

**KENYA STANDARD**

**KS 2290: 2023**

**Organic Fertilizer-Specification**

DRAFT KENYA STANDARD

THIRD EDITION

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## TECHNICAL COMMITTEE REPRESENTATION

The following organizations were represented on the Technical Committee:

Kenya plant Health Inspectorate service  
Kenya organic Agriculture Network  
Koppert Biological systems  
Sanergy limited  
Osho Chemicals  
Society of Crop Agribusiness Advisors  
Kenya Bureau of Standards-Secretariat

## REVISION OF KENYA STANDARDS

In order to keep abreast of progress in industry, Kenya Standards shall be regularly reviewed. Suggestions for improvements to published standards, addressed to the Managing Director, Kenya Bureau of Standards, are welcome.

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**KS 2290: 2023**

**Organic fertilizer -Specification**

DRAFT FOR PUBLIC REVIEW

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## Foreword

This Kenya standard was prepared by the Technical Committee on Organic farming and organic products under the guidance of the standards projects committee and it is in accordance with the procedures of the Kenya Bureau of standards.

Organic fertilizers are natural products used to provide plant nutrients. There are a number of organic fertilizers like farmyard manure, green manures, compost prepared from crop residues and other farm wastes, vermicompost, oil cakes, biological wastes - animal bones, slaughter house refuse and natural mineral deposits that include but not limited to phosphate rock, greensand, Epsom salt, calcium, limestone flour. Organic matter limits, moisture content requirements and zinc levels have been revised. The standard covers solid, liquid and natural minerals as organic fertilizers.

Recent Association of Official Analytical Chemists (AOAC) methods of analysis are adopted.

This standard has been prepared to promote safe use of organic fertilizers, promote fair trade practices and ensure safety of consumers.

During the preparation of this standard reference was made to the following documents:

EAS 456:2007-Organic products standard

FAO/AGL: fertilizer specifications, 2010

IFOAM Basic standards

PNS/BAFPS- 40:2013: Philippine National Standard For Organic Fertilizers

Acknowledgement is hereby made for assistance derived from these sources.

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**KENYA STANDARD**  
**Organic Fertilizer-Specification**

**1. Scope**

This Kenya standard specifies requirements for organic fertilizers

**2. Descriptive Terms:**

In the application of this standard the following definitions shall apply.

2.1 Organic matter

Biomass of animals and plants. For this reason, only products that are solely derived from organic matter may be identified or described as "organic".

2.2 Organic based product-

A product that contains at least 70% organic material.

2.3 Fertilizer

Any material of natural or synthetic origin that is applied to soils or plants to supply one or more plant nutrients. substance that increases soil fertility by supplying plant nutrients or by conditioning the soil with organic matter.

2.4 Organic fertilizer

A fertilizer that is either in solid or liquid form, naturally occurring in nature, which originates from organic material and those derived from natural mineral deposits. Organic fertilizers are substances that increases soil fertility by supplying plant nutrients or by conditioning the soil. Examples include : farmyard manure, green manure, compost, guano, alfalfa meal, bone meal, blood meal, feather meal and sea weed meal, night soil, biogas slurry, humic acid, urine based, fluvic acid and other materials found in nature.

2.5 Natural mineral fertilizer

Materials that are directly mined from mineral deposits and only subjected to physical processes such as crushing and drying. Examples of these materials may include: phosphate rock; gypsum; Sulphate of potassium-magnesia and any other natural mineral deposits.

## 2.6 Manure

mixture of litter and/or dung in process of biological change

## 2.7 Farmyard manure

A decomposed mixture of livestock dung and urine with straws and litter used as bedding material and residues from the fodder fed to livestock

## 2.8 Green manure

A crop that is incorporated into the soil for the purpose of soil improvement and which may include spontaneous crops, plants or weeds

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## 2.9 Compost

Well decomposed organic wastes like plant residues, animal slurry from livestock sheds

## 2.10 Bone meal

Fertilizer made from degreased bone which may be degelatinized and has been ground or crushed

## 2.11 Guano

Well decomposed accumulated and mined excrements of birds, bats and seals valued as fertilizers

## 2.12 Blood meal

This is dried, powdered blood collected from livestock slaughterhouses.

## 2.13 Fish emulsion fertilizer

A partially decomposed blend of finely pulverized fish

## 2.14 Cottonseed meal

Milled cotton seeds used as a fertilizer

## 2.15 Sewage sludge

A recycled product of sewage treatment plants

## 2.16 Night soil

Human urine and faeces collected separately from each other or mixed with flush water and amendments such as soil, ash other organic matter.

## 2.17 Biosolids

Organic material from sewage and related materials recycled and treated for use as a fertilizer

## 2.18 Vermicompost

Product or process of composting using various worms such as earthworms to create a heterogenous mixture of decomposing vegetable or food waste, bedding materials.

#### 2.19 Plant extracts

Substances with desirable properties that are derived from plant tissues used as organic fertilizers.

### 3.0 General requirements

#### 3.1. General requirements

3.1 Organic fertilizer shall be practically free from foul smell

3.2 Organic fertilizers shall be homogenous in nature

3.3 Organic fertilizer shall not contain more than the maximum allowed substances such as residual hormones, antibiotics, and pesticides,

3.4 Organic fertilizer shall not contain any pathogenic organisms which could affect plants, animals, human being and the environment

3.5 The carrier used for organic fertilizer shall not be of a nature that is harmful to plants, animals, human being and the environment

3.6 All raw manures shall be subjected to appropriate treatment

3.7. Dog and cat manures as well as untreated human waste shall not be used as fertilizers

3.8 The fertilizer shall be free from foreign matter such as plastics, aluminium, wrappers, stones, weed seeds etc.

#### 3.2. Specific Quality Requirements

3.2.1 Organic fertilizers shall conform to the composition requirements;

Table 1: Compositional requirements for solid organic fertilizers\*

| SL/NO | PARAMETER                                | LIMIT   |
|-------|--|---------|
| i     | pH                                       | 5.5-8.5 |
| ii    | Carbon: Nitrogen ratio                   | ≤ 25:1  |
| iii   | Moisture content                         | 15-40%  |
| iv    | Temperature                              | 20-30°C |
| v     | Nitrogen                                 | >1%     |
| Vi    | Organic matter content                   | 20-70 % |
|       |  |         |
| viii  | Total primary nutrients(NPK),% by weight | ≥3.5    |

\* For Natural Based mineral fertilizers, reference should be made to relevant Kenya standards for Natural fertilizers.

**3.2.2.** Organic plant supplements shall comply with the compositional requirement given in table 2.

Table 2: Compositional requirements for organic plant supplements

| SL/NO | PARAMETER                                | LIMIT   |
|-------|--|---------|
|       | Ph                                       | 5.5-8.5 |
|       | Temperature                              | ≤30°C   |
|       | Nitrogen                                 | >1%     |
|       | Total primary nutrients(NPK),% by weight | ≥3.5    |

### 3.2.3 Secondary Plant Nutrients

Secondary Plant Nutrients must not be identified and guaranteed if they are not present in at least the following concentrations:

Table 3-concentrations for secondary plant nutrients

| ELEMENT          | LIMIT     |
|------------------|-----------|
| Calcium(%)       | ≥1.0000   |
| Magnesium (%)    | ≥0.5000   |
| Sulphur (%)      | ≥1.0000   |
| Boron (ppm)      | 20-140    |
| Cobalt (ppm)     | 0.5-1.0   |
| Copper (ppm)     | 8-300     |
| Iron (ppm)       | 1000-2500 |
| Manganese (ppm)  | 200-800   |
| Molybdenum (ppm) | 0.5-1.0   |
| Zinc (ppm)       | 40-300    |

### 4.0. Heavy Metal contaminants

Metal contaminants if present shall conform to the following limits



|      | PARAMETER     | LIMIT, mg/kg |
|------|---------------|--------------|
| i)   | Arsenic, max  | 10           |
| ii)  | Cadmium, max  | 5            |
| iii) | Chromium, Max | 50           |
| iv)  | Copper ,max   | 300          |
| v)   | Lead          | 30           |
|      | Mercury       | 0.1          |
|      | Nickel        | 50           |

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## 5.0 Hygiene

The fertilizer shall be free from pathogenic organisms. Where applicable, the product shall also comply with microbiological limits in the following table:

| Microorganisms      | Allowable Level |
|---------------------|-----------------|
| E.coli              | 1000 cfu/g      |
| Salmonella          | Nil             |
| Faecal streptococci | <500 cfu/g      |
| Infective parasites | Nil             |

## 4.0. Packaging

**4.1.1** The organic fertilizer shall be packaged in materials that ensure the product integrity and quality.

**4.1.2.** The fill of the package shall comply with the Weight and measures Act CAP 513 of the Laws of Kenya.

## 5.0 Environment

The disposal of condemned organic fertilizer and used packaging shall be done as stipulated in the Environmental Management and Coordination Act (EMCA,1999), Public Health Act, Cap 242 and The Plant Protection Act, Cap 324 of the Laws of Kenya.

## 6.0. Labelling

**The packages shall be legibly and indelibly labelled with the following information:**

- i) Product name,
- ii) Brand name
- iii) Net weight
- iv) Batch number,
- v) Manufacturer/importer name and (contacts) physical address, telephone/email/fax.:

Vi) Nutrient content

i. Carbon/Nitrogen ratio

ii. Organic matter content

Moisture content

vi) Date of manufacture

vii) Expiry date/Best before Date

viii) Instructions for use eg Rate, frequency, time, method of application etc

ix) Ingredients

x) Storage conditions

xi) Directions on Disposal

xii) Compatibility

xiii) Declaration on GMO Status

xiv) Liability clause and guarantee analysis

## 5.2 Other labelling guidelines

a) Testimonials/Endorsements

The public has no way of evaluating the status of the endorser in relation to a product. For this reason, testimonials and endorsements will be viewed as claims and evaluated accordingly.

b) Other Claims

Any reference to the activity of a product containing plant nutrients that is not generally associated with its nutritional value must be substantiated with statistically significant efficacy data.

c)

e) Where the product does not contain all 3 major plant nutrients, the label should carry a statement indicating that some plants may require an additional source of the nutrient(s) that are lacking.

f) Blanket statements suggesting that the product is completely safe and non-toxic to humans, animals or the environment must not appear on the label unless verified and approved

REVIEW

ANNEXXE A (INFORMATIVE)

**SUBSTANCES THAT MAY BE USED AS FERTILIZERS OR SOIL CONDITIONERS**

| <b>S/NO</b> | <b>SUBSTANCE</b>            | <b>DESCRIPTION; COMPOSITIONAL REQUIREMENTS; CONDITIONS OF USE</b>  |
|-------------|-----------------------------|--|
| I           | Farmyard and poultry manure | <p>Products comprising a mixture of animal excrements and vegetable matter (animal bedding).</p> <p>Indication of animal species.</p> <p>Coming from extensive farming, but if sourced from intensive farming or not sourced from organic production systems, need recognition by the approved certifying organisation and shall be composted.</p> |

| S/NO | SUBSTANCE   | DESCRIPTION; COMPOSITIONAL REQUIREMENTS; CONDITIONS OF USE  |
|------|---|---|
| ii   | Slurry or urine (not from human origin)   | If not from organic farming sources, need recognition by the approved certifying organisation.<br>Use after controlled fermentation and/or appropriate dilution.<br>Factory farming sources not permitted.<br>Indication of animal species.   |
| iii  | Composted animal excrements, including poultry manure                                 | Need recognition by the approved certifying organisation.<br>Indication of animal species.  |
| v    | Dried farmyard manure and dehydrated poultry manure                                   | Need recognition by the approved certifying organisation.<br>Indication of animal species.<br>Coming from extensive farming, but if from intensive farming sources it must be composted.  |
| vi   | Guano   | Need recognition by the approved certifying organisation.   |
| vii  | Straw   | Need recognition by the approved certifying organisation.   |
| viii | Composts from spent mushroom & dejecta of worms and insects (vermiculture substrates) | The initial composition limited to products on this list.   |
| ix   | Composted or fermented organic household refuse                                       | Organic vegetable and animal waste separated from household waste, which has been subjected to composting or anaerobic fermentation for biogas production.<br>Need recognition by the approved certifying organisation.<br>Maximum concentrations in mg/kg of dry matter: Cadmium: 0,7; Copper: 70; Nickel: 25; Lead: 45; Zinc: 200; Mercury: 0,4; Chromium (total): 70; Chromium (VI): 0(*).<br>(* ) = limit of determination. |

| S/NO | SUBSTANCE   | DESCRIPTION; COMPOSITIONAL REQUIREMENTS; CONDITIONS OF USE   |
|------|---|--|
|      |   |  |
| x    | Composted or fermented plant residues   | Need recognition by the approved certifying organisation.<br>Mixtures of plant matter which has been subjected to composting or anaerobic fermentation for biogas production.  |
| xi   | Products and by-products of animal origin from slaughterhouses & fish industries: <ul style="list-style-type: none"> <li>- blood meal</li> <li>- hoof meal</li> <li>- horn meal</li> <li>- bone meal or degelatinised bone meal</li> <li>- fish meal</li> <br/> <li>- meat meal</li> <li>- feather, hair and "chiquette" meal</li> <li>- wool</li> <li>- fur</li> <br/> <li>- hair</li> <li>- dairy products</li> </ul> | Need recognition by the approved certifying organisation. <ul style="list-style-type: none"> <li>-</li> <li>-</li> <li>-</li> <li>-</li> </ul> Heavy metal contamination monitoring necessary. <ul style="list-style-type: none"> <li>-</li> <li>-</li> <li>-</li> </ul> maximum concentration in mg/kg of dry matter of Chromium (VI):0 (*).<br>(*) = limit of determination <ul style="list-style-type: none"> <li>-</li> <li>-</li> </ul> |
| xii  | By-products of food & textile industries  | Not treated with synthetic additives.<br>Need recognition by the approved certifying organisation.   |
| xiii | Seaweeds and seaweeds products  | Need recognition by the approved certifying organisation.<br>Directly obtained by -- physical processes; extraction with water or acid and/or alkaline solution; and fermentation.   |
| xiv  | Sawdust, bark and wood waste  | From wood not chemically treated after felling.  |

| <b>S/NO</b> | <b>SUBSTANCE</b>   | <b>DESCRIPTION; COMPOSITIONAL REQUIREMENTS; CONDITIONS OF USE</b>  |
|-------------|--|--|
| xv          | Wood ash   | From wood not chemically treated after felling.  |
| xvi         | Natural phosphate rock   | Need recognition by the approved certifying organisation.<br>Cadmium should not exceed 90 mg/kg of P <sub>2</sub> O <sub>5</sub> .                   |
| xv          | Basic slag   | Need recognition by the approved certifying organisation.  |
| xvi         | Rock potash, mined potassium salts (e.g. kainite, sylvinite)   | Need recognition by the approved certifying organisation.  |
| xvii        | Potassium sulphate, possibly containing magnesium salt   | Obtained by physical procedures but not enriched.<br>Need recognition by the approved certifying organisation.<br>Derived from crude potassium salt. |
| xviii       | Calcium carbonate of natural origin (e.g. chalk, marl, maerl, limestone, phosphate chalk)            | -  |
| xix         | Magnesium and calcium carbonate of natural origin (e.g. magnesian chalk, ground magnesium limestone) | -<br>-   |
| xx          | Industrial lime from sugar production  | Need recognition by the approved certifying organisation.  |
| xxi         | Epsom salt (magnesium-sulphate)  | -Only of natural origin  |
| xxii        | Gypsum (calcium sulphate)  | Only of natural origin.  |
|             | Stillage and stillage extract  | Ammonium stillage excluded.  |
| xxiii       | Sodium chloride  | Only mined salt.<br>Need recognition by the approved certifying organisation.  |

| <b>S/NO</b> | <b>SUBSTANCE</b>  | <b>DESCRIPTION; COMPOSITIONAL REQUIREMENTS; CONDITIONS OF USE</b>  |
|-------------|---|--|
| xxiv        | Aluminium calcium phosphate   | Cadmium should not exceed 90 mg/kg of P <sub>2</sub> O <sub>5</sub> .<br>Use limited to basic soils (pH > 7,5).                          |
| xxv         | Trace elements (e.g. boron, copper, iron, manganese, molybdenum, zinc)    | Need recognition by the approved certifying organisation.  |
| xxvi        | Sulphur   | Need recognition by the approved certifying organisation.  |
| xxvii       | Stone meal  | -  |
| xxviii      | Clay (e.g. bentonite, vermiculite, perlite, zeolite)                      | -  |
| xxix        | Naturally occurring biological organisms (e.g. worms)                     | -  |
| xxx         | Peat  | Excluding synthetic additives; permitted for seed, potting module composts (limited to horticulture).                                    |
| xxxi        | Calcium chloride solution   | Need recognition by the approved certifying organisation.<br>Foliar treatment of apple trees after identification of deficit of calcium. |
| xxxii       | By-products of industries processing ingredients from organic agriculture | Need recognition by the approved certifying organisation.  |
| xxxiii      | Night soil/faeces and material containing faecal matter                   | Subjected to either of the following treatments:<br>composting, incineration/drying, anaerobic digestion and ammonia treatment           |
| xxxiv       | Sewage Sludge   | Subjected to anaerobic digestion/fermentation, composting or long time treatments  |
| xxxv        | Human urine   | Proper storage (based on the action of ammonia in combination with temperature).   |

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