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**Dry pigeon peas — Specification**

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ARSO Central Secretariat  
International House 3rd Floor  
P. O. Box 57363 — 00200 City Square  
NAIROBI, KENYA

Tel. +254-20-2224561, +254-20-3311641, +254-20-3311608

E-mail: [arso@arso-oran.org](mailto:arso@arso-oran.org)  
Web: [www.arso-oran.org](http://www.arso-oran.org)

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ARSO Central Secretariat  
International House 3rd Floor  
P.O. Box 57363 — 00200 City Square  
NAIROBI, KENYA

Tel: +254-20-2224561, +254-20-3311641, +254-20-3311608

E-mail: [arso@arso-oran.org](mailto:arso@arso-oran.org)  
Web: [www.arso-oran.org](http://www.arso-oran.org)

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## Introduction

Pigeon pea [*Cajanus cajan* (L.)] is one of the oldest food crops and ranks fifth in importance among edible legumes of the world. Pigeon pea grows well in tropical and sub-tropical environments extending between 30° N and 30° S latitude with a temperature range of 20° to 40°C.

Pigeonpea has a huge untapped potential for improvement both in quantity and quality of production in Africa. More than any other legume adapted to the region, pigeonpea uniquely combines optimal nutritional profiles, high tolerance to environmental stresses, high biomass productivity and most nutrient and moisture contributions to the soil.

Pigeonpea remains one of the most drought-tolerant legumes and is often the only crop that gives some grain yield during dry spells when other legumes such as field beans will have wilted and perhaps dried up. The ability of pigeonpea to withstand severe drought better than many legumes is attributed to its deep roots and osmotic adjustment in the leaves. The legume also maintains photosynthetic function during stress better compared to other drought-tolerant legumes such as cowpea (*Vigna unguiculata* L. Walp.). Its unique polycarpic flowering habit further enables the crop to shed reproductive structures in response to stress.

Due to its drought resistance, the legume is increasingly becoming an important crop in the whole of Africa with production reported in more than 33 countries. A large market exists regionally and internationally for both whole and a range of processed pigeonpea products from Africa.

Pigeon peas are part of the strategic food commodity basket recognized by the declaration of the African Union Food Security Summit held in December 2006 in Abuja, Nigeria. This standard was harmonized as part of the response by the resolution of the AU Food Security Summit to harmonize standards and grades for strategic food commodities as a means of promoting and facilitating intra-African food trade. Such facilitation would lead to free movement of food commodities from areas of surplus to areas of deficit, leading to overall achievement of food and nutrition security, food self-sufficiency and socioeconomic development of the African continent.



## Dry pigeon peas — Specification

### 1 Scope

This African Standard specifies the requirements, methods of sampling and test for dry pigeon peas of the varieties (cultivars) grown from *Cajanus cajan* (L.) intended for human consumption. It does not apply to processed pigeon peas.

### 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ARS 53, *General principles of food hygiene — Code of practice*

ARS 56, *Pre-packaged foods — Labelling*

ISO 27085, *Determination of lead, cadmium, copper, iron and zinc in foods — Atomic absorption spectrophotometry after microwave digestion*

ISO 27085, *Determination of lead, cadmium, copper, iron and zinc in foods — Atomic absorption spectrophotometry after dry ashing*

CODEX STAN 193, *Codex general standard for contaminants and toxins in food and feed*

ISO 605, *Pulses — Determination of impurities, size, foreign odours, insects, and species and variety — Test methods*

ISO 24333, *Cereals and cereal products — Sampling*

ISO 24557, *Pulses — Determination of moisture content — Air-oven method*

### 3 Terms and Definitions

For the purpose of this standard the following definitions shall apply.

#### 3.1

##### **pigeon peas**

dry mature seeds of *Cajanus cajan* (L.)

#### 3.2

##### **broken pigeon peas**

pieces of pigeon peas that are less than three-quarters the size of a whole seed

#### 3.3

##### **damaged pigeon peas**

whole or broken pigeon peas that are sprouted, frost damaged, heated, damaged by insects, distinctly deteriorated or discoloured by weather or disease, or that are otherwise

#### 3.4

##### **shriveled/immature pigeon peas**

pigeon peas which are under developed and wrinkled over the entire surface

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## 3.5

### **discoloured pigeon peas**

### **pigeon peas which are damaged by heat, frost or water**

### **food grade packaging material**

material, made of substances which are safe and suitable for their intended use and which will not impart any toxic substance or undesirable odour or flavour to the product

## 3.7

### **foreign matter**

all organic and inorganic material (such as plant parts, sand, soil, glass, filth) other than pigeon peas

## 3.8

### **poisonous, toxic and/or harmful seeds**

any seed which if present in quantities above permissible limit may have damaging or dangerous effect on health, organoleptic properties or technological performance such as Jimson weed — *Datura* (*D. fastuosa* Linn and *D. stramonium* Linn.) corn cockle (*Agrostemma githago* L., *Machai Lallium remulenum* Linn.) Akra (*Vicia* species), *Argemone mexicana*, Khesari and other seeds that are commonly recognized as harmful to health

## 3.9

### **split peas**

broken pieces of pigeon peas that are less than three-quarters of the whole seed, and cotyledons that are loosely held together by the seed coat

## 3.10

### **mature seeds**

seeds that have reached physiological maturity

## 4 Requirements

### 4.1 General requirements

Pigeon peas shall be:

- (a) the dried mature seeds of *Cajanus cajan* (L.);
- (b) clean, well-filled, wholesome, uniform in size, shape, colour;
- (c) free from substances which render them unfit for human consumption;
- (d) free from abnormal flavours, musty, sour or other undesirable odour, obnoxious smell and discolouration;
- (e) free of pests, live animals, animal carcasses, animal droppings, fungus infestation, added colouring matter, moulds, impurities of plant and animal origin including insects, rodent hair and excreta and shall meet any other sanitary and phytosanitary requirements;
- (g) free from toxic, poisonous or harmful seeds that are commonly recognized as harmful to health.

### 4.2 Specific requirements

#### 4.2.1 Grading

Pigeon peas shall be graded into three grades on the basis of the tolerable limits established in Table 1 which shall be additional to the general requirements set out in this standard.



Table 1 — Specific requirements

Characteristics		Limits			Method of test
		Grade 1	Grade 2	Grade 3	
(1)	Foreign matter, % max m/m	0.5	1	2	ISO 605
(2)	Inorganic matter, % max m/m	0.1	0.5	0.7	
(3)	Broken/split pigeon peas, % max m/m	2	3	4	
(4)	Pest damaged pigeon peas, % max m/m	2	3	6	
(5)	Rotten and diseased pigeon peas, % max m/m	0.5	0.5	1	
(6)	Discoloured pigeon peas, % max m/m	1	1	3	
(7)	Immature/shriveled pigeon peas, % max m/m	1	2	3	
(8)	Filth, % max m/m	0.1	0.1	0.1	
(9)	Total defective pigeon peas, % m/m	5	7.8	13.9	
(10)	Moisture, % m/m	14.0	14.0	14.0	ISO 24557
NOTE 1 The parameter, total defective pigeon peas is not the sum total of the individual defects. It is limited to 70% of the sum total of individual defects.					

## 5 Contaminants

### 5.1 Heavy metals

Dry pigeon peas shall comply with those maximum limits for metal contaminants specified in CODEX STAN 193 and in particular those listed in Table 2.

Table 2 — Metal contaminants

S/N	Parameter	Limit (mg/kg max)	Test method
(1)	Lead (Pb)	0.1	ISO 27085
(2)	Cadmium (Cd)	0.1	ISO 27085

### 5.2 Pesticide residues

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

## 6 Hygiene

6.1 Dry pigeon peas shall be produced, prepared and handled in accordance with the provisions of appropriate sections of ARS 53.

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## 7 Packaging

7.1 Dry pigeon peas shall be packaged in suitable food grade packaging materials which shall be clean, sound, free from insect, fungal infestation and the packing material shall be of food grade quality and shall be securely closed and sealed.

7.2 Dry pigeon peas shall be packaged in packaged materials which will safeguard the hygienic, nutritional, technological and organoleptic qualities of the products.

7.3 Each package shall contain dry pigeon peas of the same type and of the same grade designation.

## 8 Labelling

### 8.1 General labelling

The following specific labelling requirements shall apply and shall be legibly and indelibly marked in accordance with the requirements of ARS 56:

- (i) product name as "Dry Pigeon Peas";
- (ii) variety;
- (iii) grade;
- (iv) name, address and physical location of the producer/ packer/importer;
- (v) lot/batch/code number;
- (vi) net weight, in SI units;
- (vii) the declaration "Food for Human Consumption"
- (viii) storage instruction as "Store in a cool dry place away from any contaminants";
- (ix) crop year;
- (x) packing date;
- (xi) instructions on disposal of used package;
- (xii) country of origin;
- (xiii) a declaration on whether the pigeon peas were genetically modified or not.

### 8.2 Labelling of non-retail containers

Information detailed in 8.1 shall be given either on the container or in accompanying documents, except that the name of the product, lot identification and the name and address of the processor or packer as well as storage instructions, shall appear on the container.

For products purchased for use by the buyer/retailer, at least the name of producer, lot number and/or 'crop year' shall be indicated on the container.

Lot identification and the name and address of the processor or packer may be replaced by an identification mark provided that such a mark is clearly identifiable with the accompanying documents.

## 9 Sampling methods

Sampling shall be done in accordance with the ISO 24333.

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Malawi Standard, MBS 400:1995, *Pigeon peas — Specification*

CODEX STAN 171:1989 (Rev. 1:1995), *Standard for Certain Pulses*

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Illustration of pigeon peas



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