

युवा स्टॉक के लिए मिश्रित
चारा — विशिष्टि
(पहला पुनरीक्षण)

Compounded Feeds for Young
Stock — Specification
(First Revision)

ICS 65.120

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FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Animal Feeds and Nutrition Sectional Committee had been approved by the Food and Agriculture Division Council.

Proper nourishment of calves is of extreme importance to ensure better performance in their later life. Therefore, for providing optimum nutrition it is essential that feeds supply sufficient energy and contain a proper balance of proteins, minerals and vitamins. Such feeds should be low in fibre and highly digestible. It is expected that this standard would assist in formulation of feeds meant for young stock feeding and also help in exercising proper quality control during production. This standard takes into consideration feeds meant for feeding calves ranging in their age from approximately 3 weeks to 108 weeks. In view of the specialized nature of feeds required to be given to calves from birth to approximately 3 weeks age, such feeds have not been covered in this specification.

This standard was first published in 1970. This revision has been brought out to update the standard considering latest technological developments and manufacturing practices. The following major changes have been made in this revision:

- a) Requirements for crude protein, crude fibre and acid insoluble ash have been updated;
- b) Requirements for vitamin D₃, vitamin E and aflatoxin B₁ have been introduced in the standard; and
- c) Methods of tests prescribed for determination of various requirements have been updated.

The composition of the Committee responsible for the formulation of this standard is given in [Annex C](#).

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

COMPOUNDED FEEDS FOR YOUNG STOCK — SPECIFICATION

(*First Revision*)

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for compounded feeds for young stock.

2 REFERENCES

The standards listed in [Annex A](#) contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of these standards.

3 TERMINOLOGY

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

3.1 Calf Growth Meal

A meal for calves to be introduced gradually into the diet from the age of approximately 27 weeks and to be fed up to approximately 108 weeks.

3.2 Calf Starter Meal

A meal for calves to be made available from the age of approximately 3 weeks and to be fed up to approximately 26 weeks.

4 TYPES

Compounded feeds for young stock shall be of two types as follows:

- a) Calf starter meal (CSM); and
- b) Calf growth meal (CGM).

5 REQUIREMENTS

5.1 General

Compounded feeds for young stock shall be in the form of a meal or pellets. The feeds shall be free from harmful constituents, such as dust and metallic pieces; adulterants; insect or fungus infestation; and from musty, rancid or any other objectionable odour.

5.2 Ingredients

In compounding feeds of the two types for young stock, only the ingredients given in [Annex B](#) shall be used. Any material of animal origin except milk and milk products shall not be used as ingredient for manufacturing the product.

5.3 In the case of calf starter meals (CSM), permitted antibiotics and/or anticoccidials may be added according to the manufacturer's recommendations.

5.4 The material shall also conform to the requirements specified in [Table 1](#).

6 PACKING AND MARKING

6.1 Packing

Compounded feeds for young stock shall be packed in clean and sound plain or polyethylene lined jute or laminated paper bags. The mouth of each bag shall be either machine-stitched or rolled over and hand-stitched.

6.2 Marking

6.2.1 Each bag shall be marked or labelled to give the following information:

- a) Name of the material;
- b) Name and address of the manufacturer;
- c) Batch or code number;
- d) List of ingredients;
- e) Net mass, in kg;
- f) Date of packing;
- g) Best before date in month and year format; and
- h) Any other requirement as given under the *Legal Metrology (Packaged Commodities) Rules, 2011*

6.2.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

7 SAMPLING

The method of drawing representative samples of the material and the criteria for conformity shall be according to the method prescribed in Annex D of IS 2052.

8 TESTS

8.1 Tests shall be carried out as prescribed in col (5) of [Table 1](#).

8.2 Quality of Reagents

Unless specified otherwise, pure chemicals and distilled water (*see* IS 1070) shall be employed in the tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the test results.

Table 1 Requirements for Calf Starter Meal and Calf Growth Meal

(Clauses [5.4](#) and [8.1](#))

SI No.	Characteristic	Requirement(s)		Method of Test, Ref to
		Calf Starter Meal	Calf Growth Meal	
(1)	(2)	(3)	(4)	(5)
i)	Moisture, percent by mass, <i>Max</i>	10	10	4 of IS 7874 (Part 1)
ii)	Crude protein (N × 6.25), percent by mass, <i>Min</i>	23	22	IS/ISO 5983 (Part 1)* or IS 5983 (Part 2)
iii)	Crude fat, percent by mass, <i>Min</i>	4.5	4.0	IS/ISO 6492
iv)	Crude fibre, percent by mass, <i>Max</i>	9	10	IS/ISO 6865
v)	Acid insoluble ash, percent by mass, <i>Max</i>	1.5	1.5	Annex A 1712 or IS 14826*
vi)	Common salt (as NaCl), percent by mass, <i>Max</i>	1.0	1.0	4 of IS 7874 (Part 2)
vii)	Calcium (as Ca), percent by mass, <i>Min</i>	0.8	0.8	IS 13433 (Part 1) or IS 15121* or EN 15621
viii)	Phosphorus (as P), percent by mass, <i>Min</i>	0.5	0.5	IS 14828* or EN 15621
ix)	Available phosphorous, percent by mass, <i>Min</i>	0.30	0.30	Annex F of IS 1374
x)	Urea, percent by mass, <i>Max</i>	–	0.5	IS 7874 (Part 1) or AOAC 967.07*
xi)	Vitamin A, IU/kg, <i>Min</i>	10 000	10 000	IS 15120
xii)	Vitamin D ₃ , IU/kg, <i>Min</i>	2 000	2 000	Annex C of IS 2052* or <i>J. AOAC Int.</i> 2012, Vol. 95, No. 5, Pages 1487–1494
xiii)	Vitamin E, IU/kg, <i>Min</i>	75	75	IS 15948
xiv)	Aflatoxin B ₁ (ppb), <i>Max</i>	20	20	IS/ISO 14718* or IS 18143 or AOAC 2003.02
xv)	Cadmium, mg/kg, <i>Max</i>	0.5	0.5	EN 17053

NOTES

1 The values for requirements at SI No. (ii) to (xv) are on moisture-free basis.

2 While analyzing for crude protein, it should be ensured that the nitrogen has not been derived from urea or other ammonium salts.

3 In case of dispute, the methods given above and wherever indicated by '*' shall be the referee method.

4 For crude fibre, the manual method given in IS/ISO 6865 shall be the referee method.

5 For routine analysis, validated near infrared-analyser may be used by the manufacturer.

ANNEX A

(Clause 2)

LIST OF REFERRED STANDARDS

<i>IS No./Other Standards</i>	<i>Title</i>	<i>IS No./Other Standards</i>	<i>Title</i>
IS 1070 : 2023	Reagent grade water — Specification (<i>fourth revision</i>)	IS 3160 : 2022	Tur chuni as livestock feed ingredient — Specification (<i>first revision</i>)
IS 1374 : 2024	Chicken feeds — Specification (<i>sixth revision</i>)	IS 3161 : 2022	Gram chuni as livestock feed ingredient — Specification (<i>first revision</i>)
IS 1664 : 2002	Mineral mixtures for supplementing cattle feeds — Specification (<i>fourth revision</i>)	IS 3163 : 2022	Rice polish as livestock feed ingredient — Specification (<i>first revision</i>)
IS 1712 : 2022	Cottonseed oilcake as livestock feed ingredient — Specification (<i>third revision</i>)	IS 3440 : 1985	Specification for solvent extracted linseed oilcake (meal) as livestock feed ingredient (<i>first revision</i>)
IS 1713 : 2022	Decorticated groundnut oilcake as livestock feed ingredient — Specification (<i>third revision</i>)	IS 3441 : 2022	Solvent extracted groundnut oil cake as livestock feed ingredient — Specification (<i>second revision</i>)
IS 1932 : 2022	Mustard and rapeseed oilcake as livestock feed ingredient — Specification (<i>third revision</i>)	IS 3592 : 1985	Specification for solvent extracted decorticated cottonseed oilcake meal as livestock feed ingredient (<i>second revision</i>)
IS 1934 : 2016	Sesamum oilcake as livestock feed ingredient — Specification (<i>second revision</i>)	IS 3593 : 2022	Solvent extracted rice bran (de-oiled rice bran) as livestock feed ingredient — Specification (<i>third revision</i>)
IS 1935 : 2022	Linseed oilcake as livestock feed ingredient — Specification (<i>second revision</i>)	IS 3648 : 1975	Specification for rice bran as livestock feed (<i>first revision</i>)
IS 2052 : 2023	Compounded feeds for cattle — Specification (<i>fifth revision</i>)	IS/ISO 5983 (Part 1) : 2005	Animal feeding stuffs — Determination of nitrogen content and calculation of crude protein content: Part 1 Kjeldahl method
IS 2151 : 2022	Maize germ oilcake as livestock feed ingredient — Specification (<i>second revision</i>)	IS 5983 (Part 2) : 2021/ISO 5983-2 : 2009	Animal feeding stuffs — Determination of nitrogen content and calculation of crude protein content: Part 2 Block digestion and steam distillation method (<i>first revision</i>)
IS 2153 : 2022	Maize bran as livestock feed ingredient — Specification (<i>second revision</i>)	IS/ISO 6492 : 1999	Animal feeding stuffs — Determination of fat content
IS 2154 : 2014	Coconut oilcake as livestock feed ingredient — Specification (<i>third revision</i>)	IS/ISO 6865 : 2000	Animal feeding stuffs — Determination of crude fibre
IS 2239 : 2022	Wheat bran as livestock feed ingredient — Specification (<i>second revision</i>)		

IS 5560 : 2024

<i>IS No./Other Standards</i>	<i>Title</i>	<i>IS No./Other Standards</i>	<i>Title</i>
	content — Method with intermediate filtration	IS 15121 : 2002/ ISO 6869 : 2000	Animal feeding stuffs — Determination of the contents of calcium, copper, iron, magnesium, manganese, potassium, sodium and zinc — Method using atomic absorption spectrometry
IS 7874	Methods of tests for animal feeds and feeding stuffs:		
(Part 1) : 1975	General methods		
(Part 2) : 1975	Minerals and trace element		
IS 13433 (Part 1) : 2024/ISO 6490-1 : 1985	Animal feeding stuffs — Determination of calcium content: Part 1 Titrimetric method (<i>first revision</i>)	IS 15948 : 2011/ ISO 6867 : 2000	Animal feeding stuffs — Determination of vitamin E content — Method using high-performance liquid chromatography
IS/ISO 14718 : 1998	Animal feeding stuffs — Determination of aflatoxin B ₁ content of mixed feeding stuffs — Method using high-performance liquid chromatography	IS 18143 : 2023/ ISO 17375 : 2006	Animal feeding stuffs — Determination of aflatoxin B ₁
IS 14826 : 2021/ ISO 5985 : 2002	Animal feeding stuffs — Determination of ash insoluble in hydrochloric acid (<i>first revision</i>)	EN 15621 : 2017	Animal feeding stuffs: Methods of sampling and analysis — Determination of calcium, sodium, phosphorus, magnesium, potassium, sulphur, iron, zinc, copper, manganese and cobalt after pressure digestion by ICP-AES
IS 14828 : 2000/ ISO 6491 : 1998	Animal feeding stuffs — Determination of total phosphorus content — Spectrophotometric method		
IS 15120 : 2002/ ISO 14565 : 2000	Animal feeding stuffs — Determination of vitamin A content — Method using high — performance liquid chromatography	EN 17053 : 2018	Animal feeding stuffs — Methods of sampling and analysis — Determination of trace elements, heavy metals and other elements in feed by ICP-MS (multi-method)

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ANNEX B

(Clause 5.2)

INGREDIENTS FOR COMPOUNDED FEEDS FOR YOUNG STOCK

B-1 CALF STARTER MEALS

Besides common salt, vitamins and mineral mixture (see IS 1664), only the following ingredients shall be used for compounding feeds for calf starters:

B-1.1 Grains and Seeds

- a) Barley (*Hordeum vulgare*);
- b) Gram (*Cicer arietinum* L.);
- c) Jowar, cholam (*Sorghum vulgare*);
- d) Maize (*Zea mays*);
- e) Oats (*Avena sterilis*);
- f) Peas (*Pisum sativum*); and
- g) Ragi (*Eleusine coracena* Gaertn.).

B-1.2 Grain By-products

- a) Arhar or Tur (*Cajanus cajan* L.) Chuni (see IS 3160);
- b) Gram Chuni (see IS 3161);
- c) Moth (*Phaseolus aconitifolius* Jacq.) Chuni;
- d) Mung (*Phaseolus aureus* Roxb.) Chuni;
- e) Urad (*Phaseolus mungo* L.) Chuni; and
- f) Wheat bran (see IS 2239).

B-1.3 Oilcakes and Meals

- a) Coconut oilcake (see IS 2154) and solvent extracted coconut oilcake (meal);
- b) Cottonseed oilcake (see IS 1712) and solvent extracted cottonseed oilcake (meal) (see IS 3592);
- c) Groundnut oilcake (see IS 1713) and solvent extracted groundnut oilcake (meal) (see IS 3441);
- d) Linseed oilcake (see IS 1935) and solvent extracted linseed oilcake (meal) (see IS 3440);
- e) Maize germ oilcake (see IS 2151);
- f) Sesamum (*Til*) oilcake (see IS 1934) and solvent extracted sesamum (*Til*) oilcake (meal); and
- g) Soyabean (*Glycin max*) oilcake and solvent extracted soyabean oilcake (meal).

B-1.4 Tubers and Roots

- a) Tapioca chips and tapioca flour; and
- b) Sugar beet pulp.

B-1.5 Animal Products

- a) Skimmed milk powder; and
- b) Whey protein powder.

B-1.6 Greens

- a) Berseem (*Trifolium alexandrinum*) meal; and
- b) Lucerne (*Medicago sativa*) meal.

B-1.7 Waste Materials and Industrial By-products

- a) Brewer's yeast;
- b) Molasses; and
- c) Yeast culture and organic minerals.

B-2 CALF GROWTH MEALS

Besides common salt, Vitamin A and mineral mixture, only the following ingredients shall be used for compounding feeds for growing calves:

B-2.1 Grains and Semis

- a) Barley (*Hordeum vulgare*);
- b) Gram (*Cicer arietinum* L.);
- c) Jowar, cholam (*Sorghum vulgare*);
- d) Maize (*Zea mays*);
- e) Oats (*Avena sterilis*);
- f) Peas; and
- g) Ragi (*Eleusine coracena* Gaertn.).

B-2.2 Grain By-products

- a) Arhar or Tur (*Cajanus cajan* L.) Chuni (see IS 3160);
- b) Gram Chuni (see IS 3161);
- c) Maize bran (see IS 2153);
- d) Moth (*Phaseolus aconitifolius* Jacq.) Chuni;

- e) *Mung* (*Phaseolus aureus* Roxb.) *Chuni*;
- f) Rice bran (*see* IS 3648), rice polish (*see* IS 3163) and solvent extracted rice bran (*see* IS 3593);
- g) *Urad* (*Phaseolus mungo* L.) *Chuni*; and
- h) Wheat bran (*see* IS 2239).

B-2.3 Oilcakes and Meals

- a) Coconut oilcake (*see* IS 2154) and solvent extracted coconut oilcake (meal);
- b) Cottonseed oilcake (*see* IS 1712) and solvent extracted cottonseed oilcake (meal) (*see* IS 3592);
- c) Groundnut oilcake (*see* IS 1713) and solvent extracted groundnut oilcake (meal) (*see* IS 3441);
- d) Linseed oilcake (*see* IS 1935) and solvent extracted linseed oilcake (meal) (*see* IS 3440);
- e) Maize germ oilcake (*see* IS 2151);
- f) Mustard and rape oilcake (*see* IS 1932) and solvent extracted mustard and rape oilcake (meal);
- g) Sesamum (*Til*) oilcake (*see* IS 1934) and solvent extracted sesamum (*Til*) oilcake (meal); and

- h) Soyabean (*Glycine max*) oilcake and solvent extracted soyabean oilcake (meal).

B-2.4 Tubers and Roots

- a) Tapioca chips and tapioca flour; and
- b) Sugar beet pulp.

B-2.5 Animal Products

- a) Skimmed milk powder.

B-2.6 Greens

- a) Berseem (*Trifolium alexandrinum*) meal;
- b) Lucerne (*Medicago sativa*) meal; and
- c) Moringa leaves.

B-2.7 Waste Materials and Industrial By-products

- a) Brewer's yeast;
- b) Mango seed kernels (dried); and
- c) Molasses

ANNEX C

(Foreword)

COMMITTEE COMPOSITION

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