



**MINISTRY OF AGRICULTURE,
FISHERIES & MINING**



Third Edition



Produce Grading Manual



**MINISTRY OF AGRICULTURE,
FISHERIES & MINING**

Produce Grading Manual

**“Setting the Standard for Quality, Better
Grade, Better Food”**

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With pride and sincere gratitude, the Ministry of Agriculture, Fisheries and Mining (the Ministry) presents the latest edition of this manual, a testament to the dedication, collaboration and ongoing commitment to the growth of the agricultural sector.

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As we continue to revise and improve this work, we honour the legacy of all contributors and look forward to its continued impact across the industry.

MOAF&M - Ministry of Agriculture, Fisheries & Mining

PQPI - Plant Quarantine Produce Inspection Branch

BSJ - Bureau of Standards Jamaica

FSPID - Food Storage and Prevention of Infestation Division

RADA - Rural Agricultural Development Authority

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INTRODUCTION

The demand for Jamaican fresh produce continues to increase in overseas markets particularly in areas with a strong diaspora presence. As the demand for agricultural produce rises and the importance of food safety becomes more relevant, grades and standards are considered one of the main tools for the marketing of commodities in the local and international markets. Fresh agricultural produce can have varied degrees of characteristics such as weight, size, shape, density, firmness, tolerance to insect damage, cleanliness, colour, taste, odour, maturity, blemishes, moisture content etc. Therefore a system of clear communication between buyers and sellers is vital.

Furthermore, farmers and traders are increasingly entering into contractual arrangements to supply produce based on varying quality specifications. Moreover, there has been growing international demand for agricultural produce standards, especially to satisfy stringent requirements for export. Ideally, grade 1 produce quality are exported while grades 2 & 3 are for local consumption and processing.

These Grades and Standards were developed in an effort to:

- Outline a clear set of guidelines on quality, labeling, packaging, hygiene, and grade classification, and
- Sensitise traders/farmers on how to improve the presentation of their produce in the marketplace.

Additionally, fresh produce is expected to conform to standards established by the Pesticide Control Authority as well as the Codex Alimentarius International Food Standards and implemented by countries involved in global trade.

Jamaica's produce is increasingly being demanded and compliance with national, regional, and international market requirements is important to maintain market share and food safety, thereby demonstrating the relevance of grades and standards.

The manual prescribes the minimum general requirements for grading fresh agricultural produce. It predominantly classifies produce into three (3) grades and describes the provisions concerning sizing, packaging, presentation and labelling. This standard also prescribes all the food safety parameters as laid down by the General Principles of Food Hygiene developed by the International Code of Practice with regard to contaminants.

It is to be noted that these standards are voluntary and compliance is on a system of cooperation and communication. Nonetheless, the Produce Grading Manual provides a benchmark/guide as to what constitutes the best quality for sale to the consumer.

Benefits of Adopting Grades and Standards:

- Promotes the incentives for quality and food safety;
- Promotes conformity with market access;
- Facilitates price/quality comparison;
- Reduces the risk of deception and fraudulent marketing;
- Helps define contracts for delivery.

Definitions

For the purpose of this manual, the following definitions shall apply:

- **Anthraxnose** is a fungal disease that causes dark lesions.
- **Bacterial rot** is marked by dark, mushy areas with a foul odor and slimy texture. This includes black rot, soft rot and bottom rot.
- **Blemish** is any physical injury affecting the surface of the produce, such as scars, healed cracks, and discoloured spots, which detracts from its natural appearance, but will not significantly affect its shelf life.
- **Bottle necks (Specific to onions)** are abnormally thick stem with poorly developed bulbs.
- **Clean** refers to produce that is free from adhering soil, insect fragments, chemical deposits and other foreign matter.
- **Cut surface** means the exposed surface of the produce resulting from the removal of damaged areas, heads or multiple bases.
- **Damage** means any defect or combination of defects of physical or physiological (external or internal) causes that detract from the edible or marketing quality of the produce.
- **Doubles (Specific to onions)** is the development of more than one distinct bulb joined only at the base.
- **Disease** is any defect or combination of defects caused by micro-organisms, such as botrytis neck rot and ringspot disease.
- **Dry cured** means the removal of excess moisture from the wrapper scale leaves and neck of the produce (for example onion).
- **Fairly smooth** means at least 85% of the produce is free from any defects or roughness which more than slightly detract from its general appearance.
- **Fairly well-trimmed** means that at least 85% of the root hairs, excess leaves, and stems have been removed.
- **Fairly well-shaped** means that at least 85% of the produce has the shape characteristic of the variety;
- **Firm** means not soft, shriveled, or spongy.
- **Fresh** means that the produce maintains its reaped appearance and is not shriveled or shows signs of dehydration.
- **Fully matured** means that fresh produce has reached full development and is firm with a tough skin and has no sprouting or surface shriveling.
- **Intact** means whole, without damage, cuts, and not impaired in any way or form.
- **Latex** means milky sap residue from fruit or any other part of the plant.
- **Mature** means the stage of development that allows the produce to possess the necessary quality characteristics that are desired by the consumer.
- **Minimum Requirements:** Should be of similar varietal characteristics, clean, mature, fresh, firm, dry cured, and free from pests, pest damage, and diseases.
- **Moderate** means more than slight but neither too extreme nor too mild.

- **Moldy** means typically appears discolored with spots or patches of white, or black mold. They might have a fuzzy or powdery texture, and emit a musty odor.
- **Nematode damage** means scarring and discolouration (burning) caused by the feeding of nematode on the surface of the produce, or lesion extending into the flesh of the produce.
- **Pest** means Insects, micro-organisms, and other living things that compromise the shelf-life and quality of the produce.
- **Pest Damage** is damage caused by insects. The affected area usually softens, leading to spoilage.
- **Racking** involves placing unopened ackee pods on a rack for 3-4 days to allow them to continue the opening process, making them suitable for consumption.
- **Soft** means that the produce yields to moderate pressure.
- **Serious damage** is any defect or combination of defects of physiological or physical (external or internal) causes that could lead to the abnormally quick deterioration of the produce which may result in rejection.
- **Similar varietal characteristics** means that fresh produce in a container shall have the same general shape, colour characteristic of skin and flesh.
- **Smooth** means that the produce is free from any defect(s) causing roughness which more than slightly detracts from its general appearance.
- **Spongy** means soft and loose, often due to rapid or irregular growth in items like cabbage, lettuce, or onions.
- **Shriveled** means shrunken or wrinkled due to old age or transpiration.
- **Unacceptable** means that the produce is unfit for the market, but this is not limited to examples displayed in this manual. These commodities are generally unsafe for consumption and export.
- **Variety** means a unique group of plants within the same family, maintained through appropriate propagation methods (grafting, etc).
- **Weight** is net weight delivered to the customer.
- **Well-trimmed** means that produce root hairs, excess leaves, and stems should be removed.
- **Well-shaped** produce has the shape typical of the variety.
- **White surface area** means that the produce exhibits some degree of immaturity as seen on the external surface at the tip of the produce.

Legend



RH means the relative humidity.

This icon means '**Storage Temperature**' ie. the ideal temperature to store the produce to maintain shelf life.



This icon means '**Cooling Method**' ie. the ideal method to cool produce. The three types of cooling method are defined below.

- **Forced Air Cooling** is a controlled cooling method used to rapidly lower the temperature of harvested produce.

- **Room Cooling** is regulating the temperature of a storage room or facility to preserve the quality and shelf life of agricultural goods.

- **Hydrocooling** is a cooling method which involves the use of cold water to quickly lower the temperature of fresh produce.

CLASSIFICATIONS & TOLERANCES

GRADE 1

Superior quality produce.

Tolerance- May include produce with minor blemishes.

Not more than 10% by number or weight of produce should fail to meet the specifications of this grade but meet those of grade 3. There shall be zero tolerance for damage at the dispatching stage.

GRADE 3

Lower quality produce which meets the minimum requirements.

Tolerance- Not more than 5% by number or weight of produce should fail to meet the specifications of this grade but meet those of Grade 2. There shall be zero tolerance for damage at the dispatching stage.

GRADE 2

The general market grade.

Tolerance- Not more than 10% by number or weight of produce should fail to meet the minimum quality and grade classification requirements. Damage should not exceed more than 5% at the dispatching stage.

CLASSIFICATIONS & TOLERANCES (CONT'D)

Sizing

The size in each grade is dependent on the market requirement. The size of produce packed in any standard type shipping container should be specific.

- **Size Tolerance**

For all Grades, a variation of plus or minus 10% by number or weight of the average size of the produce indicated on the package is acceptable.

Contaminants

Fresh produce should be free of any biological (bacteria, virus, parasites, fungus, etc.), chemical (pesticide, allergens, etc.) or physical (metal, glass, wood, hard plastic, etc.) agent, foreign matter or other substances not intentionally added to food which may compromise food safety or suitability.

Heavy Metals and Pesticide Residues

Fresh produce should comply with those residue limits for heavy metals, pesticides and other food safety parameters as required by the Codex Alimentarius Maximum Residue Limits (MRL) for Pesticide Residue.

Hygiene

It is recommended that the produce covered by the provisions of this standard be prepared and handled in accordance with the appropriate section of the most recent revision of the International Code of Practice – General Principles of Food Hygiene (CAC/RCPI – 1969, Revised in 2022).

PACKAGING AND PRESENTATION

Packaging Requirements

Fresh produce should be packed in a manner, which will afford protection to the produce. Containers should meet the quality, hygiene, ventilation and resistance requirements to ensure suitable handling, shipping and preservation of the produce.

The use of materials, particularly paper or stamps bearing trade specifications is allowed, provided the printing or labelling has been done with non-toxic ink or glue. Additionally, all markings must be legible of a permanent nature, and of a reasonable size proportional to the package or label.

Labelling

Labelling of retail containers should comply with the requirements of "JS 349 and JS 350".

Labelling of non-retail containers should include the following:

- Name and address of exporter, packer/dispatcher
- Common name of produce and/or botanical name
- Country of Origin
- Net Weight of package (kg)
- Number of produce per container (count)
- Grower/lot identification number
- Grade
- Variety
- Storage Temperature

GRADES & STANDARDS

*A means for measuring levels of quality and value for
agricultural commodities.*

-United States Department of Agriculture



ACKEE

Fit for Consumption

Scope: The standard applies to commercial varieties of the *Blighia Sapida* of the *Sapindaceae* family, to be supplied in a state that fulfils the minimum requirements of the processors and consumers.



PREPARATION PRACTICES FOR ACKEE

- **Pod:** Remove all foreign material from open pod.
- **Aril:** Remove fleshy arils from pod, detach the black seeds and red interior pith.



Room Cooling.



5°C to 10°C (85 to 95% RH).

Characteristics of Ackee Suitable for Consumption

Colour	Bright pink to yellow orange pod. Pale yellow to yellow aril.
Shape	Pear shaped pod.
Firmness	Aril does not yield to moderate pressure.
Appearance	Open pod, black seed attached to yellow aril, free from decay, anthracnose and any other defects.

ACKEE

Fit for Consumption

- ACKEE STAGES OF MATURITY



Immature, unfit for consumption.



Unopened and mature for racking but unfit for consumption at this stage.



Partially opened and mature for racking but unfit for consumption at this stage.



Mature, opened and fit for consumption at this stage.



Deteriorating and unfit for consumption.

AVOCADO (PEAR)

Scope: The standard applies to commercial varieties of avocados grown from *Persea americana* Mill. of the Lauraceae family, to be supplied fresh to consumers.





FACTORS WHICH CONTRIBUTE TO THE MAXIMUM SHELF LIFE OF AVOCADO



Room/ Force Air Cooling.



5°C to 12°C (85 to 95% RH).

Characteristics		Grade 1	Grade 2	Grade 3
Size	Simmonds 	Minimum of 9cm (3.5") in diameter, height 13cm (5.5") & weight 0.53kg (1.2lb).	Minimum of 8cm (3") in diameter, height 13cm (5.5") & weight 0.51kg (1.1lb).	Size in this grade shall be less than the minimum for grade 2.
	Lula 	Minimum of 7.5cm (2.9") in diameter, height 12cm (4.75") & weight 0.33kg (0.7lb).	Minimum of 7.3cm (2.7") in diameter, height 11.5cm (4.5") & weight 0.31kg (0.68lb).	Size in this grade shall be less than the minimum for grade 2.
Colour		Colour typical of the variety.	Colour typical of the variety.	Colour typical of the variety.
Shape		Well-shaped to type. Not lopsided or otherwise deformed.	Fairly well-shaped. Not lopsided or otherwise deformed.	Fairly well-shaped.
Firmness		Ripe, yields to slight pressure.	Ripe, yields to slight pressure.	Ripe, yields to moderate pressure.

AVOCADO (PEAR)



- The following applies to all varieties mentioned above:

Characteristics	Grade 1	Grade 2	Grade 3
Appearance	Completely free from blemish, decay, insect injury, crack bruises, scars, sunscald, anthracnose and any other defects.	Completely free from decay, insect injury, crack bruises, scars, sunscald, and anthracnose.	Completely free from decay and anthracnose.

In addition to Simmonds and Lula, Jamaica also grows avocado varieties such as Collinson, Willowson, Blake, etc. However, Simmonds and Lula are the most common varieties in the commercial market. The standards mentioned above can be used as a guide to grade other varieties.

Unacceptable:

Anthracnose



Deformed



Cracks



Decay



Blemish



BREADFRUIT



Scope: This standard applies to commercial varieties of Breadfruit grown from *Artocarpus altilis* of the Moraceae family, to be supplied to consumers and for industrial processing in a state that fulfils the minimum requirements.

FACTORS WHICH CONTRIBUTE TO THE MAXIMUM SHELF LIFE OF BREADFRUIT



Room Cooling at 12°C.



12°C to 14°C (90 - 95 % RH).

Characteristics	Grade 1	Grade 2	Grade 3
Size	Minimum of 2.5kg (5.5lb) in weight.	Minimum of 1.5kg (3.3lb) in weight.	A range of sizes.
Colour	Light or pale green skin colour.	Light or pale green skin colour.	Light or pale green skin colour.
Shape	Well-shaped, typical of the variety. Not lopsided or otherwise deformed.	Fairly well-shaped to type.	A range of shapes within the variety.
Firmness	Does not yield to pressure.	Does not yield pressure.	Yield to moderate pressure.
Appearance	Completely free from bruises, decay, scars, latex stain & any other defects. Stem intact and cut not less than 2cm above the shoulder of the fruit.	Completely free from bruises, decay, scars, latex stain & any other defects. Stem intact and cut not less than 2cm above the shoulder of the fruit.	Free from decay only.

Unacceptable:

Severe Bruises



Anthraxnose



Pest Damage



Blemishes



CALLALOO



Scope: This standard applies to commercial varieties of Callaloo grown from *Amaranthus viridis* of the Amaranth family, to be supplied in a state that fulfils the minimum requirements of the consumers.



FACTORS WHICH CONTRIBUTE TO THE MAXIMUM SHELF LIFE OF CALLALOO



Hydrocooling.



2°C to 4°C (90 to 98% RH).

Characteristics	Grade 1	Grade 2	Grade 3
Size	Stem length of 10 to 15cm (4 to 6") below the canopy.	Stem length of 10 to 15cm (4 to 6") below the canopy.	Stem length of 15cm (6") below the canopy.
Colour	Green to dark green leaves.	Green leaves.	Light green leaves.
Appearance	Lush green to dark green turgid leaves. Evenly cut round stalk butt with no frayed end. Stalk must not be crushed or split. Completely free from pest, pest damage, yellow discolouration, flower buds and other defects.	Green turgid leaves. Evenly cut round stalk butt with no frayed end. Stalk must not be crushed, split or has a loss of more than 5% by weight of their green portion. Completely free from pest, pest damage, yellow discolouration, flower buds and other defects.	Light green leaves. Evenly cut round stalk butt with no frayed end. Stalk must not be crushed, split or has a loss of more than 10% by weight of their green portion. Completely free from pest, yellow discolouration. Five per cent (5%) leaf damage in the lot is allowed.

Unacceptable:

Worm Damage



Over Mature



Bacterial Rot



CARROT



Scope: This standard applies to commercial varieties of Carrot grown from *Daucus Carota* of the Apiaceae family, to be supplied in a state that fulfils the minimum requirements of the consumers.

FACTORS WHICH CONTRIBUTE TO THE MAXIMUM SHELF LIFE OF CARROT



Room Cooling/Force Air Cooling/
Hydrocooling.



0 °C (98 to 100% RH)

Characteristics	Grade 1	Grade 2	Grade 3
Size	Minimum of 12cm (4.75") in length and 2.5cm (1") in diameter at the crown.	Minimum of 12cm (4.75") in length and 2cm (0.75") in diameter at the crown.	Less than 12cm (4.75") in diameter and varying in length.
Colour	Orange colour, typical of the variety.	Orange colour, typical of the variety.	Orange colour, typical of the variety.
Shape	Well-shaped to type. Not crooked, lumpy or otherwise deformed.	Fairly well-shaped.	A range of shapes.
Firmness	Firm skin with no surface shrivelling.	Firm skin with no surface shrivelling.	Firm skin with no surface shrivelling.
Appearance	Well-trimmed, completely free from decay, pest diseases, green discolouration, sprouts, bruises growth crack and any other defects.	Fairly well-trimmed, completely free from decay, pest diseases, green discolouration, sprouts, bruises growth crack and any other defects.	Fairly well-trimmed, completely free from decay, diseases, sprouts and green discolouration.

Unacceptable:

Soft Rot



Mis-shaped



Root Knots



Green Discolouration



DASHEEN



Scope: This standard applies to commercial varieties of Dasheen grown from Colocasia Esculenta of the arum family (Araceae) , to be supplied in a state that fulfils the minimum requirements of the consumers.



Trimmed: The stem should be cut off leaving 4cm (1.5inches) of stalk attached to the dasheen corm. Cut off tail end of corm to leave 1.3cm (0.5inch) on the corm.

FACTORS WHICH CONTRIBUTE TO THE MAXIMUM SHELF LIFE OF DASHEEN



Room Cooling/Forced air cooling.



11°C to 13°C (85 to 90% RH).

Characteristics	Grade 1	Grade 2	Grade 3
Size	Weight of between 0.9kg to 1.1kg (2.5lb).	Weight of between 0.9kg (2lb) to 1.1kg (2.5lb).	A range of size.
Colour	Dark brown skin colour.	Dark brown skin colour.	Dark brown skin colour.
Shape	Well-shaped to type. Not crooked,lumpy or otherwise deformed.	Fairly well-shaped.	A range of shapes.
Firmness	Firm skin with no surface shrivelling.	Firm skin with no surface shrivelling.	Firm skin with no surface shrivelling.
Appearance	Well-trimmed, completely free from cracks, bruises, sprouts, decay, mould and any other defects.	Fairly well-trimmed, completely free from cracks, bruises, sprouts, decay, mould and any other defects.	Fairly well-trimmed, completely free from cracks, bruises, sprouts, decay, mould and any other defects.

Unacceptable:

Mechanical Damage



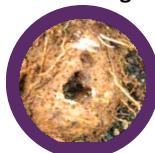
Sprout



Mould



Weevil Damage



GINGER



Scope: This standard applies to commercial varieties of Ginger grown from the *Zingiber officinale* Roscoe of the Zingiberaceae family, to be supplied in a state that fulfils the minimum requirements of the consumers.



FACTORS WHICH CONTRIBUTE TO THE MAXIMUM SHELF LIFE OF GINGER



Room Cooling/ Forced air cooling.



12°C to 14°C (85 to 90% RH).

Characteristics	Grade 1	Grade 2	Grade 3
Size	Not less than 0.18Kg (6.3oz) in weight.	Not more than 0.15kg (5.3oz) in weight.	Not more than 0.14kg (4.9oz) in weight and not less than 0.1kg (3.5 oz).
Colour	Skin gray brown and glossy. Flesh light yellow.	Skin gray brown and glossy. Flesh light yellow.	Skin gray brown and glossy. Flesh Light yellow.
Shape	Thick rhizome with maximum of 3 to 4 branches.	Thick rhizome with maximum of 4 to 5 branches.	Not more than 6 branches.
Firmness	Tough rhizome with no surface shrivelling.	Tough rhizome with no surface shrivelling.	Tough rhizome with slight surface shrivelling.
Appearance	Rhizome shall be well-trimmed. Completely free from decay, bruises, sprout, pest, green discolouration, damage, blemishes and any other defects.	Rhizome shall be well-trimmed. Completely free from decay, bruises, sprout, green discolouration damage, blemishes and any other defects.	Rhizome shall be completely free from decay, sprout and green discolouration.

Unacceptable:

Sprout



Mould



Rhizome Rot



Underdeveloped Ginger



GREEN CABBAGE



Scope: This standard applies to commercial varieties of Green Cabbage grown from Brassica Oleracea of the mustard family Brassicaceae, to be supplied in a state that fulfils the minimum requirements of the consumers.



FACTORS WHICH CONTRIBUTE TO THE MAXIMUM SHELF LIFE OF GREEN CABBAGE



Room Cooling/ Force Air Cooling.



0°C to 2°C (90 to 98% RH).

Characteristics	Grade 1	Grade 2	Grade 3
Size	Minimum weight of 0.7kg (1.5lb).	Minimum weight of 0.7kg (1.5lb).	Minimum weight of 0.7kg (1.5lb).
Shape	well-shaped. Not lopsided or otherwise deformed.	Fairly well-shaped.	Fairly well-shaped.
Appearance	Completely free of decay, doubles, cuts, pest, pest damage, growth cracks, well-trimmed, head with no more than 3 wrapper leaves and stem shall be cut, no more than 10mm below wrapper leaves.	Completely free of decay, pest, pest damage, growth cracks, well-trimmed, head with no more than 3 to 4 wrapper leaves and stem shall be cut no more than 10mm below wrapper leaves.	Fairly well-trimmed head with no more than 3 to 4 wrapper leaves.

Unacceptable:

Shrivelled



Black Rot



Pest Damage



ICEBURG LETTUCE



Scope: This standard applies to commercial varieties of Iceburg Lettuce grown from *Lactuca Sativa* of the Asteraceae family, to be supplied in a state that fulfils the minimum requirements of the consumers.



Lettuce Head: Must be trimmed so that the butt is cut 13mm (0.5inch) below the point of attachment of the last wrapper leaves.

FACTORS WHICH CONTRIBUTE TO THE MAXIMUM SHELF LIFE OF ICEBURG LETTUCE



Hydrocooling.



16°C to 18°C (85 to 95% RH).

Characteristics	Grade 1	Grade 2	Grade 3
Size	Minimum diameter of 10cm (4"). When packaged lettuce head must not vary by more than 5cm (2") in diameter.	Minimum diameter of 8.8cm (3.5"). When packaged lettuce head must not vary by more than 5cm (2") in diameter.	Minimum diameter of 7.6cm (3"). When packaged lettuce head must not vary by more than 5cm (2") in diameter.
Colour	Green in colour, typical of the variety.	Green in colour, typical of the variety.	Green in colour, typical of the variety.
Firmness	Compact but yields to slight pressure.	Yields to moderate pressure but is not spongy.	Yields to moderate pressure and the head is spongy.
Appearance	Well-trimmed, completely free from decay, discolouration, damage caused by bruises, split head, broken ribs and pest.	Fairly well-trimmed, completely free from decay, discolouration, serious damage caused by bruises, split head, broken ribs and pest.	Fairly well-trimmed, completely free from decay, discolouration, very serious damage caused by bruises, split head, broken ribs and pest.

Unacceptable:

Soft Rot



Bottom Rot



Anthraco



IRISH POTATO



Scope: This standard applies to commercial varieties of Irish Potato grown from *Solanum Tuberosum* L. of the Solanaceae family, to be supplied in a state that fulfils the minimum requirements of the consumers.



FACTORS WHICH CONTRIBUTE TO THE MAXIMUM SHELF LIFE OF IRISH POTATO



Room Cooling/ Forced Air Cooling.



7°C to 10°C (85 to 95% RH).

Characteristics	Grade 1	Grade 2	Grade 3
Size	4.5 to 6.5cm (2 to 2.5") in diameter.	6.6 to 9cm (2.5 to 3.5") in diameter.	Not less than 9cm (3.5") in diameter.
Colour	Good uniformity, typical of the variety.	Good uniformity, typical of the variety.	Good uniformity, typical of the variety.
Shape	Well-shaped to type. Not lopsided or otherwise deformed.	Fairly well-shaped.	A range of shapes within the variety.
Firmness	Does not yield to pressure.	Does not yield to pressure.	Does not yield to pressure.
Appearance	Completely free from decay, bruises, pest damage, green discolouration and other defects.	Completely free from decay, bruises, pest damage and green discolouration.	Free from decay, green discolouration, pest and pest damage.

Unacceptable:

Mechanical Damage



Decay



Green Discolouration



Scab



Growth Crack



MANGO



Scope: This standard applies to commercial varieties of Mangoes grown from the Mangifera Indica L. of the Anacardiaceae family, to be supplied in a state that fulfils the minimum requirements of the consumers.




FACTORS WHICH CONTRIBUTE TO THE MAXIMUM SHELF LIFE OF MANGO



Room Cooling/ Force air cooling.



10°C to 13°C (85 to 95% RH).

Characteristics		Grade 1	Grade 2	Grade 3
Size	East Indian 	Minimum of 0.366kg (13oz) in weight, 24cm (9.25") in diameter and 14cm (5.5") in length from stem to growth tip.	Minimum of 0.336kg (12oz) in weight, 23cm (9") in diameter and 14cm (5.5") in length from stem to growth tip.	Minimum of 0.262kg (9oz) in weight, 23cm (9") in diameter and 14cm (5.5") in length from stem to growth tip.
	St. Julian 	Minimum of 0.295kg (10oz) in weight, 23cm (9") in diameter and 13cm (5") in length from stem to growth tip.	Minimum of 0.262kg (9oz) in weight, 22cm (8.75") in diameter and 12cm (4.75") in length from stem to growth tip.	Minimum of 0.215kg (8oz) in weight, 21cm (8.25") in diameter and length 12cm (4.75") from stem to growth tip.
	Tommy Atkins 	Minimum of 0.743kg (26oz) in weight, 33cm (13") in diameter and 18cm (7.25") in length from stem to growth tip.	Minimum of 0.677kg (24oz) in weight, 33cm (13") in diameter and 16cm (6.25") in length from stem to growth tip.	A range of sizes.

MANGO



- The following applies to all varieties mentioned above:

Characteristics	Grade 1	Grade 2	Grade 3
Colour	Good uniformity, typical of the variety.	Good uniformity, typical of the variety.	Good uniformity, typical of the variety.
Shape	Typical of the variety. Not lopsided or otherwise deformed.	Typical of the variety. Not lopsided or otherwise deformed.	A range of shapes within the variety.
Firmness	Turning to semi-ripe.	Semi-ripe to ripe.	Ripe.
Appearance	Smooth, completely free from bruises, decay, scars, sunscald, pest damage and any other defects.	Smooth, completely free from bruises, decay, scars, sunscald, pest damage and any other defects.	Free from decay and pest damage.

In addition to East Indian and St. Julian, Jamaica cultivates mango varieties such as Number 11, Bombay, Haden, etc. However, East Indian and St. Julian are the dominant varieties in the commercial market. The standards mentioned above can be used as a guide to grade other varieties.

Unacceptable:

Anthraxnose



Mold & Insect Injury



Blemishes

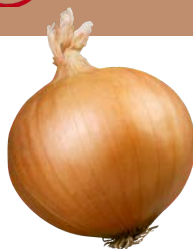


Onion



Scope: This standard applies to commercial varieties of Onion grown from *Allium Cepa* L. of the *Amaryllis* family (*Amaryllidaceae*), to be supplied in a state that fulfils the minimum requirements of the consumers.

Dry Cured: The removal of excess moisture from the wrapper scale leaves and neck of the onion.



FACTORS WHICH CONTRIBUTE TO THE MAXIMUM SHELF LIFE OF ONION



Hydrocooling/ Force air cooling.



10°C to 18°C (65 to 70% RH).

Characteristics		Grade 1	Grade 2	Grade 3
Size	Jumbo	Not less than 6cm (2.5") in diameter.	Not less than 6cm (2.5") in diameter.	Not less than 90mm (not less than 3.5") in diameter.
	Medium	4.5 to 6cm (2 to 2.5") in diameter.	4.5 to 6cm (2 to 2.5") in diameter.	4.5 to 6cm (2 to 2.5") in diameter.
	Small	3.5 to 4.4cm in diameter.	3.5 to 4.4cm in diameter.	3.5 to 4.4cm in diameter.
Colour		Uniformed colour, typical of the variety.	Uniformed colour, typical of the variety.	Uniformed colour, typical of the variety.
Shape		Well-shaped, typical of the variety, Not lopsided or otherwise deformed.	Fairly well-shaped, typical of the variety. Not lopsided or otherwise deformed.	A range of shapes within the variety.
Firmness		Onion is firm and does not yield to pressure.	Onion may yield to slight pressure.	Onion yield to moderate pressure.
Appearance		Well-trimmed. Completely free from decay, damage, loose scales, watery scales, blemish, sprout, root growth, doubles and any other defects.	Fairly well-trimmed. Completely free from decay, damage, bottled neck, watery scales, sprout, root growth, any other defects. Blemish should not exceed more than 5% of the surface area.	Fairly well-trimmed. Completely free from decay, sprout and serious damage. Blemish should not exceed more than 10% of the surface area.

Unacceptable:

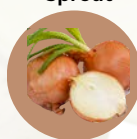
Decay



Botrytis Neck Rot



Sprout



PAPAYA



Scope: This standard applies to commercial varieties of Papaya grown from *Carica Papaya* L. of the *Caricaceae* family, to be supplied in a state that fulfils the minimum requirements of the consumers.

FACTORS WHICH CONTRIBUTE TO THE MAXIMUM SHELF LIFE OF PAPAYA



Room/Force Air Cooling.



7°C to 13°C (90 to 95% RH).

Characteristics	Grade 1	Grade 2	Grade 3
Colour	Good uniformity. Minimum of 50% of the papaya's surface shall have a yellow skin colour.	Good uniformity. Minimum of 50% of the papaya's surface shall have a yellow skin colour.	Papaya shows an external colour of at least a definite break from a dark green to light green skin colour.
Shape	Well-shaped to type. Oval to elongated.	Well-shaped to type. Oval to elongated.	A range of shapes.
Firmness	Yields to slight pressure.	Yields to moderate pressure.	Yields to moderate pressure.
Appearance	Stem should be well-trimmed, free from anthracnose, ring spot diseases, bruises, scars, blemish, decay and other defects.	Skin defects should not exceed 15% of the total surface.	Free from decay and anthracnose.

Unacceptable:

Anthracnose



Scars



Ringspot Disease



Decay



PUMPKIN



Scope: This standard applies to commercial varieties of Pumpkin grown from Cucurbita Pepo of the gourd family (Cucurbitaceae), to be supplied in a state that fulfils the minimum requirements of the consumers.



FACTORS WHICH CONTRIBUTE TO THE MAXIMUM SHELF LIFE OF PUMPKIN



Room Cooling.



10°C to 13°C (50 to 70% RH).

Characteristics	Grade 1	Grade 2	Grade 3
Size	Minimum 3.6kg (8lb) in weight.	Minimum 3.6kg (8lb) in weight.	A range of sizes.
Colour	Uniformed colour, typical of the variety. Same general colouration of skin for at least 90% of the surface area. Ground spot should not exceed 5%.	Uniformed colour, typical of the variety. Same general colouration of skin for at least 90% of the surface area. Ground spot should not exceed 10%.	Uniformed colour, typical of the variety. Same general colouration of skin for at least 85% of the surface area. Ground spot should not exceed 15%.
Shape	Well-shaped to type. Not lopsided or otherwise deformed.	Fairly well-shaped.	A range of shapes.
Firmness	Pumpkin does not yield to pressure.	Pumpkin does not yield to pressure.	Pumpkin does not yield to pressure.
Appearance	Stem intact, completely free from bruises, decay, scars, pest, pest damage and other defects.	Stem intact, completely free from bruises, decay, scars, pest, pest damage and other defects.	Free from decay, pest and pest damage.

Unacceptable:

Growth Crack



Pest Injury



Immature Pumpkin



SCOTCH BONNET PEPPER



Scope: This standard applies to commercial varieties of Scotch Bonnet Pepper grown from *Capsicum Chinense* of the Nightshade family, to be supplied in a state that fulfils the minimum requirements of the consumers.



FACTORS WHICH CONTRIBUTE TO THE MAXIMUM SHELF LIFE OF SCOTCH BONNET PEPPER



Room Cooling/ forced air cooling.



7°C-13°C (90-95% RH).

Characteristics	Grade 1	Grade 2	Grade 3
Size	Not less than 4.5cm (2") in diameter or a maximum of 20 peppers equivalent to 1lb.	Not less than 3.5cm (1.5") in diameter or a maximum of 25 peppers equivalent to 1lb.	Not less than 2.5cm (1") in diameter or a maximum of 30 peppers equivalent to 1lb.
Colour	Green, yellow, or combination of yellow and green depending on the stage of maturity.	Green, yellow, or combination of yellow and green depending on the stage of maturity.	Green, yellow, or combination of yellow and green depending on the stage of maturity.
Shape	Distinct cup and saucer shape with 3 to 4 lobes. Not crooked, lopsided or otherwise deformed.	Fairly well-shaped with 3 to 4 lobes.	Fairly uniform shaped.
Appearance	Completely free from bruises, decay, scar, sunscald, pest, pest damage, cracks, split and any other defects.	Completely free from bruises, decay, scar, sunscald, pest, pest damage, cracks, split and any other defects.	Free from decay, pest and pest damage.

Unacceptable:

Growth Cracks



Anthraxnose



Shrivelled



Sunscald



SWEET PEPPER



Scope: This standard applies to commercial varieties of Sweet Pepper grown from *Capsicum Annuum* L. of the Solanaceae family, to be supplied in a state that fulfils the minimum requirements of the consumers.



FACTORS WHICH CONTRIBUTE TO THE MAXIMUM SHELF LIFE OF SWEET PEPPER



Room Cooling/ Forced Air Cooling.



7°C to 10°C (90 to 95% RH).

Characteristics	Grade 1	Grade 2	Grade 3
Size	Minimum weight 0.115kg (4.1oz), 7.6cm (3") in diameter.	Minimum weight 0.084kg (2.9oz), 6.4cm (2.5") in diameter.	Minimum weight 0.084kg (2.9oz), 6.4cm (2.5") in diameter.
Colour	Green, yellow, red, orange or combinations of green and yellow, green and red or green and orange depending on the stage of maturity.	Green, yellow, red, orange or combinations of green and yellow, green and red or green and orange depending on the stage of maturity.	Green, yellow, red, orange or combinations of green and yellow, green and red or green and orange depending on the stage of maturity.
Shape	Well-shaped with 3 to 4 oblong well formed lobes, typical of the variety.	Fairly well-shaped with 3 to 4 distinctly formed lobes.	Fairly well-shaped. Lobes may not be distinctly formed.
Appearance	Well-trimmed, completely free from decay, pest diseases, discolouration, sprouts, bruises growth crack and any other defects.	Fairly well-trimmed, completely free from decay, pest diseases, discolouration, sprouts, bruises growth crack and any other defects.	Fairly well-trimmed, completely free from decay, diseases, sprouts and discolouration.

Unacceptable:

Sunscald



Anthraxnose



Bacterial Soft Rot



Growth Crack



SWEET POTATO



Scope: This standard applies to commercial varieties of Sweet Potato grown from Ipomoea Patatas of the Convolvulaceae family, to be supplied in a state that fulfils the minimum requirements of the consumers.

FACTORS WHICH CONTRIBUTE TO THE MAXIMUM SHELF LIFE OF SWEET POTATO



Room cooling/Forced air cooling/Hydrocooling.



18°C to 21°C (85 to 90% RH).

Characteristics	Grade 1	Grade 2	Grade 3
Size	Weight range of between 0.5kg to 1kg (1.1 to 2.2lb). Not less than 7.6cm (3") in diameter at the widest section.	Weight range of between 0.5kg to 1kg (1.1 to 2.2lb). Not less than 7.6cm (3") in diameter at the widest section.	A range of sizes.
Colour	Uniformed colour, typical of the variety.	Uniformed colour, typical of the variety.	Uniformed colour, typical of the variety.
Shape	Well-shaped to type. Not lopsided or otherwise deformed. Tuber tapered towards the ends.	Fairly well-shaped to type, tapered towards the ends.	A range of shapes within the variety.
Appearance	Well-trimmed, completely free from decay, pest damage, diseases, green discolouration, sprouts, bruises, growth cracks and any other defects.	Fairly well-trimmed, completely free from decay, pest damage, diseases, green discolouration, sprouts, bruises, growth cracks and any other defects.	Completely free from decay sprouts, discolouration, pest and pest damage.
Firmness	Does not yield to pressure.	Does not yield to pressure.	Yields to moderate pressure.

Unacceptable:

Weevil damage



Black Rot



Sprouting



Mishaped



THYME



Scope: This standard applies to the commercial varieties of Thyme grown from *Thymus Serpyllum* of the Lamiaceae family, to be supplied in a state that fulfils the minimum requirements of the consumers.

FACTORS WHICH CONTRIBUTE TO THE MAXIMUM SHELF LIFE OF THYME



Room Cooling.



7°C - 10°C (80 to 85% RH).

Characteristics	Grade 1	Grade 2	Grade 3
Size	Stalk length not more than 0.38cm (1.5") below the canopy.	Stalk length not more than 0.38cm (1.5") below the canopy.	Stalk length not more than 0.38cm (1.5") below the canopy.
Colour	Uniformed green to dark green leaves.	Green to light green leaves.	Light green leaves.
Appearance	Well-trimmed; completely free from yellowing, flower buds and any other defects.	Well-trimmed; completely free from yellowing, flower buds and any other defects.	Completely free from yellowing. The presence of flower buds on 1% of the lot is allowed.

Unacceptable:

Moldy Leaves



TOMATO



Scope: This standard applies to commercial varieties of Tomatoes grown from *Lycopersicon esculentum* Mill, of the Solanaceae family to be supplied in a state that fulfils the minimum requirements of the consumers.



FACTORS WHICH CONTRIBUTE TO THE MAXIMUM SHELF LIFE OF TOMATO



Room Cooling/ Force air cooling.



- Green: 12°C-22°C, (90-95% RH).
- Firm Ripe: 5°C-15°C (90-95% RH).

Characteristics		Grade 1	Grade 2	Grade 3
Size	Salad Tomato 	Minimum weight of 0.158kg (5.5oz), diameter 6.8 cm (2.7").	Minimum weight of 0.125g (4.4oz), diameter 4.4 cm (1.7").	Minimum weight of 0.093kg (3.3 ounces), diameter 4.4 cm (1.7").
	Plummy Tomato 	Minimum weight of 0.071kg (2.4oz), length 7.6cm (3"), diameter 4.4 cm (1.7").	Minimum weight of 0.055kg (1.9oz), length 6.5cm (2.6"), diameter 4cm (1.6").	Minimum weight of 0.038kg (1.3oz), length 6cm (2.4"), diameter 3.5cm (1.4").
Colour		Tomato must show an external colour of at least a definite break from a mature green straw ground colour.	Tomato must show an external colour of at least a definite break from a mature green straw ground colour.	Tomato may show an external colour variation.
Shape		Uniformed shape.	Uniformed shape.	Fairly well-shaped.
Firmness		Gives a feeling of springiness and pliability when pressure is applied.	Gives a feeling of springiness and pliability when pressure is applied.	Fairly springy when pressure applied.
Appearance		Smooth and completely free from decay, discolouration and damage caused by growth cracks, bruises, catfaces, cuts, sunscald, broken skin.	Smooth and completely free from decay, discolouration and serious damage caused by growth cracks, bruises, catfaces, cuts, sunscald, broken skin.	Fairly smooth and completely free from decay, discolouration and very serious damage caused by growth cracks, bruises, catfaces, cuts, sunscald, broken skin.

Unacceptable:

Sunscald



Growth Cracks



Insect Injury



Spotting



YAM



Scope: This standard applies to commercial varieties of Yam grown from *Dioscorea villosa*, *Dioscorea batatas* and *Dioscorea alata* of the *Dioscoreaceae* family, to be supplied in a state that fulfils the minimum requirements of the consumers.






FACTORS WHICH CONTRIBUTE TO THE MAXIMUM SHELF LIFE OF YAMS



Room Cooling.



13°C to 16°C (70 to 80% RH).

Characteristics		Grade 1	Grade 2	Grade 3
Size	Yellow Yam 	Minimum of 20cm (8") in length, 10cm (4") in diameter and 1.14kg (2.5lb) in weight.	Minimum of 19cm (7.5") in length, 8.9cm (3.5") in diameter and 0.91kg (2lb) in weight.	Minimum of 15cm (6") in length, 7.6cm (3") in diameter and 0.55kg (1.5lb) in weight.
	Negro Yam 	Minimum of 20cm (8") in length, 10cm (4") in diameter and 1.14kg (2.5lb) in weight.	Minimum of 19cm (7.5") in length, 8.9cm (3.5") in diameter and 0.91kg (2lb) in weight.	Minimum of 15cm (6") in length, 7.6cm (3") in diameter and 0.55kg (1.5lb) in weight.
	Sweet Yam 	Minimum of 1 kg (2.2lb) in weight.	Minimum of 1 kg (2.2lb) in weight.	Minimum 0.55kg (1.5lb) in weight.
Colour		Uniform coloured flesh, typical of the variety.	Uniform coloured flesh, typical of the variety.	Uniform coloured flesh, typical of the variety.
Shape		Cylindrical shape, typical of the variety. Not crooked or flattened.	Fairly well-shaped.	Fairly well-shaped.
Firmness		Tough skin with no surface shrivelling.	Tough skin with no surface shrivelling.	Fairly tough skin.
Appearance		Completely free of toes, white tip, worm, weevil, nematode damage, cracks, bruises, sprouts, decay, mould growth, and any other defects.	No more than 2 toes and 2 cut surfaces. Completely free of toes, white tip, nematode damage, cracks, bruises, sprouts, decay, mould growth, and any other defects.	Not more than 3 cut surfaces, 3 toes and 3cm white tip. Absence of decay and mould growth.

YAM



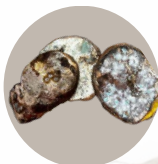
In addition to Yellow, Negro, and Sweet yams Jamaica grows other varieties such as Lucea. However, Yellow Yam, Negro Yam, and Sweet Yam are the most common varieties in the commercial market. The standards mentioned above can be used as a guide to grade other varieties.

Unacceptable:

Nematode Damage



Mould



Cracks



Mis-shaped



Immature



Mechanical Damage



Over 3 Toes and Cut Surfaces



Jamaica Agricultural Marketing Information System (JAMIS)

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