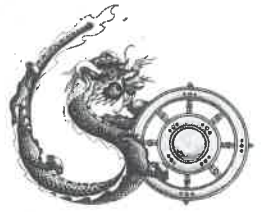




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ROYAL GOVERNMENT OF BHUTAN
Ministry of Agriculture and Forests
Thimphu : Bhutan



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MINISTER

BAFRA/MoAF/5-25/ 1087

16 April 2018

EXECUTIVE ORDER

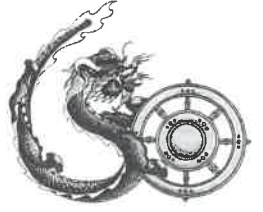
In exercising the power conferred under *Chapter II of the Food Act of Bhutan 2005*, the Ministry of Agriculture and Forests is pleased to approve the following *9 Bhutan Mandatory Food Standards* for implementation with effect from *16 April 2018*:

1. **BMS13:2018**- Bhutan Mandatory Standard for Food Hygiene
2. **BMS14:2018**- Bhutan Mandatory Standard for Street Vended Foods
3. **BMS15:2018**- Bhutan Mandatory Standard for Natural Mineral Water
4. **BMS16:2018**- Bhutan Mandatory Standard for Bhutanese Red Rice
5. **BMS17:2018**- Bhutan Standard for Dry Fish and Dried Salted Fish
6. **BMS18:2018**- Bhutan Mandatory Standard For Bhutanese Chilli and Chilli Powder
7. **BMS19:2018**- Bhutan Mandatory Standard for Home Processed Vegetarian Pickle
8. **BMS20:2018**- Bhutan Mandatory Standard for Animal Meat and Co-products
9. **BMS21:2018**- Bhutan Mandatory Standard for Maize And Maize Products

These Standards were endorsed by the National Food Quality and Safety Commission and renamed as Bhutan Mandatory Food Standards as per the directives of 5th NFQSC Meeting held on 29 March 2018. The Standards will be implemented by Bhutan Agriculture and Food Regulatory Authority (BAFRA) to ensure quality and safety of foods and facilitate fair trade practices.



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ROYAL GOVERNMENT OF BHUTAN
Ministry of Agriculture and Forests
Thimphu : Bhutan



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MINISTER


Yeshey Dorji

MINISTER

Cc:

1. The Secretary, Ministry of Agriculture and Forests, Thimphu
2. The Secretary, Ministry of Health, Thimphu
3. The Secretary, National Environment Commission, Thimphu
4. The Attorney General, Office of Attorney General, Thimphu
5. The Secretary General, Bhutan Chamber of Commerce and Industry, Thimphu
6. The Director General, Bhutan Agriculture and Food Regulatory Authority, MoAF, Thimphu
7. The Director General, Department of Livestock, MoAF, Thimphu
8. The Director, Department of Agriculture, MoAF, Thimphu
9. The Director, Department of Public Health, MoH, Thimphu
10. The Director, Department of Trade, MoEA, Thimphu
11. The Director, Department of Law and Order, MoHCA

BHUTAN MANDATORY STANDARD FOR FOOD HYGIENE**1. PREAMBLE**

This standard is promulgated under the Food Rules and Regulations of Bhutan 2017. This standard is based on the Recommended International Code of Practice- General Principles of Food Hygiene (CAC/RCP 1-1969) established by the Codex Alimentarius Commission.

2. SCOPE

This standard deals with food hygiene requirements from primary production till consumption and sets out the necessary hygiene conditions for producing food that is safe and suitable for human consumption.

3. DEFINITIONS

- 3.1 **Food Hygiene:** all conditions and measures necessary to ensure the safety and suitability of food at all stages of the food chain
- 3.2 **Hazard:** a biological, chemical or physical agent in, or condition of, food with potential to cause an adverse health effect
- 3.3 **Food handler:** any person who directly handles packaged or unpackaged food, food equipment and utensils, or food contact surfaces.
- 3.4 **Cleaning:** the removal of soil, dirt, food residue or other objectionable material
- 3.5 **Contaminant:** any biological or chemical agent, foreign matter or other substances not intentionally added to food that may compromise food safety or suitability
- 3.6 **HACCP:** Hazard Analysis Critical Control Point

4. FOOD HYGIENE AT THE PRIMARY LEVEL**4.1. Environmental Hygiene**

Potential sources of contamination from environment should be considered and primary food production should not be carried out in areas where the presence of potentially harmful substances would lead to unacceptable level of such substances in food.

Primary producers should control contamination from air, soil, water, feedstuffs, fertilizers, pesticides and veterinary drugs or other substances used in primary production:

- a. Control contamination from air, soil, water, feedstuffs, fertilizers, pesticides and veterinary drugs or other substances used in primary production
- b. Control plant and animal health so that it does not pose a threat to human health through food consumption
- c. Protect food sources from fecal and other contamination

4.2. Handling, storage and transport

Procedures should be in place at all stages of the food chain (producers, processing and retail food establishments) to ensure the safety of food during handling, storage and transport. Specifically procedures should be in place to:

- a. Sort food and food ingredients and prevent contamination with material unfit for human consumption
- b. Dispose of any rejected material in a safe and hygienic manner;
- c. Protect food and food ingredients from contamination by pests or by chemical physical or microbiological contamination during handling, storage and transportation

5. LOCATION OF FOOD PREMISES

Potential sources of contamination should be considered when deciding where to locate food establishments. Food establishments should be located away from areas that may be:

- a. Environmentally polluted
- b. Prone to flooding and other hazards that may affect food safety
- c. Prone to infestation of pests

6. EQUIPMENT

Equipment used in food production should be located so that it:

- a. Permits adequate maintenance and cleaning
- b. Functions according to intended use
- c. Enables good hygiene practices and maintenance

7. DESIGN OF FOOD PREMISES AND ESTABLISHMENTS

Where appropriate, the internal design and layout of food establishments should permit good food hygiene practices including protection against cross contamination during operations.

8. INTERNAL STRUCTURES AND FITTINGS

Structures within food establishments should be soundly built of durable materials and be easy to maintain, clean and where appropriate able to be disinfected. Specific requirements are:

- a. The surfaces of walls, partitions and floors should be made of impervious materials with no toxic effects in intended use
- b. Walls and partitions should have a smooth surface upto a height appropriate to the operation
- c. Floors should be constructed to allow adequate drainage and cleaning
- d. Ceilings and overhead fixtures should be constructed to minimize the buildup of dirt and where necessary be fitted with removable and cleanable insect proof screens. Windows should be fixed where necessary
- e. Doors should have smooth, non absorbent surfaces and be easy to clean and where necessary disinfect
- f. Working surfaces that come into direct contact with food should be made of smooth and non absorbent materials and should be in sound condition

9. FACILITIES

9.1 Water supply

There should be adequate supply of potable water or water from municipal supply, with appropriate facilities for its storage, distribution and temperature control to ensure the safety of food.

9.2 Drainage and waste disposal

Facilities should be in place to facilitate drainage and safe disposal of waste material. These facilities should be designed and constructed in such a way as to minimize the risk of contamination of food or potable water supply.

9.3 Cleaning

Adequate facilities should be in place for cleaning food, utensils and equipments used in food production, processing and preparation and storage. Where appropriate such facilities should have adequate supply of hot and cold potable water.

9.4. Personal hygiene facilities and toilets

Personal hygiene facilities such as wash basins (with adequate supply of hot and cold water) toilets (of appropriate hygiene and design) should be in place. Where appropriate changing facilities should be provided.

9.5 Temperature control

Depending on the nature of food operations undertaken, adequate facilities should be available for heating, cooling, refrigerating and freezing food for storing refrigerated or frozen foods, monitoring food temperatures and when necessary, controlling ambient temperatures to ensure the safety and suitability of food.

9.6 Air quality and ventilation

Adequate natural or mechanical ventilation should be provided to minimize air borne contamination.

9.7 Lighting

Adequate natural or artificial lighting should be provided to enable the food establishment to operate in a hygienic manner.

9.8 Storage

Adequate storage facilities should be provided for storage of food and food ingredients. Non food items such as chemicals and detergents should be preferably stored in separate premises to prevent contamination with food.

10. OPERATIONAL CONTROLS

10.1. Control of food hazards

Food businesses should control food hazards through the use of systems such as HACCP. Specifically they should:

- a. Identify any steps in their operations that are critical to the safety of food
- b. Implement effective control procedures at those steps
- c. Monitor control procedures to ensure their continuing effectiveness
- d. Review control procedures periodically and whenever operations change

Where necessary food establishments may be required to apply systems such as HACCP to control hazards

10.2. Key elements of food hygiene control systems

Systems should be in place so that temperature is controlled effectively where it is critical to the safety and suitability of food. Temperature control systems should take into account:

- a. The nature of the food

- b. Intended shelf life of the product
- c. Method of packaging and processing
- d. How the product is intended to be used

10.3. Microbiological cross contamination

Adequate measures should be in place to prevent microbiological cross contamination. Raw unprocessed food should be separated either physically or by time, from ready to eat foods.

Access to processing areas may need to be restricted or controlled. Surfaces, utensils and equipment and fixtures and fittings should be thoroughly cleaned and where necessary, disinfected after raw food, particularly meat and poultry has been handled and processed.

10.4. Physical and chemical contamination

Systems should be in place to prevent contamination of foods by foreign matter (e.g. glass, metal pieces or dust) where appropriate; systems should be in place to facilitate detection of such materials.

10.5. Establishment maintenance and sanitation

Establishment and equipment related to production, processing, storage and handling of food should be maintained to:

- a. Facilitate all sanitation procedures
- b. Function as intended
- c. Prevent contamination of food

Cleaning and disinfection programmes should be in place to ensure that all parts of the establishment are appropriately clean.

11. WASTE MANAGEMENT

Suitable provisions should be in place for removal and storage of waste.

12. ILLNESS AND INJURY

Persons known or suspected to be suffering from, or to be a carrier of, a disease or illness likely to be transmitted through food should not be allowed to enter a food handling area if there is a likelihood of contaminating food.

Persons who have cuts and lesions or other injuries should not be permitted to handle food if these injuries are likely to result in contamination of food.

13. PERSONAL CLEANLINESS AND BEHAVIOR

Food handlers should maintain a high degree of personal cleanliness and where appropriate wear suitable clothing, protective head covering and footwear.

All food handlers working in food preparation/processing areas should always wash their hands:

- a. At the start of food handling activities
- b. Immediately after using the toilet
- c. After handling raw food or any contaminated material where this could result in cross contamination.

Persons engaged in food handling activities should refrain from:

- a. Smoking
- b. Spitting
- c. Chewing or eating
- d. Sneezing or coughing over unprotected food

Personal effects such as watches, jewellery or other items should not be worn during food handling operations if they pose a threat to the safety and suitability of food.

14. VISITORS

Visitors to food manufacturing, processing and handling areas should, where appropriate, wear protective clothing and adhere to the other personal hygiene provisions in this section of the standard.

15. TRANSPORTATION

Food must be adequately protected during transport. The types of transport, equipment and containers used should be determined taking into account the nature of the food and the conditions under which it has to be transported.

16. TRAINING

All personnel in food establishments should be provided with appropriate training. Where necessary training programmes should be reviewed and updated to ensure that all personnel are aware of all procedures necessary to maintain the safety and suitability of food.

BHUTAN MANDATORY STANDARD FOR STREET VENDED FOODS

1. PREAMBLE

This standard is issued pursuant to the Food Rules and Regulations of Bhutan 2017. This standard is based on the Bhutan Food Hygiene Standard and the Codex Recommended International Code of Practice- General Principles of Food Hygiene.

2. SCOPE

This standard deals with food hygiene requirements applying to foods prepared and sold in streets and public open air premises such as tents and marquees.

3. OBJECTIVE OF THE STANDARD

The objective of the standard is to promote sound food hygiene and safety practices and ensure that foods sold through street food establishments and premises are safe and fit for human consumption.

4. DEFINITIONS

- 4.1 **Street foods:** ready to eat foods and beverages prepared and/or sold by street food vendors in streets and other similar public places.
- 4.2 **Food handler:** any person who directly handles packaged or unpackaged food, food equipment and utensils or food contact surfaces.
- 4.3 **Appliances:** means any utensil, machinery, instrument, apparatus or article including traditional types used or intended for use in preparing, keeping, selling or supplying food.
- 4.4 **Clean water:** means clear water from a natural source free from pathogens, contaminant and any other objectionable matter.
- 4.5 **Potable water:** is water that meets the WHO Guidelines for drinking water quality.
- 4.6 **Cleaning:** is the removal of soil, food residue, dirt, grease or other objectionable matter.

5. LICENSING OF STREET FOOD VENDOR

- 5.1. All street food vendors are required, as per the provisions of Chapter VII of the Food Rules and Regulations of Bhutan 2007, to obtain a Food Handlers License before they can operate as a street food business.

6. LOCATION

- 6.1. All street food stalls or establishments shall be located in areas designated by the national or local authority.
- 6.2. Street food stalls/premises including temporary structures such as tents and/or marquees should be located away from:
- a. Environmentally polluted areas
 - b. Areas subject to flooding
 - c. Areas prone to infestation of pests
 - d. Areas where wastes, either solid or liquid cannot be removed effectively

7. STRUCTURE AND DESIGN OF VENDING PREMISES

- 7.1. Vendor's stalls and premises shall be of a type approved by the relevant authority to avoid contamination of food and harbouring pests.

8. TEMPORARY PREMISES

- 8.1. Market stalls and temporary premises such as tents and marquees in which street foods are prepared and presented for sale should be sited, designed and constructed to avoid, as far as practicable, contamination of food and harbouring pests.

9. EQUIPMENT

- 9.1. Equipment and containers coming into contact with food should be designed and constructed to ensure that they can be cleaned, disinfected and maintained to avoid contamination of food.
- 9.2. Cooked and uncooked food should be handled in separate utensils.
- 9.3. All utensils should be regularly cleaned by thoroughly washing using approved detergents and in clean potable water.
- 9.4. All washed and cleaned utensils should be handled, stored and transported separately from unclean and used utensils and crockery and other sources of contamination.

- 9.5. All hand service articles such as napkins, towels and hand wipes should be of disposable type.

10. HYGIENE AND FOOD HANDLING PRACTICES

- 10.1. Personnel handling or preparing food, inputs or ingredients should be in good health and free from diseases.
- 10.2. Food handlers should maintain a high degree of personal cleanliness and wear appropriate clothing, head covering and footwear.
- 10.3. Personnel responsible for food handling and preparation should always wash their hands. Specifically hands should be thoroughly washed:
- a. At the start of food handling activities
 - b. Immediately after using the toilet
 - c. After handling raw food or any contaminated material where this could result in contamination of other food items
- 10.4. Personnel engaged in food handling activities should refrain from behavior such as:
- a. Smoking
 - b. Spitting
 - c. Chewing or eating
 - d. Sneezing or coughing over unprotected food that could result in contamination of food

11. WATER SUPPLY

Only potable water should be used as an ingredient and in the preparation of food to avoid contamination.

12. HANDLING AND DISPOSAL OF WASTE AND PEST CONTROL

- 12.1. Waste bins should be kept away from food handling area and should be suitably covered.
- 12.2. Waste containers should be of suitable material, waterproof and easy to clean.
- 12.3. Food waste should be disposed of in such a way as to not attract insects and animals, such as flies, dogs and cats.

BHUTAN MANDATORY STANDARD FOR NATURAL MINERAL WATER

1. SCOPE

This standard applies to all packaged natural mineral water sold as food and is based on the Codex Standard for Natural Mineral Waters (CX STAN 108-1981).

2. DEFINITION

Natural Mineral Water is water that is clearly distinguished from ordinary drinking water and is characterized by the following:

- a. The content of certain mineral salts and their relative proportions and the presence of trace elements or of other constituents
- b. It is obtained directly from natural or drilled sources from underground water bearing strata
- c. The constancy of its composition and the stability of its discharge
- d. It is collected under conditions which guarantee the original microbiological purity and chemical composition of essential components
- e. It is packaged at or close to the point of emergence
- f. It is not subject to any treatment other than those permitted under this standard

3. COMPOSITION AND OTHER QUALITY FACTORS

3.1 Treatment and handling

- 3.1.1 Treatments permitted under this standard include separation from unstable constituents such as compounds containing iron, manganese, sulphur or arsenic, by decantation and/or filtration, if necessary, accelerated by previous aeration.
- 3.1.2 The transport of natural mineral water in bulk containers for packaging is not permitted under this standard.

3.2 Compositional/health related limits for certain substances

- 3.2.1 The health related limits for certain substances shall be in accordance with the permission of section 3.2 of the Codex Standard for Natural Mineral Waters (Codex Standard 108-1981) which are as set out below:

a. Antimony	0.005 mg/l
b. Arsenic	0.01 mg/l, calculated as total As
c. Barium	0.7 mg/l ¹
d. Borate	5 mg/l, calculated as B
e. Cadmium	0.003 mg/l
f. Chromium	0.05 mg/l, calculated as total Cr
g. Copper	1 mg/l
h. Cyanide	0.07 mg/l

- i. Fluoride See section 6.3.2 (CX STAN 108-1981)
- j. Lead 0.01 mg/l
- k. Manganese 0.4 mg/l
- l. Mercury 0.001 mg/l
- m. Nickel 0.02 mg/l
- n. Nitrate 50 mg/l, calculated as nitrate
- o. Nitrite 0.1 mg/l as nitrite
- p. Selenium 0.01 mg/l

3.2.2 The following substances shall be below the limit of quantification when tested, in accordance with the methods prescribed in Section 7 of the Codex Standard for Natural Mineral Waters (CODEX STAN 108-1981):

- a. Surface active agents
- b. Pesticides and PCBs
- c. Mineral oil
- d. Polynuclear aromatic hydrocarbons

4. HYGIENE

Natural Mineral Waters covered by this standard shall be prepared in accordance with the following:

- a. The Food Rules and Regulations of Bhutan 2017
- b. The Bhutan Standard for Food Hygiene
- c. The Codex Code of Practice-General Principles of Food Hygiene(CAC/RCP 1-1969)
- d. The Codex Code of Practice for the collecting, processing and marketing of Natural Mineral Waters (CAC RCP 33-1985)

5. PACKAGING

All natural mineral waters shall be packed in hermetically sealed containers to prevent possible adulteration or contamination.

6. LABELLING

Natural Mineral Waters shall be labelled in accordance with the provisions of the Bhutan Standard for Labelling of Prepackaged Foods.

BHUTAN MANDATORY STANDARD FOR BHUTANESE RED RICE

1. PREAMBLE

This standard is issued pursuant to the Food Rules and Regulations of Bhutan 2017. This standard is based mainly on the Codex General Standard for Rice (CODEX STAN 198-1995).

2. SCOPE

This standard applies to rice varieties grown in Bhutan.

3. DESCRIPTION

3.1 Bhutanese red rice is a unique medium-grain red japonica variety of rice *Oryza sativa* Linn. grown in the Kingdom of Bhutan. Both short grain and long grain varieties are found.

3.2 Matshob – best taste with the right degree of milling.

Officially notified varieties of red rice include – Bajo maap I, Bajo maap II, Khangma maap. It is semi milled; some of the reddish bran is left on the rice. When cooked, the rice is pale pink, soft and slightly sticky. When paddy is hulled, the reddish bran and germ is retained and it is not polished. When cooked the red colour fades to pink.

4. DEFINITIONS

4.1 Broken rice - Kernels of rice which are less than three-fourths the size of whole kernels.

4.2 Chalky kernels - Whole or large broken kernels of rice which are one-half or more chalky. Chalky means whitish chalky appearance of kernel nearly half the size with brittle in texture.

4.3 Damaged rice- Unsound kernels, whole or broken, distinctly discoloured or damaged by insects, fungi, water and by any other means.

4.4 Red rice - Whole or large broken kernels of rice on which there is an appreciable amount of red bran.

4.5 Degree of milling - Determines how well kernels have been polished and dehusked.

4.6 Discolored kernels - Discolored appearance of kernel from original colors as a result of heating and exposure to other agent.

4.7 Foreign matters - Presence of matters other than specific commodity is regarded as foreign matters.

4.8 Other varieties: Varieties other than specified varieties.

5. ESSENTIAL COMPOSITION AND QUALITY FACTORS

5.1 Quality factors – general

5.1.1 Rice shall be safe and suitable for human consumption.

5.1.2 Rice shall be free from abnormal flavours, odours, living insects, mites and colouring matter.

5.2 Quality factors – specific

5.2.1 **Moisture content** - 15% m/m max (obtained by heating the pulverized grains at 130 degree C to 133 degree C for two hours).

5.2.2 **Foreign matter** - Not more than 1 percent by weight of which not (extraneous matter organic and inorganic components other than kernels of rice) more than 0.25 percent by weight shall be mineral matter and not more than 0.10 percent by weight shall be impurities of animal origin.

5.2.2.1 **Filth** - impurities of animal origin (including dead insects) 0.1% m/m max

5.2.2.2 **Other organic extraneous matter** such as foreign seeds, husk, bran, fragments of straw, etc. shall not exceed the following limits:

Maximum level - Husked Rice	1.5% m/m
Milled Rice	0.5% m/m

5.2.2.3 **Toxic or noxious seeds**

The products covered by the provisions of this standard shall be free from the following toxic or noxious seeds in amounts which may represent a hazard to human health.

- a. Corn cockle (*Agrostemma githago* L.)
- b. Jimson weed (*Daturasp.*)
- c. Potagemeton spp.
- d. Parthenium (*Parthenium hysterophorus*)

5.3 It shall also conform to the following standards, namely:—

- a. Damaged grains Not more than 5 percent by weight

- | | |
|---|-------------------------------------|
| b. Broken grains | May not exceed 40 percent by weight |
| c. Other varieties of rice other than Bhutan rice | Not more than 5 per cent |
| d. Paddy count (per Kg) | 30 kernels |
| e. Discoloured grains/black tip grains | Not more than 5 percent |
| f. Chalky grains | Not more than 4 percent |
| g. Weevilled grains | Not more than 10 percent |
| h. Uric acid | Not more than 100 mg per kg. |

Provided that the total of foreign matter and damaged grains shall not exceed 6 per cent by weight

6. CONTAMINANTS

6.1 **Aflatoxin** - Not more than 10 micrograms per kilogram.

6.2 **Heavy metals**

The grains shall be free from heavy metals in amounts which may represent a hazard to human health.

6.3 **Residues of crop protectants**

The limit for the following pesticides/weedicides are prescribed

- | | |
|-------------------|-----------|
| i. Chloropyrifos | 0.5mg/kg |
| ii. Cypermethrion | 2.0mg/kg |
| iii. Butachlor | 0.5 mg/kg |

Rice shall comply with those maximum residue limits established by the Codex Alimentarius Commission for rice.

7. HYGIENE

7.1 It is recommended that the product covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the *Recommended International Code of Practice – General Principles of Food Hygiene* (CAC/RCP 1-1969), and other Codes of Practice recommended by the Codex Alimentarius Commission which are relevant to this product.

7.2 To the extent possible in good manufacturing practice, the product shall be free from objectionable matter.

8. PACKAGING

Rice shall be packed in packages which prevent deterioration during transport and storage.

9. LABELLING PROVISIONS

Rice shall be labelled as “Rice Grown in Bhutan” and conform to the provisions of the standard for labelling of pre-packaged foods.

BHUTAN STANDARD FOR DRY FISH AND DRIED SALTED FISH**1. PREAMBLE**

This standard is issued pursuant to the Food Rules and Regulations of Bhutan 2017. This standard is based mainly on the Codex General Standard for salted fish/dry fish (Codex Standard 167-1989).

2. SCOPE

This standard applies to dry fish and dried salted fish.

3. DESCRIPTION**3.1 Product Definition**

Dry fish/ dry salted fish is the product obtained from fresh, wholesome fish (“Sermeling, Pakpa, Ban matsha, Snake fish, Salsa, Puttimacha, Sitara, Jingemasa” or other species of fish).

3.2 Process Definition

- a. **Dry fish** - Dried fish is prepared by cleaning fish thoroughly with potable water and dried either in the sun on clean raised platforms or spread on mats or drying racks or hanging in poles in artificial driers, till the moisture is reduced to 10 percent. The material shall not have salt or lime excretion on the surface.
- b. **Dry salted fish** - The fish shall be fully saturated with salt (heavy salted) or partially saturated to a salt content not less than 10 percent by weight of the salted fish which has been dried.

3.2.1 Salting

Salting is the process whereby whole fish is eviscerated, cleaned, washed and packed with layer of salt.

3.2.2 Drying

- a. **Natural Drying** - the fish is dried by exposure to the open air
- b. **Artificial Drying** - the fish is dried in mechanically circulated air, the temperature and humidity of which may be controlled

4. ESSENTIAL COMPOSITION AND QUALITY FACTORS

The product shall be free from foreign matter, objectionable odour and flavour. The product shall be free from visible fungal, insect or mite infestations.

The products shall conform to the following requirements:

4.1 Dry fish:

- | | |
|---|----------------------------|
| a. Moisture | Not more than 15.0 percent |
| b. Sodium chloride | 2.5 to 7.5 per cent |
| c. Ash insoluble in HCl on dry matter basis | 1.0 to 1.5 percent |

4.2 Dry salted fish:

- | | |
|---|---|
| a. Moisture | Not more than 16.0 percent |
| b. Sodium chloride | Not less than 10.0 percent and not more than 15.0 percent |
| c. Ash insoluble in HCl on dry matter basis | not more than 1.0 percent |

The product may contain the following food additives.

Sodium sorbate, calcium sorbet, potassium sorbate singly or in combination, sorbic acid all expressed as sorbic acid, at maximum level in the final product 200 mg/kg.

5. HYGIENE REQUIREMENTS

The products covered by the provisions of this Standard should be prepared and handled in accordance with the appropriate sections of the *General Principles of Food Hygiene* (CAC/RCP 1-1969), the *Code of Practice for Fish and Fishery Products* (CAC/RCP 52-2003), and other relevant Codex Codes of Hygienic Practice and Codes of Practice.

6. MICROBIOLOGICAL REQUIREMENTS

The product shall conform to the following microbiological requirements:

- | | |
|--|-----------------------|
| a. Total coliform count | maximum 100000/gm |
| b. <i>E.coli</i> | not more than 20/gm |
| c. <i>Staphylococcus aureus</i> | not more than 100/ gm |
| d. <i>Salmonella</i> , <i>Shigella</i> , <i>Vibrio cholerae</i> and <i>Vibrio parahaemolyticus</i> | - all absent in 25/gm |
| e. Yeast and mould Count | absent in 500cfu/gm |

7. CONTAMINANTS

The product should conform to the following heavy metal requirements:

- a. Lead not more than 0.3 mg/kg
- b. Methyl mercury not more than 0.5 mg/kg
- c. Zinc 50 mg/Kg
- d. Copper 10 mg/Kg

8. PACKING

The dry fish/dry salted fish shall be packed in packages which are leak proof, impermeable to oxygen and moisture and prevent deterioration during transportation and storage. In case polyester/polythene is used, only food grade plastics shall be used.

9. LABELLING PROVISIONS

Dry fish/dry salted fish shall be labelled as “(give name of fish) fish” and it shall conform to the provisions of the Bhutan Standard for Labelling of Prepackaged Foods.

BHUTAN MANDATORY STANDARD FOR BHUTANESE CHILLI AND CHILLI POWDER

1. PREAMBLE

This standard is issued pursuant to the Food Rules and Regulations of Bhutan 2017. This standard is based mainly on the Codex General Standard for commercial varieties of chilli peppers grown from *Capsicum spp.*, of the *Solanaceae* family, to be supplied fresh to the consumer, (CODEX STAN 307-2011).

2. SCOPE

This standard applies to chilli grown in Bhutan and the chilli powder obtained from it.

I. BHUTANESE CHILLI

3. DESCRIPTION

Chillies whole - means the dried ripe fruits or pods of the *Capsicum annum* L and *Capsicum frutescens* L. varieties Sha Ema, Baegop Ema, (fresh and dried produce) Super Solo (fresh and salad purposes) and *add others common in Bhutan* like Dallae or cherry pepper. The Sha Ema, Baegop Ema and Super Solo are wrinkled when dried.

Sha Ema

- Fruit orientation: Pendent
- Fruit shape: Elongated, shoulder at the calyx area and with blunt tips
- Fruit colour (not ripe): Green
- Fruit colour (ripe): Red
- Fruit length: 8 cm, width: 2.4 cm
- Average fruit weight: 23.7 g
- Seed percentage: 8%
- Pedicel length: 3.1 cm
- Fruit wall thickness: 0.3 cm (thick)
- Pungency : Mild
- Number of lobes: 3

Baegop Ema

- Fruit orientation: Pendent
- Fruit shape: Elongated, no shoulder, calyx covering the entire base of fruit and with pointed tips

- Fruit colour (not ripe): Green
- Fruit colour (ripe): Red
- Fruit length: 8.7 cm width: 1.7 cm
- Average fruit weight: 20.5 g
- Seed percentage: 9%
- Pedicel length: 3.2 cm
- Fruit wall thickness: 0.25 cm (thick)
- Pungency : Mild
- Number of lobes: 3

Super Solu

- Pungency is milder than Sha Ema though fruit shape is similar but with pointed tips.
- Fruit length is 18.5 cm, width is 4 cm.
- Weight is 80 gm and fruit wall is thicker than Sha Ema.
- Not Suitable as dried chilli as it is difficult to dry and quality of dried chilli is poor.

“Dallae” Cherry pepper

- Fruit shape round
- Fruit colour (ripe) red
- Fruit size 1 to 1.5 inches
- Pungency hot
- Suitable for making pickle

4. PROVISIONS CONCERNING QUALITY

4.1 Minimum Requirements

In all classes, subject to the special provisions for each class and the tolerances allowed, the chilli must be:

- i. whole, the stalk (stem) may be missing, provided that the break is clean and the adjacent skin is not damaged;
- ii. sound, produce affected by rotting or deterioration such as to make it unfit for consumption is excluded;
- iii. firm;
- iv. clean, practically free of any visible foreign matter;
- v. practically free of pests and damage caused by them affecting the general appearance of the produce;
- vi. free of abnormal external moisture excluding condensation following removal from cold storage;
- vii. free of any foreign smell and/or taste;
- viii. free of damage caused by low and/or high temperatures.

- 4.2 Chilli must be harvested at an appropriate degree of development in accordance with the criteria proper to the variety and the area in which they are grown.

The development and condition of the chilli must be such as to enable them to withstand transport and handling and to arrive in satisfactory condition at the place of destination.

5. ESSENTIAL COMPOSITION AND QUALITY FACTORS

The pods shall be free from mould, living and dead insects, insect fragments, rodent contamination. The product shall be free from extraneous coloring matter (Sudan red and other artificial colors), coating of mineral oil and other harmful substances.

It shall conform to the following standards:

i. Extraneous matter:	Not more than 1.0 percent by weight
ii. Unripe and marked fruits:	Not more than 2.0 percent by weight
iii. Broken fruits, seed & fragments :	Not more than 5.0 percent by weight
iv. Moisture:	Not more than 11.0 percent by weight
v. Total ash on dry basis:	Not more than 8.0 percent by weight
vi. Ash insoluble in dil. HCl on dry basis:	Not more than 1.3 percent by weight
vii. Insect damaged matter:	Not more than 1.0 percent by weight

6. CONTAMINANTS

Aflatoxins: The maximum level of aflatoxin permitted shall be 10µg/kg total aflatoxin.

The produce covered by this standard shall comply with the maximum residue limits for pesticides/fungicides as follows;

Chloropyrifos	10mg/kg
Copper Oxychloride	20 mg/kg
Cypermethrin	10 mg/kg
Dimethoate	3 mg/kg
Fenvelerate	0.03 mg/kg
Malathion	1mg/Kg
Mancozeb	10mg/kg
Metaloxyl	0.5mg/kg
Carbendazin	20mg/Kg
Dicofol	1mg/kg
Endosufan	1mg/Kg

7. MICROBIOLOGICAL REQUIREMENTS

Salmonella absent in 25 gm

8. HYGIENE

It is recommended that the produce covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1-1969), Code of Hygienic Practice for Fresh Fruits and Vegetables (CAC/RCP 53-2003), and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.

The produce should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

9. PACKING

Shall be packed in packages which prevent deterioration during transport and storage.

10. LABELLING

Shall be labelled as “Bhutanese Chilli” and it shall conform to the provisions of the standard for labelling of pre-packaged foods.

II. BHUTANESE CHILLI POWDER

1. DESCRIPTION

Bhutanese chilli powder means the powder obtained by coarse grinding clean ripe fruits or pods of Bhutanese varieties of *Capsicum annum* L and *Capsicum frutescens* L.

It shall be free from mould, living and dead insects, insect fragments and rodent contamination.

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

The powder shall be dry, free from dirt, extraneous colouring matter, flavouring matter, mineral oil and other harmful substances. The chilli powder, coarsely ground, bright red in colour, may contain any edible vegetable oil to a maximum limit of 2.0 percent by weight. It may contain visible chili seeds, pieces of pericarp of chilli. Special varieties of Bhutanese chili powder may in addition contain seed powders of *Perilla frutescens*, Schazwan pepper and other selected spices, and have to be labelled.

It shall conform to the following standards:

- | | | |
|------|---|--------------------------------------|
| i. | Moisture: | Not more than 11.0 percent by weight |
| ii. | Total ash on dry basis: | Not more than 8.0 percent by weight |
| iii. | Ash insoluble in dilute HCl on dry basis: | Not more than 1.3 percent by weight |
| iv. | Crude fibre: | Not more than 30.0 percent by weight |
| v. | Non-volatile ether extract on dry basis : | Not less than 12.0 percent by weight |

3. CONTAMINANTS

Aflatoxins: The maximum level of aflatoxin permitted shall be 10 µg/kg total aflatoxin.

The produce covered by this Standard shall comply with the maximum residue limits for pesticides/fungicides as follows;

Chloropyrifos	10mg/kg
Copper oxychloride	20 mg/kg
Cypermethrin	10 mg/kg
Dimethoate	3mg/kg
Fenvelerate	0.03 mg/kg
Malathion	1mg/Kg
Manozeb	10mg/kg
Metaloxyl	0.5mg/kg
Carbendazin	20mg/Kg
Dicofol	1mg/kg
Endosufan	1mg/Kg

It shall be free from Sudan Red and other artificial colours.

4. MICROBIOLOGICAL REQUIREMENTS

Salmonella absent in 25 gm

5. ADULETERANTS

Free from Sudan dye, brick powder, orange peel and other colouring matters like Rodamine B.

6. HYGIENE

The produce covered by the provisions of this Standard be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice – General

Principles of Food Hygiene (CAC/RCP 1-1969), Code of Hygienic Practice for Fresh Fruits and Vegetables (CAC/RCP 53-2003), and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice. The produce should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

7. PACKING

Shall be packed in packages which prevent deterioration during transport and storage.

8. LABELLING

- 8.1. Shall be labelled as “Bhutanese Chilli powder” or “Bhutanese Chili powder added with powders of Perilla/Schezwan pepper etc
- 8.2. It shall conform to the provisions of the standard for labelling of pre-packaged foods.

BHUTAN MANDATORY STANDARD FOR HOME PROCESSED VEGETARIAN PICKLE

1. PREAMBLE

This standard is issued pursuant to the Food Rules and Regulations of Bhutan 2017. This standard is based mainly on the Codex standard for pickled fruits and vegetables (CODEX STAN 260-2007).

2. SCOPE

The products covered by this standard include homemade pickles available in the market such as chilli, mango, bamboo shoot, gooseberry, tomato, lime, ginger, radish, garlic, mushrooms.

3. DESCRIPTION

3.1 Product Definition

Pickled fruits and vegetables is the product:

- a. Prepared from sound, clean and edible fruits and/or vegetables, with or without seeds, spices, aromatic herbs and/or condiments
- b. Processed or treated to produce an acid or acidified product preserved in salt, sugar through natural fermentation. Depending on the type, appropriate ingredients are added in order to ensure preservation and quality of the product
- c. Processed in an appropriate manner, before or after storing them in a container, so as to ensure the quality and safety as well as to prevent spoilage
- d. Packed with or without a suitable liquid packing medium (e.g., oil, brine or acidic media such as vinegar) to ensure an equilibrium pH of less than 4.6

4. ESSENTIAL COMPOSITION AND QUALITY FACTORS

4.1 Composition

4.1.1 Ingredients

Fruits and vegetables and liquid packing medium when appropriate, as defined earlier, in combination with one or more of the other permitted ingredients such as onion, garlic, ginger, sugar, edible vegetable oil, green or red chillies, spices, spice extracts/oil, lime juice, vinegar/ acetic acid, citric acid.

4.2 Quality Criteria

- a. The product shall have colour, flavour, odour and texture characteristic of the product
- b. It shall be free from blemishes - means any characteristic including, but not limited to, bruises, scab, and dark discolouration, which adversely affects the overall appearance of the product
- c. It shall have no harmless extraneous material - means any vegetable part (such as, but not limited to, a leaf or portion thereof, or a stem) that does not pose any hazard to human health but affects the overall appearance of the final product
- d. It shall be free from copper, mineral acid, alum, synthetic colours and shall show no sign of fermentation
- e. It shall be free from any visible mould layer

4.2.1 Other Quality Criteria

4.2.1.1 *Pickled fruits and/or vegetables in edible oil*

The percentage of oil in the product shall not be less than 10% by weight. Fruits and vegetable pieces shall practically remain submerged in oil.

4.2.1.2 *Pickled fruits and/or vegetables in brine or an acidic medium*

The percentage of salt in the covering liquid or the acidity of the media shall be sufficient to ensure the keeping quality and proper preservation of the product.

5. PERMITTED FOOD ADDITIVES

5.1 Preservatives

- a. Benzoic acid and its sodium or potassium salt or both calculated as benzoic acid : 250 ppm maximum
- b. Sulphur dioxide: 100 ppm maximum

6. LIMIT FOR CONTAMINANTS

6.1 Pesticide Residues

The products covered by the provisions of this standard shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for these products and the standard for contaminants, food additives and adulterants.

6.2 Microbiological Contaminants

- | | |
|----------------------|---------------------|
| a. Mould count | absent in 25gm/ml |
| b. Total plate count | maximum 1000/gm |
| c. Coliform count | absent in each gram |

6.3 Other Contaminants

The products covered by the provisions of this standard shall comply with those maximum levels for contaminants established by the Codex Alimentarius Commission for these products and the standard for contaminants, food additives and adulterants.

7. HYGIENE

7.1 Hygienic Requirements

The material shall be prepared and handled under strict hygienic conditions by persons free from contagious and infectious diseases and only in premises maintained in thoroughly clean and hygienic conditions, having adequate and safe water supply, and duly approved and licensed by the concerned authorities. All workers shall use clean and washed clothing. Necessary precautions shall be taken to prevent incidental contamination of the product from soiled equipment or from personnel suffering from injuries.

7.2 All equipment coming in contact with raw materials or products in the course of manufacture shall be kept clean. An ample supply of steam and water, hoses, brushes and other equipment necessary for proper cleaning of machinery and equipment shall be available. The equipment may be sterilized by immersing in or swabbing with hypochlorite solution or other suitable chlorine solution.

8. PACKAGING

Pickles need to be packaged preferably in bottles with tight caps. High density food grade polythene pouches of 300 gauge may be used. The HDPE pouches shall be packed in suitable cases sufficiently strong to withstand rough handling during transit.

9. LABELLING

- 9.1 The product shall be appropriately labelled as per the Bhutan Standard for Labelling of Prepackaged Foods.
- 9.2 Pickled fruits and/or vegetable shall be labelled according to the type and in combination with the name of the major ingredient. For example, a pickle made from ginger shall be labelled as "*Pickled Ginger in Brine*"
-

BHUTAN MANDATORY STANDARD FOR ANIMAL MEAT AND CO PRODUCTS**1. PREAMBLE**

This standard is issued pursuant to the Food Rules and Regulations of Bhutan 2017 and is based on the United Nations Economic Commission for Europe (UNECE) standard for edible meat.

2. SCOPE

This standard applies to meat, offal, processed meat, cured or dried meat, sausages of animals such as cattle including yak, buffalo, goat, pig, poultry and sheep that are slaughtered.

3. DEFINITION:

3.1 Animal means an animal belonging to any of the species specified below:

- a. Bovine (*Cattle- beef, veal*)
- b. Porcine (*Pig - pork*)
- c. Ovine (*Sheep – lamb, mutton*)
- d. Caprine (*Goat – chevon, cabrito*)
- e. Avian (*Chicken, turkey, duck*)

3.2 Abattoir means an authorized place for the slaughter of animals or poultry for food or the building, premises or place which is licensed as a slaughter house by the local authority for slaughter of animals intended for human consumption.

3.3 “Co products” mean products such as offal, processed meat, sausages, meat flesh

4. DESCRIPTION.

4.1 Meat means the whole or part of a carcass of cattle including yak, buffalo, goat, pig, poultry and sheep.

4.2 Offal means parts of a carcass such as blood, brain, heart, kidney, liver, pancreas, spleen, thymus, tongue and tripe, but excludes meat flesh, bone and bone marrow.

4.3 Processed meat as a category is a continuum of products ranging from meat products with a minimum of 30% meat to products that are all meat flesh. The meat must have

undergone a method of processing other than boning, slicing, dicing, mincing, or freezing. It includes manufactured meat and cured and/or dried meat flesh in whole cuts or pieces. Examples of processed meat containing between 30% and 66% meat would include some sausages and some frankfurts, whereas processed meats that contain more than 66% meat would include products like ham. The definition for processed meat encompasses the processes of smoking, drying, salting, curing, fermenting, pickling, cooking, and forming. Processed meat may contain other ingredients but must contain no less than 300 g/kg meat, i.e. they must consist of at least 30% meat.

Processed meat Products containing less than 300 g/kg meat, e.g. hamburger patties or meat loaf, are not prohibited by this standard. They are regarded as mixed foods and must comply with the general food standards and any food product standards that apply to components of the food.

Cured and/or dried meat flesh in whole cuts or pieces is meat flesh including attached bone and must contain at least 160 g/kg meat protein on a fat-free basis, i.e. it must have at least 16% protein on a fat-free basis. Note that fat-free meat flesh is measured analytically by determining the amount of meat protein present; it does not mean meat flesh without visible fat.

- 4.4 **Sausages** are a category of processed meat. They are minced processed meat and/or comminuted meat, which may be combined with other foods, and are encased or formed into discrete units. They do not include meat formed or joined into the semblance of cuts of meat.
- 4.5 **Meat flesh** is defined as skeletal muscle to distinguish it from other parts of a carcass of meat such as offal, bone and bone marrow. Meat flesh includes any attached fat, connective tissue, rind, nerves, blood vessels and blood, and skin (if poultry).
- 4.6 **Shakam** is dried beef
- 4.7 **Sikam** is dried pork
- 4.8 **Hide** is roasted yak/cow skin

The above products are prepared from edible portion of animals slaughtered in an abattoir, which have been subjected to ante-mortem and post-mortem inspection.

5. ESSENTIAL COMPOSITION AND QUALITY FACTORS

5.1 Minimum requirements for meat:

- 5.1.1 All meat must originate from animals slaughtered in establishments regularly operated under the applicable regulations pertaining to food safety and inspection.
- 5.1.2 Meat must be safe and suitable for human consumption.
- 5.1.3 Carcasses and parts items must be:
 - a. Free from any foreign material (e.g. glass, rubber, plastic, metal)
 - b. Free of foreign odours
 - c. Free of fecal contamination
 - d. Free of improper bleeding
 - e. Free of viscera, trachea, esophagus, mature reproductive organs, and lungs.
 - f. Practically free of feathers and hemorrhaging
 - g. Free of freezer-burn
 - h. Free of gall discoloration

5.2 Minimum requirements for meat co products

- 5.2.1 All edible co-products must originate from healthy animals slaughtered in approved establishments.
- 5.2.2 Edible co-products must be:
 - a. Intact, taking into account the presentation
 - b. Free from visible blood clots, or bone dust
 - c. Free from any visible foreign matter (e.g. dirt, wood, plastic, metal particles)
 - d. Free of offensive odours
 - e. Free of unspecified bones fragments
 - f. Free of contusions having a material impact on the product
 - g. Free from freezer-burn
- 5.2.3 Removal and preparation of edible co-products shall be accomplished with sufficient care to maintain integrity and identity and avoid unnecessary scores.

6. FOOD ADDITIVES

Food additives should be as per Codex Standard for Food Additives and Bhutan standard for Contaminants, food Additives and Adulterants.

7. MICROBIOLOGICAL REQUIREMENTS

Contamination of microorganisms in meat and co products shall be conformed to the following requirements:

- a. Total count shall not exceed 5×10^6 colonies per gram of sample
- b. Coliform count shall not exceed 5×10^3 colonies per gram of sample
- c. *Staphylococcus aureus* shall not exceed 1×10^2 colonies per gram of sample
- d. *Salmonella* spp. shall be free in 25 gram of chicken meat sample

8. CONTAMINANTS

The products covered by this Standard shall comply with the Maximum Levels for contaminants that are specified for the product in the *General Standard for Contaminants and Toxins in Food and Feed* (CODEX STAN 193-1995). The product used shall comply with the maximum residue limits for veterinary drugs and pesticides established under the standard for contaminants, food additives and adulterants.

9. HYGIENE

Shall follow the Hygiene Practice established for meat and co products by the Codex Committee on Meat Hygiene (CAC/RAP 58- 2005)

10. PACKAGING

10.1 Meat shall be packed in clean materials. The package shall be sealed tightly. If the packaging materials are made of plastic, they shall be complied with relevant requirements. All packaging materials shall be durable during transportation. The materials shall not be torn or broken when keeping in low temperature and shall prevent product from absorbing objectionable odors from environment.

10.2 Packaged meat shall be labelled with appropriate details and kept in the cold storage.

11. LABELLING

11.1 Mandatory information to be provided.

11.2 Label on Carcass must contain product name, date of slaughtering/date of arrival.

11.3 Information that must be listed on product labels on packed chicken carcasses and parts:

- a. Name of the product
- b. Health stamp/inspection stamp
- c. Sell-by/use-by date
- d. Storage conditions: e.g. "Store at or below XX °C"
- e. Appropriate identification of packer, distributor or dispatcher
- f. Net weight in kg

11.4 Other product claims

- a. Country of birth
- b. Country (ies) of raising
- c. Country of slaughter
- d. Country (ies) of processing/cutting
- e. Country (ies) of packing
- f. Country of origin: In this standard the term "country of origin" is reserved to indicate that birth, raising, slaughter, processing/cutting and packing have taken place in the same country
- g. Production and feeding systems
- h. Processing/packaging date
- i. Quality/grade/classification
- j. Slaughtering procedures
- k. Chilling system

11.5 Labels in each package of chicken meat shall be legible and not peeled off the container. Labels shall bear the following information:

- a. Type of chicken meat and quality classification
- b. Net weight in gram or kilogram
- c. Storage instruction
- d. Day/Month/Year of production and Day/Month/Year of the minimum durability best before.
- e. Name of producer or production farm or Trade Mark or name and address of Distributor.
- f. Language on label shall be in English/ Dzongkha
- g. Official inspection or certification marks shall be complied with provisions and requirements of certification bodies recognized by the Ministry of Agriculture and Forest.
- h. Shall conform to the provisions of Bhutan Standard for Labelling of Prepackaged Foods.

BHUTAN MANDATORY STANDARD FOR MAIZE AND MAIZE PRODUCTS

1. PREAMBLE

This standard is issued pursuant to the Food Rules and Regulations of Bhutan 2017. This standard is based mainly on the Codex General Standard for maize (CODEX STAN 153-1985 revised 1995).

2. SCOPE

This standard applies to maize (corn) for human consumption, i.e. ready for its intended use as human food, presented in packaged form or sold loose from the package directly to the consumer. This standard specifies requirements for whole grain shelled dent maize, *Zea mays indentata* L., and/or shelled flint maize, *Zea mays indurata* L., or their hybrids. It shall also apply to maize grits and “Tengma” (Bhutanese beaten corn).

3. DESCRIPTION

3.1 Product Definition

Maize (corn) is the mature shelled grains of the species defined in the scope.

Kharang is maize grits.

Tengma/Seap (Bhutanese beaten corn) is roasted and pounded maize used as breakfast cereal.

Ashom Bokpi is the maize flour.

4. ESSENTIAL COMPOSITION AND QUALITY FACTORS

4.1 Quality Factors – General

- 4.1.1 Maize shall be whole or broken kernels safe and suitable for human consumption. It shall be sweet, hard, clean and wholesome.
- 4.1.2 Maize shall be free from added colouring matter, abnormal flavours, odours and living insects.
- 4.1.3 Maize shall be free from filth in amounts which may represent a hazard to human health.

4.2 Quality Factors – Specific

4.2.1 **Moisture content** 15.5% m/m max; not more than 16.0 per cent by weight (obtained by heating the pulverized grains at 130 degree C to 133 degree C for two hours).

4.2.2 **Extraneous matter** is all organic and inorganic materials other than maize, broken kernels, other grains and filth.

4.2.2.1 **Filth** are impurities of animal origin (including dead insects) 0.1% m/m max

4.2.2.2 **Toxic or noxious seeds**

The products covered by the provisions of this standard shall be free from the following toxic or noxious seeds in amounts which may represent a hazard to human health.

- Corn cockle (*Agrostemma githago* L.)
- Jimson weed (*Datura* ssp.)
- Amaranthus
- Parthenium (*Parthenium hysterophorus*)

4.2.2.3 **Other organic extraneous matter** which is defined as organic components other than edible grams of cereals (foreign seeds, stems, etc.) (1.5% m/m max).

4.2.2.4 **Inorganic extraneous matter** which is defined as any inorganic component (stones, dust, etc.) (0.5% m/m max).

4.2.3 **Other edible grains** - Not more than 3 per cent by weight.

4.2.4 **Damaged grains**- Not more than 5 per cent by weight.

4.2.5 **Weevilled grains**- Not more than 10 per cent by count.

Provided that the total of foreign matter, other edible grains and damaged grains shall not exceed 9 per cent by weight.

4.2.6 **Uric acid**- Not more than 100 mg per kg.

5. CONTAMINANTS

5.1 Heavy metals

Maize shall be free from heavy metals in amounts which may represent a hazard to human health.

5.2 Crop protectants residues

The limit for the following pesticides/weedicides are prescribed as below

Chloropyrifos	0.5mg/kg
Cypermethrion	2.0mg/Kg
Butachlor	0.5 mg/Kg

Maize shall comply with those maximum residue limits established by the Codex Alimentarius Commission for maize.

5.3 Mycotoxins

Aflatoxin not more than 10 micrograms per kilogram

6. HYGIENE

6.1 It is recommended that the product covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the *Recommended International Code of Practice – General Principles of Food Hygiene* (CAC/RCP 1-1969) and other Codes of Practice recommended by the Codex Alimentarius Commission which are relevant to this product.

6.2 To the extent possible in good manufacturing practice, the product shall be free from objectionable matter.

7. PACKAGING

7.1 Maize (corn) shall be packaged in containers which will safeguard the hygienic, nutritional, technological, and organoleptic qualities of the product.

7.2 The containers, including packaging material, shall be made of substances which are safe and suitable for their intended use. They should not impart any toxic substance or undesirable odour or flavour to the product.

7.3 When the product is packaged in sacks, these must be clean, sturdy and strongly sewn or sealed.

8. LABELLING

8.1 Name of the product

- 8.1.1 The name of the product to be shown on the label shall be “maize” or the name of the product “Kharang” for maize grits, “Tengma/seap” for Bhutanese beaten corn and “Ashom Bokpi” for maize flour
- 8.1.2. It shall conform to the provisions of the standard for labelling of pre-packaged foods.

9. FURTHER PROCESSING

The food grains meant for grinding/processing shall be clean, free from all impurities including foreign matter (extraneous matter).

BHUTAN MANDATORY STANDARD FOR BHUTHANESE CHILLI AND CHILLI POWDER

1. PREAMBLE

This standard is issued pursuant to the Food Rules and Regulations of Bhutan 2017. This standard is based mainly on the Codex General Standard for commercial varieties of chilli peppers grown from *Capsicum spp.*, of the *Solanaceae* family, to be supplied fresh to the consumer, (CODEX STAN 307-2011).

2. SCOPE

This standard applies to chilli grown in Bhutan and the chilli powder obtained from it.

I. BHUTANESE CHILLI

3. DESCRIPTION

Chillies whole - means the dried ripe fruits or pods of the *Capsicum annum* L and *Capsicum frutescens* L. varieties Sha Ema, Baegop Ema, (fresh and dried produce) Super Solo (fresh and salad purposes) and *add others common in Bhutan* like Dallae or cherry pepper. The Sha Ema, Baegop Ema and Super Solo are wrinkled when dried.

Sha Ema

- Fruit orientation: Pendent
- Fruit shape: Elongated, shoulder at the calyx area and with blunt tips
- Fruit colour (not ripe): Green
- Fruit colour (ripe): Red
- Fruit length: 8 cm, width: 2.4 cm
- Average fruit weight: 23.7 g
- Seed percentage: 8%
- Pedicel length: 3.1 cm
- Fruit wall thickness: 0.3 cm (thick)
- Pungency : Mild
- Number of lobes: 3

Baegop Ema

- Fruit orientation: Pendent
- Fruit shape: Elongated, no shoulder, calyx covering the entire base of fruit and with pointed tips

- Fruit colour (not ripe): Green
- Fruit colour (ripe): Red
- Fruit length: 8.7 cm width: 1.7 cm
- Average fruit weight: 20.5 g
- Seed percentage: 9%
- Pedicel length: 3.2 cm
- Fruit wall thickness: 0.25 cm (thick)
- Pungency : Mild
- Number of lobes: 3

Super Solu

- Pungency is milder than Sha Ema though fruit shape is similar but with pointed tips.
- Fruit length is 18.5 cm, width is 4 cm.
- Weight is 80 gm and fruit wall is thicker than Sha Ema.
- Not Suitable as dried chilli as it is difficult to dry and quality of dried chilli is poor.

“Dallae” Cherry pepper

- Fruit shape round
- Fruit colour (ripe) red
- Fruit size 1 to 1.5 inches
- Pungency hot
- Suitable for making pickle

4. PROVISIONS CONCERNING QUALITY

4.1 Minimum Requirements

In all classes, subject to the special provisions for each class and the tolerances allowed, the chilli must be:

- i. whole, the stalk (stem) may be missing, provided that the break is clean and the adjacent skin is not damaged;
- ii. sound, produce affected by rotting or deterioration such as to make it unfit for consumption is excluded;
- iii. firm;
- iv. clean, practically free of any visible foreign matter;
- v. practically free of pests and damage caused by them affecting the general appearance of the produce;
- vi. free of abnormal external moisture excluding condensation following removal from cold storage;
- vii. free of any foreign smell and/or taste;
- viii. free of damage caused by low and/or high temperatures.

- 4.2 Chilli must be harvested at an appropriate degree of development in accordance with the criteria proper to the variety and the area in which they are grown.

The development and condition of the chilli must be such as to enable them to withstand transport and handling and to arrive in satisfactory condition at the place of destination.

5. ESSENTIAL COMPOSITION AND QUALITY FACTORS

The pods shall be free from mould, living and dead insects, insect fragments, rodent contamination. The product shall be free from extraneous coloring matter (Sudan red and other artificial colors), coating of mineral oil and other harmful substances.

It shall conform to the following standards:

i. Extraneous matter:	Not more than 1.0 percent by weight
ii. Unripe and marked fruits:	Not more than 2.0 percent by weight
iii. Broken fruits, seed & fragments :	Not more than 5.0 percent by weight
iv. Moisture:	Not more than 11.0 percent by weight
v. Total ash on dry basis:	Not more than 8.0 percent by weight
vi. Ash insoluble in dil. HCl on dry basis:	Not more than 1.3 percent by weight
vii. Insect damaged matter:	Not more than 1.0 percent by weight

6. CONTAMINANTS

Aflatoxins: The maximum level of aflatoxin permitted shall be 10µg/kg total aflatoxin.

The produce covered by this standard shall comply with the maximum residue limits for pesticides/fungicides as follows;

Chloropyrifos	10mg/kg
Copper Oxychloride	20 mg/kg
Cypermethrin	10 mg/kg
Dimethoate	3 mg/kg
Fenvelerate	0.03 mg/kg
Malathion	1mg/Kg
Mancozeb	10mg/kg
Metaloxyl	0.5mg/kg
Carbendazin	20mg/Kg
Dicofol	1mg/kg
Endosufan	1mg/Kg

7. MICROBIOLOGICAL REQUIREMENTS

Salmonella absent in 25 gm

8. HYGIENE

It is recommended that the produce covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1-1969), Code of Hygienic Practice for Fresh Fruits and Vegetables (CAC/RCP 53-2003), and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.

The produce should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

9. PACKING

Shall be packed in packages which prevent deterioration during transport and storage.

10. LABELLING

Shall be labelled as “Bhutanese Chilli” and it shall conform to the provisions of the standard for labelling of pre-packaged foods.

II. BHUTANESE CHILLI POWDER

1. DESCRIPTION

Bhutanese chilli powder means the powder obtained by coarse grinding clean ripe fruits or pods of Bhutanese varieties of *Capsicum annum* L and *Capsicum frutescens* L.

It shall be free from mould, living and dead insects, insect fragments and rodent contamination.

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

The powder shall be dry, free from dirt, extraneous colouring matter, flavouring matter, mineral oil and other harmful substances. The chilli powder, coarsely ground, bright red in colour, may contain any edible vegetable oil to a maximum limit of 2.0 percent by weight. It may contain visible chili seeds, pieces of pericarp of chilli. Special varieties of Bhutanese chili powder may in addition contain seed powders of *Perilla frutescens*, Schazwan pepper and other selected spices, and have to be labelled.

It shall conform to the following standards:

- | | | |
|------|---|--------------------------------------|
| i. | Moisture: | Not more than 11.0 percent by weight |
| ii. | Total ash on dry basis: | Not more than 8.0 percent by weight |
| iii. | Ash insoluble in dilute HCl on dry basis: | Not more than 1.3 percent by weight |
| iv. | Crude fibre: | Not more than 30.0 percent by weight |
| v. | Non-volatile ether extract on dry basis : | Not less than 12.0 percent by weight |

3. CONTAMINANTS

Aflatoxins: The maximum level of aflatoxin permitted shall be 10 µg/kg total aflatoxin.

The produce covered by this Standard shall comply with the maximum residue limits for pesticides/fungicides as follows;

Chloropyrifos	10mg/kg
Copper oxychloride	20 mg/kg
Cypermethrin	10 mg/kg
Dimethoate	3mg/kg
Fenvelerate	0.03 mg/kg
Malathion	1mg/Kg
Manozeb	10mg/kg
Metaloxyl	0.5mg/kg
Carbendazin	20mg/Kg
Dicofol	1mg/kg
Endosufan	1mg/Kg

It shall be free from Sudan Red and other artificial colours.

4. MICROBIOLOGICAL REQUIREMENTS

Salmonella absent in 25 gm

5. ADULETERANTS

Free from Sudan dye, brick powder, orange peel and other colouring matters like Rodamine B.

6. HYGIENE

The produce covered by the provisions of this Standard be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice – General

Principles of Food Hygiene (CAC/RCP 1-1969), Code of Hygienic Practice for Fresh Fruits and Vegetables (CAC/RCP 53-2003), and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice. The produce should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

7. PACKING

Shall be packed in packages which prevent deterioration during transport and storage.

8. LABELLING

- 8.1. Shall be labelled as “Bhutanese Chilli powder” or “Bhutanese Chili powder added with powders of Perilla/Schezwan pepper etc
- 8.2. It shall conform to the provisions of the standard for labelling of pre-packaged foods.