**KENYA STANDARD**

**DKS 2325-1: 2021**
ICS 65.120

# Rabbit feed — Specification

# Part 1. Complete feed

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The following organizations were represented on the Technical Committee:

Ministry of Livestock Development — Department of Livestock Production
Kenyatta University — Department of Animal Science
Kenya Agricultural and Livestock Research Organization (KALRO)
Kenya Industrial Research and Development Institute (KIRDI)
National Public Health Laboratories
Unga Farm Care E.A. Ltd.
Mombasa Maize Millers Ltd
Modern Ways Ltd.
Pet Pal Ltd
Consumer Information Network
Department of Veterinary Services
Association of Kenya Feed Manufacturers — AKEFEMA
Government Chemist's Department
Pioneer Feeds Ltd.
Pembe Feeds
Bureau of Veritaus
Pulucon Ltd
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## Foreword

This Kenya Standard was prepared by the Animal Feeds Technical Committee under the guidance of the Standards Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of Standards.

It is expected that manufacturers will select their raw materials with both qualities of the product and economy of production in mind. The choice of raw materials mixtures will therefore vary according to the locality, season and availability of the ingredients.

Proper formulation of diets for rabbits depends on adequate knowledge of their nutrient requirements.

This standard is intended to ensure that the diets of rabbits contain adequate amounts of nutrients and that the intakes of certain nutrients are not excessive that they inhibit performance or impair health.

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

The nutrient requirements of rabbit — Published by National Academy of Sciences, Washington DC, Second revised Edition, 1977.

Provet Healthcare Information — United Kingdom; *Feeding Rabbits (1999 – 2011)*

Rabbit Nutrition: Diet requirements and feeding rabbits at different life stages – National Academies Press - USA; By Drs. Foster & Smith.

The assistance received from these sources is acknowledged with thanks.

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# Complete Rabbit feed — Specification

## 1 Scope

This Kenya Standard specifies requirements for complete rabbit feed used as a sole source of nutrients for rabbits.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 5983-1, *Animal feeding stuffs — Determination of nitrogen content and calculation of crude protein content — Part 1: Kjeldahl method*

ISO 5985, *Animal feeding stuffs — Determination of ash insoluble in hydrochloric acid*

ISO 6490-1, *Animal feeding stuffs — Determination of calcium content — Part 1: Titrimetric*

*method*

ISO 6491, *Animal feeding stuffs — Determination of phosphorus content — Spectrometric*

*method*

ISO 6492, *Animal feeding stuffs — Determination of fat content*

ISO 6495, *Animal feeding stuffs — Determination of water-soluble chlorides content*

ISO 6496, *Animal feeding stuffs — Determination of moisture and other volatile matter content*

ISO 6497, *Animal feeding stuffs — Sampling*

ISO 6865, *Animal feeding stuffs — Determination of crude fibre content — Method with intermediate filtration*

*ISO 5984 Animal feeding stuffs — Determination of crude ash*

ISO 13903, *Animal feeding stuffs — Determination of amino acids content*

ISO 14565, *Animal feeding stuffs — Determination of vitamin A content — Method using high-performance liquid chromatography*

ISO 14718, *Animal feeding stuffs — Determination of aflatoxin $B_1$ content of mixed feeding stuffs — Method using high-performance liquid chromatography*

ISO 17375, *Animal feeding stuffs — Determination of aflatoxin $B_1$*

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ISO 16050, *Foodstuffs — Determination of aflatoxin B1, and the total content of aflatoxins B1, B2, G1 and G2 in cereals, nuts and derived products — High-performance liquid chromatographic method*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:
— ISO Online browsing platform: available at http://www.iso.org/obp

**3.1**
**rabbit**
Small mammals in the family *Leporidae* of the order *Lagomorpha*

**3.2**
Female diet
Diet for does from moment of 1st serving continuously

**3.3**
Weaner/pre grower diet
Diet during the 1st weeks after weaning

**3.4**
Grower/ finisher diet ‘

Diet for meat rabbits from weaning to slaughter and reproduction does until 1st service.

Bucks are also fed this diet.

## 4 Requirements

### 4.1 General Requirements

**4.1.1** Complete rabbit feed may be in form of a meal (or mash), cubes or pellets.

**4.1.2** The feed shall be free from harmful constituents, metallic objects, adulterants, fungi, pathogenic bacteria or insect infestation and free from fermented, musty, rancid or any other objectionable odour.

**4.1.3** No antibiotics shall be added to complete rabbit feed.

**4.1.4** No hormones shall be added to rabbit feeds

**4.1.5** Only feed additives accepted internationally and approved by O.I.E. for use in animal feeds shall be incorporated in compounded rabbit feeds

NOTE O.I.E. is French abbreviation for World Organization for Animal Health.

### 4.2 Specific requirements

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Complete rabbit feed shall conform to the requirements given in Table 1.

**Table 1 — Nutrients requirements for complete rabbit feed**

| Nutrient | Female diet | | weaner/pre grower diet | | grower/finisher diet | | Test Method |
|---|---|---|---|---|---|---|---|
| | min | max | min | max | min | Max | |
| Moisture (%) | - | 13 | - | 13 | - | 13 | ISO 6496 |
| Crude ash | - | 10 | - | 10 | - | 10 | ISO 5984 |
| Acid insoluble Ash (%) | - | 5 | - | 5 | - | 5 | ISO 5985 |
| Crude Fat (%) | 3 | 6 | 2 | 4 | 2 | 5 | ISO 6492 |
| Crude protein (%) | 15 | 18 | 15 | 18 | 14 | 17 | ISO 5983 |
| Crude fiber (%) | 14 | 18 | 15 | 20 | 14 | 18 | ISO 6865 |
| Nitrogen Free Extract | 40 | - | 42 | - | 42 | - | Annex III |
| Calcium (%) | 0.9 | 1.3 | 0.7 | 1.0 | 0.6 | 1.0 | ISO 6490 |
| Total Phosphorus (%) | 0.5 | - | 0.5 | - | 0.4 | - | ISO 6491 |
| Sodium Chloride (%) | 0.2 | - | 0.2 | - | 0.2 | - | ISO 6495 |

## 5. Contaminants

### 5.1 Aflatoxin

Complete Rabbit feeds shall comply with the limits of aflatoxin stated in Table 2 when tested in accordance with the methods specified therein.

**Table 2 — Maximum limits for aflatoxin**

| S/N | Aflatoxin | Maximum limit, µg/kg | Test method |
|---|---|---|---|

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| | | | |
|---|---|---|---|
| i. | Total aflatoxin | 20 | ISO 16050 |
| ii. | Aflatoxin B1 | 5 | ISO 14718<br>ISO 17375 |

### 5.2 Pesticide residues

Complete Rabbit feeds shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for the ingredient used in rabbit feeds.

#### 5.3 Heavy metals

Complete Rabbit feeds shall comply with the limits of heavy metals as specified in the Table 3 when tested in accordance with the methods specified therein.

**Table 3 — Limits for heavy metals in complete feed**

| S/N | Heavy metal | Maximum limit, mg/kg | Test method |
|---|---|---|---|
| i. | Arsenic | 2.0 | AOAC[a] |
| ii. | Lead | 5.0 | |
| iii. | Cadmium | 1.0 | |
| iv. | Mercury | 0.1 | |
| [a] Association of Official Analytical Chemists Methods. | | | |

## 6 Packaging and labelling

## 6.1 Packaging

**6.1.1** Complete rabbit feed for sale shall be packed in containers which are of sufficient strength and sufficiently sealed so as to withstand reasonable handling without tearing, bursting or falling open during normal handling and transportation.

**6.1.2** Each container for rabbit feeds shall be clean and free from visible indications of contamination, infection and insect infestation.

#### 6.2 Labelling

The packages shall be securely closed and marked with the following information:

i) Name of product;


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ii) Category of animals for which it is intended;

iii) Net weight of the product;

iv) Batch number;

v) Name and physical address of the manufacturer;

vi) Date of manufacture and expiry;

vii) Nutrients declaration as crude protein, crude fibre and crude fat

viii) Instructions for use and storage;

ix) Feeding rate must be displayed in g/head/day;

x) Declaration for unique attributes for custom made products shall be declared on packaging.

**7 Sampling**

Representative samples shall be drawn in accordance with ISO 6497.

ANNEX I

**(Informative)**

**Recommended levels of added micro-ingredients for rabbit feed**

| | |
|---|---|
| Vit A (IU/kg) | 6000 |
| vit D3 (IU/kg) | 750 |
| vit E or equivalents (IU/kg) | 20 |
| vit K (mg/kg) | 1 |
| vit B1, thiamine (mg/kg) | 1 |
| vit B2, riboflavin (mg/kg) | 4 |
| vit B6, pyridoxine (mg/kg) | 2 |
| vit B12 (mcg/kg) | 10 |
| niacin (mg/kg) | 20 |
| panthotenic acid (mg/kg) | 10 |
| folic acid (mg/kg) | 2.5 |
| biotin (mcg/kg) | 50 |
| choline (mg/kg) | 100 |
| Cu (mg/kg) | 8 |
| Zn (mg/kg) | 50 |
| Mn (mg/kg) | 10 |
| I (mg/kg) | 0.5 |
| Fe (mg/kg) | 50 |
| Se (mg/kg) | 0.05 |

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ANNEX II
**(Informative)**

**Recommended levels for essential amino acids in complete rabbit feed.**

| | **female** | **weaner/ pre grower** | **grower/ finisher** |
|---|---|---|---|
| Lysine (Min) | 0.65 | 0.65 | 0.55 |
| Methionine + Cystine (Min) | 0.55 | 0.55 | 0.5 |
| Arginine (Min) | 0.7 | 0.8 | 0.7 |

ANNEX III

**(Normative)**
**Method of Test for Nitrogen Free Extract**

**To calculate use the formula below.**

Nitrogen Free Extract = (100- **Moisture** -**crude ash**- **crude fat** - **crude protein** - **crude fiber**)

NFE =100 **minus** (moisture) **minus (**crude ash) **minus** (crude fat) **minus** (crude protein) **minus** (crude fibre)

-Moisture

-Crude Ash

-Crude fat

-Crude protein

-Crude fiber

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