal which have a minimum pH level of 6.0; and
- (c) unspecified pearl millet (mahangu) flour or meal which have a pH level measuring between 5.0 and 6.0.

(2) A mahangu miller who intends to produce or process a fermented pearl millet (mahangu) flour or meal must do so by applying a non-alcoholic fermentation to the product after dehulling, followed by the drying and milling of the product which results in a flour or meal having a lower pH and a whiter colour than unfermented flour or meal.

(3) For purposes of obtaining a fermented pearl millet (mahangu) flour or meal under subregulation (2) the dehulled pearl millet (mahangu) grains are soaked in water for up to less than a day, and the wet dehulled grains are -

- (a) left to ferment until dry before milling; or
- (b) milled and the flour or meal is left to ferment until dry.

(4) A mahangu miller who intends to produce or process an unfermented pearl millet (mahangu) flour or meal must do so by milling dry dehulled pearl millet (mahangu) grains whereby the product remains dry, except for a short period when the pearl millet (mahangu) grains are conditioned by raising the moisture content of the grains.

Grading of mahangu flour or meal

8. (1) For the purposes of these regulations pearl millet (mahangu) flour or meal are graded into two grades -

- (a) mahangu flour; and
- (b) mahangu meal.

(2) In order to determine whether a product is pearl millet (mahangu) flour or meal, such determination is assessed on the particle size as set out in Table A of the Annexure.

Composition of pure pearl millet (mahangu) flour or meal

9. (1) A commercial mahangu miller must ensure that the pearl millet (mahangu) grains are dehulled in accordance with regulation 5 and the crude fibers and fat and oil content and other particles are reduced to a level set out in Table B of the Annexure.

(2) The composition factors and limits referred to in subregulation (1) applies to all the classes of pearl millet (mahangu) flour or meal referred to in regulation 7 and to all the grades of pearl millet (mahangu) flour or meal referred to in regulation 8.

Hygiene

10. (1) Mahangu millers must ensure that pearl millet (mahangu) products are prepared and handled hygienically in accordance with the Public and Environmental Health Act, 2015 (Act No. 1 of 2015).

(2) Mahangu millers must ensure that pearl millet (mahangu) products are free from any objectionable matter in accordance with good manufacturing processes such as -

- (a) pathogenic micro-organisms;
- (b) any substance originating from micro-organisms; or
- (c) parasites,

in amounts which may represent a health hazard when tested by the Namibian Standards Institute or any other laboratory determined by the Board.

(3) Mahangu millers must ensure that the microbiological profile of pearl millet (mahangu) products must fall within the limits contained in Table C of the Annexure.

(4) Mahangu millers may at their own cost conduct a laboratory analysis of their product to ensure that the product is free from pathogenic micro-organisms of public health significance.

Packaging of pearl millet (mahangu) flour or meal

11. (1) Mahangu millers must ensure that -
- (a) the packaging of pearl millet (mahangu) flour or meal safeguards the hygiene, nutritional and organoleptic qualities of the flour or meal;
 - (b) the packaging materials for pearl millet (mahangu) flour or meal are made of non-toxic, safe and suitable substances; and
 - (c) packaging materials may not impart any undesirable odours or flavours to pearl millet (mahangu) flour or meal.
- (2) Bags designated for the packaging of pearl millet (mahangu) products must -
- (a) comply with the specifications as prescribed by the Namibian Standards Institute established under the Standards Act, 2005 (Act No. 18 of 2005) or any other institution determined by the Board;
 - (b) be new, in good conditions, clean and not stained; and
 - (c) be strong and properly sewn or sealed for the conveyance of the intended net mass of the pearl millet (mahangu) flour or meal.

Marking of bags and labelling of pearl millet (mahangu) flour or meal

12. (1) Mahangu millers must ensure that all bags where pearl millet (mahangu) flour or meal are packaged displays the following information in easily readable print -
- (a) the name of the registered mahangu miller including full address, telephone and fax numbers;
 - (b) the class and grade of the pearl millet (mahangu) flour or meal;
 - (c) the designation "Mixed pearl millet (mahangu) product" if the product is not a pure pearl millet (mahangu) flour or meal and the composition of the product in percentage of constituents;
 - (d) the net mass of the product at date of packing alongside the phrase: "Moisture content when packed not exceeding 14 percent"; and
 - (e) the list of food additives, if any, with specific names and proportions used.
- (2) Bags of pearl millet (mahangu) flour or meal must display any other information as imposed by the Board as part of licensing conditions.

Method of sampling and analysis

13. (1) Samples of pearl millet (mahangu) flour or meal must be taken in such a manner as to be representative of the consignment from which the samples are taken.
- (2) Composition and quality analysis must be conducted according to internationally accepted methods under the International Organisation for Standardisation and performed by -
- (a) the Namibian Standards Institute for chemical and microbial analysis; and

- (b) a Board approved South African laboratory for toxicity analysis.

ANNEXURE

Table A - Limits for determining the grade of pearl millet (mahangu) flour or meal

Factor	Limit
Mahangu flour granulation	Minimum 95% m/m passes through a 0.500mm sieve Minimum 60% m/m passes through a 0.212 mm sieve
Mahangu meal granulation	Minimum 95% m/m passes through a 0.500mm sieve Minimum 60% m/m passes through a 0.300 mm sieve

Table B - composition factors and limits for pure pearl millet (mahangu) flour or meal

Factor	Limit
Crude fibre *	Maximum 1.5%
Crude fats and oils (extractable) *	Maximum 6.0%
Ash *	Maximum 1.5%
Sand (silicate) *	Maximum 0.5%
Food additives	In conformity with the Standards Act 2005, national standards set by the Namibian Standards Institute and all other relevant legislation. 8% dry matters

* In dry weight basis

Table C - Microbiological profile and limits for pearl millet (mahangu) flour

Factor/Description	Limit
1. Mold count	Maximum 10 000/g
2. Total colony count	Maximum 1 000 000cfu/g *
3. Coliform count	Maximum 1 000/g
4. <i>Echerichia coli</i> count	Maximum 10/g
5. Aerobic plate count of foreign bacteria tests if total colony count is above the limit	None may be present
6. Pathogenic micro-organism test if coliform, E-coli or aerobic plate counts are above limits.	None may be present

* Cfu/g = colony forming units per gram