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## **DRAFT EAST AFRICAN STANDARD**

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**Compounded horse feed — Specification**

**EAST AFRICAN COMMUNITY**

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## Contents

Page

Foreword .....	iv
<b>1 Scope .....</b>	<b>1</b>
<b>2 Normative references .....</b>	<b>1</b>
<b>3 Terms and definitions .....</b>	<b>2</b>
<b>4 Requirements .....</b>	<b>2</b>
<b>4.1 General requirements .....</b>	<b>2</b>
<b>4.1.1 Ingredients for horse feed .....</b>	<b>2</b>
<b>4.1.2 General quality requirements .....</b>	<b>3</b>
<b>4.2 Composition of horse feed .....</b>	<b>3</b>
<b>4.3 Specific requirements .....</b>	<b>3</b>
<b>5 Feed additives .....</b>	<b>3</b>
<b>6 Contaminants .....</b>	<b>4</b>
<b>6.1 Aflatoxins .....</b>	<b>4</b>
<b>6.2 Pesticide residues .....</b>	<b>4</b>
<b>6.3 Heavy metals .....</b>	<b>4</b>
<b>7 Hygiene .....</b>	<b>5</b>
<b>8 Packaging .....</b>	<b>5</b>
<b>9 Labelling .....</b>	<b>5</b>
<b>10 Sampling .....</b>	<b>6</b>
<b>Annex A (informative) Description of common feedstuffs .....</b>	<b>7</b>
<b>Annex B (informative) Micro nutrients in compounded horse feed .....</b>	<b>10</b>

## Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the Principles and procedures for development of East African Standards.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

The committee responsible for this document is Technical Committee EASC/TC 001, *Animal feeds and feeding stuffs*.

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.

# Compounded horse feed — Specification

## 1 Scope

This Draft East African Standard specifies requirements, sampling and test methods for compounded horse feed.

## 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.

ISO 5510, *Animal feeding stuffs — Determination of available lysine*

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

ISO 5983-2, *Animal feeding stuffs — Determination of nitrogen content and calculation of crude protein content — Part 2: Block digestion/steam distillation method*

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

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 6498, *Animal feeding stuffs — Preparation of test samples*

ISO 6651, *Animal feeding stuffs — Semi-quantitative determination of aflatoxin B<sub>1</sub> — Thin-layer chromatographic method*

ISO 6654, *Animal feeding stuffs — Determination of urea content*

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

ISO 6866, *Animal feeding stuffs — Determination of free and total gossypol*

ISO 7485, *Animal feeding stuffs — Determination of potassium and sodium contents — Methods using flame-emission spectrometry*

ISO 9831, *Animal feeding stuffs, animal products, and faeces or urine — Determination of gross calorific value — Bomb calorimeter method*

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<sub>1</sub> content of mixed feeding stuffs — Method using high-performance liquid chromatography*

ISO 17375, *Animal feeding stuffs — Determination of aflatoxin B<sub>1</sub>*

ISO 16050, *Foodstuffs -- Determination of aflatoxin B<sub>1</sub>, and the total content of aflatoxins B<sub>1</sub>, B<sub>2</sub>, G<sub>1</sub> and G<sub>2</sub> in cereals, nuts and derived products -- High-performance liquid chromatographic method*

### 3 Terms and definitions

For the purposes of this standard, the following terms and definitions shall 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

##### **compounded feed**

mixture of at least two feed ingredient, whether or not containing feed additives, for oral animal feeding in the form of a complementary feed or a complete feed

#### 3.2

##### **feed (feedingstuff)**

any single or multiple materials, whether processed, semi-processed or raw, which is intended to be fed directly to food producing animals

#### 3.3

##### **feed ingredient**

component part or constituent of any mixture making up a feed, whether or not it has a nutritional value in the animal's diet, including feed additives

Note 1 to entry: Ingredients are of plant, animal or aquatic origin, or other organic or inorganic substances.

## 4 Requirements

### 4.1 General requirements

#### 4.1.1 Ingredients for horse feed

4.1.1.1 All ingredients and raw materials shall be and not decomposed or deteriorated and shall comply with the relevant East Africa standards.

4.1.1.2 Ingredients of animal origin shall be sterilised before use.

**4.1.1.3** Where soybean meal is used it shall have been subjected to adequate heat treatment to reduce the activity of trypsin inhibitor.

**4.1.1.4** Vitamin preparations added to feed shall be in stabilised form.

#### **4.1.2 General quality requirements**

Horse feed shall be:

- a) either dry or wet, raw or pre-cooked meal, crumbs or pellets;
- b) free from harmful levels of substances such as metallic objects, and adulterants;
- c) free from fungi pathogenic microorganisms or insect pest infestation;
- d) free from mustiness, rancidity; and
- e) free of any objectionable odours.

#### **4.2 Composition of horse feed**

**4.2.1** The level of free fatty acids in feeds should not exceed 15 % of the crude fat content at the time of manufacture.

**4.2.2** Horse feed shall meet the requirements of the nutrients and metabolizable energy in Table 1.

#### **4.3 Specific requirements**

Horse feed shall comply with the specific requirements given in Table 1 when tested in accordance with the test methods specified therein.

**Table 1 — Specific requirements for compounded horse feed**

<b>S/N</b>	<b>Nutrient/parameter</b>	<b>Requirement</b> %	<b>Test method</b>
i.	Crude Protein, min.	12	ISO 5983-1
ii.	Crude Fat ,min.	6	ISO 6492
iii.	Crude Fibre, max.	12	ISO 6865
iv.	Lysine, min.	0.4	ISO 5510
v.	Calcium, max.	1.5	ISO 6490-1
vi.	Phosphorus, min.	1	ISO 6491
vii.	Moisture, max.	13	ISO 6496

### **5 Feed additives**

**5.1** Additives in the following categories may be used in compounded horse feed:

- a) antioxidants;

- b) colourants;
- c) emulsifiers;
- d) stabilisers;
- e) thickeners and gelling agents;
- f) binders;
- g) anti-caking agents and coagulants;
- h) aromatic and appetising substances;
- i) enzymes; and
- j) preservatives.

**5.2** Ingredients intended for mixing with animal feed as additives for use as feeding stuff should specify the kind of and, if appropriate the age group of the animal for which the feed is intended. In addition the quantity in grams per kilogram (or % by weight) of the complete feed which conform to the provisions of this standard should be stated in the label (see also Clause 9).

**5.3** No antibiotic, hormone substance, drug may be added to or included in a feed other than such ingredients required to satisfy this standard and approved by World organization for animal health (OIE).

## 6 Contaminants

### 6.1 Aflatoxins

Horse feed shall comply with the maximum aflatoxin requirements stated in the Table 2.

**Table 2 — Maximum limits for aflatoxin in compounded horse feed**

S/N	Aflatoxin	Maximum limit µg/kg	Test method
i	Total aflatoxin	20	ISO 16050
ii	Aflatoxin B <sub>1</sub>	10	ISO 6651, ISO 14718, ISO 17375

### 6.2 Pesticide residues

Compounded horse feed shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for the ingredient used in compounded Horse feed.

### 6.3 Heavy metals

Compounded horse feed shall comply with the maximum limits of heavy metals as specified in the Table 3.



**Table 3 — Limits for heavy metals in compounded horse feed**

S/N	Heavy metal	Maximum limit mg/kg	Test method
i.	Arsenic	2	ISO 27085
ii.	Lead	5	
iii.	Cadmium	0.5	

## 7 Hygiene

7.1 Compounded horse food premix shall be produced and handled in accordance with CAC/RCP 54.

7.2 Compounded horse food shall comply with microbiological limits as shown in Table 4.

**Table 4 — Microbiological requirements for compounded horse food**

S/N	Microorganism	Requirement	Test method
i.	<i>Salmonella</i> spp	Absent	ISO 6579-1
ii.	<i>Escherichia coli</i>	Absent	ISO 16654

## 8 Packaging

Compounded horse feed for sale shall be packaged in containers that are of sufficient strength, and sufficiently sealed so as to withstand reasonable handling without tearing, bursting or falling open. The containers shall be clean and not previously used .

## 9 Labelling

Each package of compounded horse feed shall be legibly and indelibly labelled with the following:

- a) name of the feed for example “Compounded horse feed”;
- b) name and address of the manufacturer/exporter/packer;
- c) declared proportions of crude protein, crude fibre, crude fat, phosphorus and calcium .,
- d) net weight in metric units;
- e) directions and precautions for use
- f) batch/lot identification;
- g) manufacturing date;
- h) Storage instructions;
- a) Use before or expiry date.

## 10 Sampling

Sampling shall be done in accordance with ISO 6497.

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## Annex A (informative)

### Description of common feedstuffs

**Table A.1 — Description of common feedstuffs**

Product	Description	Main nutritional constituent
1. Alfalfa meal	Alfalfa as grown, dried and processed, and to which no other matter has been added	Crude protein, Crude fibre
2. Barley meal	The meal obtained by grinding barley, as grown, which shall be the whole grain together only with such other substances as may reasonably be expected to have become associated with the grain in the field.	Crude protein, Crude fibre
3. Bean meal	The meal obtained by grinding commercially pure leguminous beans (other than soya bean).	Crude protein, Crude fibre
4. Blood meal	The meal has been dried out to which no other matter has been added	Crude protein, Dry matter
5. Bone meal	Commercially pure steamed bone, raw or degreased, which has been ground or crushed and which contains phosphorus not less than 4.5% phosphorus.	Crude protein, Phosphorus, Calcium
6. Brewery and distillery grains	The product obtained by drying the residue from distillery mash-tube, and to which no other matter has been added	Crude fibre, Crude protein
7. Cassava, dried	The dried root of the species <i>Manhot esculanta</i>	Crude fibre, Crude protein
8. Clover meal	Clover as grown, dried and processed and to which no other matter has been added	Crude protein, Crude fibre
9. Coconut cake	The residue resulting after part removal of oil and of cortex from commercially pure coconut kernels	Crude protein Crude fibre
11. Cotton seed cake	The residue resulting after part removal of oil and of cortex from commercially pure cotton seed	Crude protein, Crude fibre
12. Sorghum meal	The meal obtained by grinding sorghum as grown which shall be the whole grain together only with such substances as may reasonably be expected to have become associated with the grain in the field.	Crude protein, Crude fibre
13. Fish meal	A product, which may contain an added antioxidant but to which no other matter has been added, obtained by drying and grinding or otherwise treating fish or fish waste.	Crude protein, Oil, total ash.
14. Grass, meal	Any product which,  (i) is obtained by artificially drying any of the following: grass, clover, lucerne, green cereal, or any mixture consisting of any of them, and  (ii) is otherwise as grown (that is to say including any growths harvested there with but with no other substance added thereto), and contains not less than 13 % crude protein calculated on the	Crude protein, Crude fibre

	assumption that it contain 10 % moisture.	
15. Groundnut cake	The residue resulting after part removal of oil and part of non-removal of cortex from commercially pure groundnuts	Crude protein, Oil, crude fibre
16. Maize	Maize kernel or crushed maize kernel as grown for commercial purposes	Crude protein
17. Maize germ meal	Consisting mainly of embryo of kernel not less than 10 % oil, and not more than 5 % ash	
18. Maize and cob meal	Ground maize on the cob	Crude protein, Oil, crude fibre
19. Maize meal	Milled whole maize	Crude protein, Oil, crude fibre
20. Maize gluten meal	A by-product resulting from removal of a bran starch and germ from maize	Crude protein, Oil, crude fibre
21. Meat and bone meal	A product, which may contain an added antioxidant but to which no other matter has been added, containing not less than 65 % protein, obtained by drying and grinding animal carcasses of portions thereof but excluding hair, have been preliminarily treated for the removal of fat	Crude protein, Oil, crude fibre
22. Milk powder	Dried milk from which a substantial amount of fat has been removed and to which no other substance is added	Crude protein
23. Millet	Finger millet of the species <i>Eleusine coracana</i>	Crude protein, Crude fibre
24. Mineral mixture	Mixture of substances used whether in the form powder or licks and purporting to be essential for livestock	Percent of the mineral and trace elements
25. Molasses	A concentrated syrup product obtained in the manufacture of sugar from sugar cane to which no other matter has been added	Dry matter, sugar as sucrose
26. Oats, ground	The product obtained by grinding commercially pure oats	Crude protein, Crude fibre
27. Pea meal	The meal obtained by grinding or crushing commercially pure peas including pods	Crude protein, Crude fibre
28. Rice bran	The outside husk or rice kernel to which no other matter has been added	Crude protein, Crude fibre, oil
29. Rice meal	The product obtained by grinding commercially pure rice after the removal of hulls and to which no other substance is added	Crude fibre, Crude protein, oil
30. Rice polishings	The product obtained when polishing kernels after the removal of hulls and bran	Crude protein, oil, Crude fibre
31. Sesame cake	The residue resulting after the part removal of oil from commercially pure simsim kernels	Crude protein, oil, Crude fibre
32. Soya bean meal	The residue resulting after the part removal of oil from commercially pure soya bean seeds	Crude protein, oil, Crude fibre
33. Sweet potatoes	The dried tubers of the species <i>Ipomea batatas</i>	Crude protein, Crude fibre
34. Wheat meal	The meal obtained by grinding commercially pure wheat as grown and to which no other substance has been added	Crude protein, Crude fibre
35. wheat bran	Outside husk of what kernel to which no other matter was added	Crude protein, Crude fibre
36. Wheat pollard	A by-product of wheat separated during	Crude protein, Crude fibre

	production of flour not mentioned otherwise in this schedule containing not more than 4 % of other than wheat vegetable substances	
37. Yeast dried	The product obtained by drying of yeast or yeast residues, and to which no other matter has been added.	Crude protein
38. Other feedstuffs	As may be described by the Department of Animal Resources from time to time	

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**Annex B**  
(informative)

**Micro nutrients in compounded horse feed**

**Table B.1 — Requirements for micro nutrients (vitamins and minerals) in compounded horse feed**

<b>S/N</b>	<b>Micro nutrient</b>	<b>Requirement</b>
i.	Copper, ppm, min.	20
ii.	Zinc, ppm, min.	40
iii.	Iron, ppm, min.	80
iv.	Selenium, %, min.	0.1
v.	Biotin, ppm, min.	15
vi.	Vit A, I.U, min.	4 000
vii.	Lysine, %, min.	0.4



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