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## **Compounded goat and sheep feed — Specification**



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This African Standard was prepared by ARSO/TC 17, *Animal feeding, feeds and feeding stuffs*

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## **Introduction**

To achieve efficient animal production, all nutrients should be provided in amounts necessary to meet the animal's requirements. The formulation of balanced diets that provide the correct amounts and proportions of these nutrients is essential to support the requirements for maintenance and production. Nutrient requirements become defined accurately through research trials so as to formulate diets more precisely. The standards presented in this document give the restrictions required for the prevention of poor animal performance.

To effectively achieve and increase animal production capacity, all nutrients must be provided in sufficient amounts formulated to meet maintenance and production needs. This standard contains the technical requirements on safety and quality of feeds for feeding goats and sheep.



## Compounded goat and sheep feed— Specification

### 1 Scope

This Final Draft African standard specifies the requirements, sampling and test methods for compounded goat and sheep feed.

### 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.

FDARS 2139, *Code of good practice on good animal feeding*

FDARS 1828, *Animal feed — Code of practice for production, processing, storage, transport, and distribution*

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

ISO 2591-1, *Test sieving — Part 1: Methods using test sieves of woven wire cloth and perforated metal plate*

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

ISO 6497, *Animal feeding stuffs — Sampling*

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 6867, *Animal feeding stuffs — Determination of vitamin E content — Method using high-performance liquid chromatography*

ISO 6869, *Animal feeding stuffs — Determination of the contents of calcium, copper, iron, magnesium, manganese, potassium, sodium and zinc — Method using atomic absorption spectrometry*

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

ISO 14718, *Animal feeding stuffs — Determination of aflatoxin B1 content of mixed feeding stuffs — Method using high-performance liquid chromatography*

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*

ISO 16634-1, *Food products — Determination of the total nitrogen content by combustion according to the Dumas principle and calculation of the crude protein content — Part 1: Oilseeds and animal feeding stuffs*

ISO 17375, *Animal feeding stuffs — Determination of aflatoxin B1*

ISO 27085, *Animal feeding stuffs — Determination of calcium, sodium, phosphorus, magnesium, potassium, iron, zinc, copper, manganese, cobalt, molybdenum, arsenic, lead and cadmium by ICP-AES*

ISO/TS 17764-2, *Animal feeding stuffs — Determination of the content of fatty acids Part 2: Gas chromatographic method*

## 3 Terms and definitions

For the purpose of this standard the following terms and definitions apply.

### 3.1

#### **feeding stuff**

single or multiple materials, whether processed, semi-processed or raw, and whether or not containing additives, for oral animal feeding

### 3.2

#### **crude protein (CP)**

total protein content of a feed which is determined by analysing the nitrogen content of feed and multiplying the result by a factor

### 3.3

#### **crude fibre (CF)**

residue obtained after acid and alkaline digestion of a feed sample that contains cellulose, hemicellulose, lignin and pectin

### 3.4

#### **crude fat**

total fat content of a feed determined by a laboratory test

### 3.5

#### **metabolizable energy (ME)**

amount of the useful energy in a feed that represents that portion of the feed gross energy not lost in faeces, urine and eructated gas

### 3.6

#### **total ash**

inorganic part of a feed consisting of mineral elements determined in a laboratory by incineration at a high temperature and weighing the residue

### 3.7

#### **moisture content**

mass fraction of substances lost on drying the sample by using the accredited procedure

### 3.8

#### **feed additive**

substance intentionally added to feed and/or water, not consumed as feed by itself, whether or not it has a nutritional value, that affects the characteristics of feed including organoleptic properties, animal products, animal production or performance or welfare, or the environment



**3.9**

**total mixed ration**

**TMR**

homogenous mixture of all ration ingredients (e.g. forages, grains, feed supplements) that is supplied to an animal for a 24-hour period

**4 Requirements**

**4.1 General requirements**

**4.1.1** Goat and sheep feed shall be in the form of a meal, cubes, pellets or bale.

**4.1.2** Goat and sheep feed shall be free from harmful constituents such as

- a) metallic and glass objects;
- b) adulterants;
- c) physical moulds;
- d) pathogens or insect infestation;
- e) mustiness;
- f) rancidity; and
- g) any objectionable odours.

**4.1.3** Goat and sheep feed shall be palatable.

**4.1.4** Non-protein nitrogen (NPN) sources shall not be used in compounding feed for lambs and kids.

**4.1.5** Non – protein nitrogen (NPN) sources may be used in compounded feed for both yearlings and matured sheep and goat and shall not exceed 1,5% if used.

**4.2 Ingredients for goat and sheep feed**

**4.2.1** All ingredients and raw materials shall be of high quality and shall be of sound condition and not deteriorated. Annex D and E provides further information on common feedstuffs and nutrient composition of feedstuffs and ingredients respectively.

**4.2.2** Where standards have been declared for ingredients or raw materials, such ingredients or raw materials shall conform to such standards.

**4.2.3** Vitamin preparations added to feed shall be in a stabilized form. Annex F provides further information on the vitamin requirements for goats and sheep.

**4.3 Specific nutrient requirements for compounded goat and sheep feed**

**4.3.1** The level of free fatty acids in feed shall not exceed 15 % of the crude fat content at the time of manufacture when tested in accordance with the requirements of ISO/TS 17764-2.

**4.3.2** Corticated cottonseed shall not be used for feed for young lambs and kids.

**4.3.3** The moisture content shall not exceed 14% in goat and sheep feed when tested in accordance with ISO 6496. In the case of use of total mixed ration (TMR) the level of moisture shall be increased up to 50%.

**4.3.4** Compounded goat and sheep feed shall comply with the nutrients and metabolizable energy requirements stated in Table 1 when tested in accordance with the test methods specified therein.

**Table 1 — Specific requirements for compounded goat and sheep feed**

Growth stage	ME Kcal/ kg DM, min.	CP %, min.	Ca g/kg DM, min.	P g/kg DM, min.
Creep feeding formula	2 800	16	4	2,5
Early Weaned Lambs and kids				
Maintenance	2 000	7,5	2	1,8
Flushing ration	2 110	9,5	3,5	2
Non-lactating first 15 weeks of gestation	2 000	9,5	2,5	2
Last 4 weeks of gestation	2 100	11	3,7	3
Lactating animal	2 350	16	4,3	3
Replacement ewe	2 100	9	3	1,8
Replacement rams	2 300	9	3	1,6
Lambs Finishing — 4 to 7 Months Old	2 600	15	3,5	1,8
Test method	Annex A	ISO 5983	ISO 6490-1	ISO 6491
NOTE: ME – Metabolizable Energy, CP – Crude Protein, Ca – Calcium, P – Phosphorus, DM – Dry matter				

## 5 Additives and provisions related to their use

Additives in the following categories may be used in goats and sheep feed: antioxidants, colourants, emulsifiers, stabilisers, thickeners and gelling agents, binders, anti-caking agents and coagulants, aromatic and appetising substances, and preservatives.

NOTE Material 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

No antibiotic substance, drug or mineral may be added to or included in a feed or concentrate other than such ingredients required to satisfy this standard.

Where a consignment or a batch of feed or concentrate is prepared specifically for a consumer or group of consumers, substances may be added upon the express written instructions of the consumers provided that:

- such additions are made in accordance with the provisions of the competent authority and/or World Organization for Animal Health (WOAH)., and
- the nature and quantities of such additions are clearly stated upon each and every container of the feed or concentrate.
- Annex C provides further information on the feed additives that may be used in goat and sheep feed.

## 6 Contaminants

### 6.1 Aflatoxins

Compounded goat and sheep feed shall comply with the maximum limits for aflatoxin specified in Table 2 when tested with the methods specified therein.

**Table 2 — Aflatoxin limits for compounded goat and sheep feed**

S/N	Aflatoxin	Maximum limits µg/kg	Test method
i.	Total aflatoxin	20	ISO 16050
ii.	Aflatoxin B1	10	ISO 14718

### 6.2 Heavy metals

Compounded goat and sheep feed shall comply with the maximum limits of heavy metals specified in the Table 3, when tested with the methods specified therein.

**Table 3 — Heavy metal limits for compounded goat and sheep feed**

S/N	Heavy metal	Maximum limits mg/kg	Test method
i.	Arsenic	4,0	ISO 27085
ii.	Lead	3,0	
iii.	Cadmium	1,0	
iv.	Mercury	0,1	

### 6.3 Pesticide residues

Compounded goat and sheep feed shall not exceed the limits of pesticide residues established in the Codex Alimentarius Commission on Contaminants

## 7 Hygiene, storage and transportation

**7.1** Compounded goat and sheep feed shall be processed and handled in accordance with the requirements of FDARS 2139

**7.2** Compounded goat and sheep feed shall be produced, transported, received and stored in accordance with the procedure described in the appropriate sections of FDARS 1828.

## 8 Packaging and labelling

### 8.1 Packaging

Compounded goat and sheep feed 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.

### 8.2 Labelling

## **DARS 1830:2024**

Each package of compounded goat and sheep feed shall be legibly and indelibly marked with the following information.

- a) name and type of the feed;
- b) name, physical address or contact information of manufacturer / producer;
- c) nutrient composition;
- d) net weight in SI units;
- e) batch / lot or Code identification;
- f) directions and precautions for use
- g) urea percent, if present;
- h) date of manufacture;
- i) best before date; and
- j) instruction for storage

### **9 Sampling**

Sampling shall be done in accordance with the requirement of ISO 6497.

**Annex A**  
**(Normative)**

**Method for calculating metabolizable energy (ME)**

$GE \text{ kcal} = (4.2 * \text{carbohydrate } \%) + (5.2 * \text{CP } \%) + (9 * \text{fat } \%) \quad (\text{NRC, 2001})$

$DE \text{ (kcal)} = GE \text{ (kcal)} * 0.76$

$ME \text{ (kcal)} = DE \text{ (kcal)} * 0.82 \quad (\text{NASEM, 2016})$

Where

*GE* gross energy

*DE* Digestible energy

*ME* Metabolizable energy

## Annex B (Informative)

### Feed additives and provisions related to their use

#### B.1 Requirements for antioxidants

Goats and sheep feed shall contain no added antioxidant other than an antioxidant of a name or description specified in the first column of the table below, where an antioxidant if added should not exceed the maximum content, if any, specified in the second column of the Table A.1.

**Table A.1 — Requirements for antioxidants in goats and sheep feed**

Name or description	Maximum content in complete feed stuff, mg/kg
L-Ascorbic acid Sodium L-ascorbate Calcium di (L-ascorbate) 5,6-Diacetyl-L-ascorbic acid 6-Palmitoyl-L-ascorbic acid Tocopherol-rich extracts of a natural origin Synthetic alpha-tocopherol Synthetic gamma-tocopherol Synthetic delta-tocopherol	According to the recommendation of GMPs
Propyl gallate Octyl gallate Dodecyl gallate	100, singly or in combination
Butylated hydroxyanisole (BHA)	150

#### B.2 Requirements for colourants in goats and sheep feed

Goats and sheep feed shall contain no colorant other than a colorant named or described in Table A.2 in accordance with the maximum content specified.

**Table A.2 — Requirements for colorants in goats and sheep feed**

Name or description	Maximum content in complete feed, mg/kg
Patent Blue V Acid brilliant green BS	No limits

#### B.3 Requirements for emulsifiers, stabilisers, thickeners and gelling agents

##### B.3.1 General

Goats and sheep feed shall contain no added emulsifier, stabiliser, thickener or gelling agent other than an emulsifier, stabiliser, thickener or gelling agent of a name or description, specified hereunder.

### B.3.2 Name or description

Lecithins; Alginic acid; Sodium alginate; Potassium alginate; Ammonium alginate Calcium alginate; Propylene glycol alginate (propane- 1,1-diol alginate) Agar; Carrageenan; Furcellaran; Locust bean gum (carob gum); Tamarind seed flour Guar gum (gua flour); Tragacanth; Acacia (gum Arabic); Zanthan gum; D-glucitol (sorbitol); mannitol; Glycerol; Pectins; microcrystalline cellulose; Methylcellulose; Ethylcellulose; Hydroxypropyl cellulose; Hydroxypropylmethylcellulose; Ethylmethylcellulose; Carboxymethylcellulose; sodium salt; Sodium, potassium and calcium salts or edible fatty acids alone or in mixtures, derived from edible fat or distilled fatty acids Monoacyl and diacylglycerols esterified with the following acids: (a) acetic (b) lactic (c) citric (d) tartaric (e) monoacetyltartaric and (f) diacetyltartaric.

### B.3.3 Sucrose esters or fatty acids

The following sucrose esters fatty acids may be added to goats and sheep feed:

- a) mixture of sucrose esters of monoacyl and diacylglycerols (sucroglycerides, polyglycerides);
- b) polyglycerol esters of non-polymerised edible fatty acids;
- c) propylene glycol esters of fatty acids (propane-1,2-diol esters of fatty acids);
- d) stearyl-2-lactylic acid; sodium stearyl-1,2-lactylate; calcium stearyl-1,2-lactylate;
- e) stearyl-1-tartrate; glycerol poly (ethylene glycol) ricinolate; dextrans; sorbitan monostearate;
- f) sorbitan tristearate; sorbitan monolaurate; sorbitan mono-oleate; sorbitan monopalmitate;
- g) partial polyglycerol esters of polycondensed fatty acids of castor oil (polyglycerol polyricinoleate) polyoxyethylene (20) sorbitan monolaurate;
- h) polyoxyethylene (20) sorbitan monopalmitate, polyoxyethylene (20) sorbitan monostearate;
- i) polyoxyethylene (20) sorbitan tristearate, polyoxyethylene (20) sorbitan monooleate;
- j) polyoxyethylene (20) sorbitan trileate, polyoxyethylene (8) sorbitan stearate; and
- k) polyoxyethylene (40) stearate.

The emulsifiers, stabilisers, thickeners and gelling agents listed in Table 5 shall conform to the requirement in Table A.3.

**Table B 3 — Requirements for emulsifiers, stabilisers, thickeners and gelling agents in goats and sheep feed**

S/N	Name or description	Kind of animal	Maximum content in complete feed, mg/kg
i.	Poly (ethylene glycol) 6 000	All goats and sheep	300
ii.	Polyoxypropylene-Polyoxyethylene polymers (M.W 6 800-9 000)	All goats and sheep	50
iii.	Propane-1,2-diol	Lambs , kids	36 000

**B.4 Requirements for binders, anticaking agents and coagulants****B.4.1 General**

Goats and sheep feed shall contain no added binder, anti-caking agent or coagulant other than a binder, anti-caking agent or coagulant of a name or description specified in 5.5.2.

**B.4.2 Name or description**

Lignosulphonates; Colloidal silica; Silicic acid, precipitate and dried; Sodium aluminosilicate, Sodium, potassium and calcium stearate; Kaolin and Kaslinitic clays free of asbestos- natural accruing mixtures of minerals containing at least 65% complex hydrated aluminium silicates whose main constituent in Kasolinite; Bentonite and other montmerillonitee clays; Vermiculite-hydrated silicate of magnesium, aluminium and iron; Citric acid; Kieselguhr (diatomaceous earth, purified); Calcium silicate (synthetic); Natural mixtures of steatite and chlorite free of asbestos.

**B.5 Requirements for aromatic and appetising substances**

Goats and sheep feed shall contain no added aromatic or appetising substance other than an aromatic or appetising substance of a name or description specified in Table A.4 and taking account of any such substance which is naturally present, without exceeding the maximum content specified.

**Table B.4 — Requirements for aromatic and appetising substances**

<b>Name or description</b>	<b>Maximum content in complete feed mg/kg</b>
Saccharin	No limits
All natural products and corresponding synthetic products	No limits

**B.6 Permitted preservatives**

Goats and sheep feed shall contain no added preservatives other than a preservative of a name or description specified hereunder.

- a) sorbic acid, sodium sorbate, potassium sorbate, calcium sorbate;
- b) folic acid;
- c) ammonium formate, sodium formate, calcium formate;
- d) acetic acid, potassium acetate, sodium diacetate;
- e) lactic acid, sodium lactate, potassium lactate, ammonium lactate, calcium lactate;
- f) propionic acid, sodium propionate, potassium propionate;
- g) L-Tartaric acid;
- h) citric acid, sodium citrates, calcium citrates;
- i) orthophosphoric acid;
- j) fumaric acid;
- k) DL-Malic acid; and



- l) hydrochloric acid or sulphuric acid for use in silage only.

## **B.7 Undesirable substances**

The presence in goats and sheep feed and feed ingredients of undesirable substances such as industrial and environmental contaminants, pesticides, radionuclides, persistent organic pollutants, pathogenic agents and toxins such as mycotoxins shall be identified, controlled and minimised.

Animal products that could be a source of the Bovine Spongiform Encephalopathy (BSE) agent should not be used for feeding directly to, or for feed manufacturing for goats and sheep.

Control measures applied to reduce unacceptable level of undesirable substances shall be assessed in terms of their impact on food safety.

### Annex C (informative)

#### Nutrient composition of common feed ingredients

Studies on nutritive value of feedstuffs show differences between analytical values and those which are already tabulated in various feeding standards. Chemical composition of feedstuffs play an important role in formulation of balanced and economical rations for various classes of animals. It is only possible when exact knowledge of chemical composition of feedstuffs are available. This table presents values of some chemical composition of common feedstuffs.

Ingredients	DM %	CP %	CF %	Ca %	P %	ME Kcal/kg	Lysine %	Methionine %
Maize	88	8	12	0,17	0,55	3000	0,53	0,29
Maize bran	88	9,4	13	0,04	1,03	2200	0,18	0,21
Maize/cob meal	88	7	8		0,30			
Rice bran	88	13,5	6,5	0,06	1,43	3000	0,5	0,22
Cassava meal	88	2,8	4,0	0,3	0,05	3000	-	-
Molasses	75	3,0		0,75	0,08	2330	-	-
Millet	88	10,5	2,0	0,05	0,40	1392	0,2	0,27
Sorghum	88	9,0	2,1	0,03	0,28	3250	0,2	0,12
Fish meal	88	60,0	1,0	4,37	2,53	2310	4,08	1,70
Blood meal	92	72,9	1,7	0,28	0,22	1177	7,0	0,9
Cotton seed cake	88	40,0	14	0,20	1,20	968	1,6	0,52
Soya bean meal	88	43,0	6	0,53	0,64	2800	2,84	0,65
Limestone	98	-	-	38,0	-	-	-	-
Oyster shells	98	-	-	35,0	-	-	-	-
Wheat pollard	98	15,0					0,60	0,35
Wheat bran	91,4	15,0	12,5		1,20		0,60	0,35
Sunflower cake	92	35,0	26,7				1,80	1,20
Groundnut cake	93	40,0	7,3				2,00	1,80
Rice polishings	92,5	12,0	4,2				4,0	0,40
Bone meal	94	24	1,5					
Dicalcium phosphate				24	18			
Tricalcium phosphate				38	19			
Meat meal		60,0					0,50	1,0
Alfalfa hay	87,5	18,9	33,1					
Sugarcane bagasse	90,5	1,7	50,3					
Sesame cake	93	36,1	6,7					
Sugarcane tops	33,5	6,2	29,5					
Whey	90	13,0	1,3	0,97	0,76	3100		0,2

**Annex D**  
(informative)

**Description of common feedstuffs**

Product	Description	Main nutritional constituent
Alfalfa meal	Alfalfa as grown, dried and processed, and to which no other matter has been added	Crude protein, Crude fibre
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
Bean meal	The meal obtained by grinding commercially pure leguminous beans (other than soya bean).	Crude protein, Crude fibre
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
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
Cassava, dried	The dried root of the species <i>Manhot esculanta</i>	Crude fibre, Crude protein
Clover meal	Clover as grown, dried and processed and to which no other matter has been added.	Crude protein, Crude fibre
Coconut cake	The residue resulting after part removal of oil and of cortex from commercially pure coconut kernels	Crude protein Crude fibre
Cotton seed cake	The residue resulting after part removal of oil and of cortex from commercially pure cotton seed	Crude protein, Crude fibre
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
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, Furea.
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 assumption that it contain 10% moisture.	Crude protein, Crude fibre
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
Maize	Maize kernel or crushed maize kernel as grown for commercial purposes	Crude protein
Maize germ meal	Consisting mainly of embryo of kernel not less than 10% oil, and not more than 5% ash	

Maize and cob meal	Ground maize on the cob	Crude protein, Oil, crude fibre
Maize meal	Milled whole maize	Crude protein, Oil, crude fibre
Maize gluten meal	A by-product resulting from removal of a bran starch and germ from maize	Crude protein, Oil, crude fibre
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
Milk powder	Dried milk from which a substantial amount of fat has been removed and to which no other substance is added	Crude protein
Millet	Finger millet of the species <i>Eleusine coracana</i>	Crude protein, Crude fibre
Mineral mixture	Mixture of substances used wither in the form powder or licks and purporting to be essential for livestock	Percent of the mineral and trace elements
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
Oats, ground	The product obtained by grinding commercially pure oats	Crude protein, Crude fibre
Pea meal	The meal obtained by grinding or crushing commercially pure peas including pods	Crude protein, Crude fibre
Rice bran	The outside husk or rice kernel to which no other matter has been added	Crude protein, Crude fibre, oil
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
Rice polishings	The product obtained when polishing kernels after the removal of hulls and bran	Crude protein, oil, Crude fibre
Sesame cake	The residue resulting after the part removal of oil from commercially pure simsim kernels	Crude protein, oil, Crude fibre
Soya bean meal	The residue resulting after the part removal of oil from commercially pure soya bean seeds	Crude protein, oil, Crude fibre
Sweet potatoes	The dried tubers of the species <i>Ipomea batatas</i>	Crude protein, Crude fibre
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
Wheat bran	Outside husk of what kernel to which no other matter was added	Crude protein, Crude fibre
Wheat pollard	A by-product of wheat separated during production of flour not mentioned otherwise in this schedule containing not more than 4% of other than wheat vegetable substances	Crude protein, Crude fibre
Yeast dried	The product obtained by drying of yeast or yeast residues, and to which no other matter has been added.	Crude protein

**Annex E**  
(informative)

**Guide for vitamin requirements for compounded goat and sheep feed**

S/N	Growth Stage	Vitamin A, 1000 IU/kg DM	Vitamin E, IU/kg DM
i.	Creep feeding formula	1-1,6	15
ii.	Early Weaned Lambs and kids		
iii.	Maintenance	1,5	15
iv.	Non-lactating first 15 weeks of gestation	2,6	15
v.	Last 4 weeks of gestation	3,5	15
vi.	Lactating animal	3	15
vii.	Flushing ration	2,5	15
viii.	Replacement ewe	1,1-1,5	15
ix.	Replacement rams	1,1-1,5	15
x.	Lambs Finishing — 4 to 7 Months Old	1,1-1,5	15

**Annex F**  
(informative)

**Guide for concentrate / roughage ratio for goat and sheep rations**

Growth Stage	Concentrate / roughage percent, %	
Creep feeding formula	90	10
Early Weaned Lambs and kids		
Maintenance	0	100
Non-lactating first 15 weeks of gestation	0	100
Last 4 weeks of gestation	35	65
Lactating animal	35	65
Flushing ration	15	85
Replacement ewe	35	65
Replacement rams	30	70
Lambs Finishing — 4 to 7 Months Old	60	40

