भारतीय मानक **IS 18792 : 2024**

Indian Standard

भैंस के लिए मिश्रित चारा — विशिष्टि

Compounded Feed for Buffalo — Specification

ICS 65.120

भारतीय मानक ब्यूरो
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July 2024 **Price Group 5**

Animal Feeds and Nutrition Sectional Committee, FAD 05

FOREWORD

This Indian Standard 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.

India is home to buffalo (*Bubalus bubalis*) with approximately 56 percent of world buffalo population and contribute nearly 50 percent of the total milk production in the country. Buffalo is considered as triple purpose animal, as it provides milk, meat and mechanical power to mankind. Buffalo is also known as efficient convertor of poor quality forages into high quality milk and meat. Buffalo digests feed more efficiently than cattle do, particularly when feeds are of poor quality and are high in ligno-cellulose.

Buffalo milk is one of the richest products from a compositional point of view and characterized by higher fat, total solids, proteins, caseins, lactose and ash content when compared with cow, goat, camel and human milk. Buffalo milk has higher levels of medium chain fatty acids, conjugated linoleic acids, and content of retinol and tocopherols than those of cow milk.

The preference for buffaloes has continued to increase due to higher fat content of milk, ability to thrive on harsh conditions, genetic potential, disease resistance as well as ever increasing export market for buffalo meat and milk products. Given the importance of buffalo milk, a separate specification for buffalo feed has been prepared to guide the manufacturers in manufacturing a quality feed. General recommendation for feeding of buffalo feed is about 400 g to 500 g per litre of milk production, in addition to 2.5 kg to 3.0 kg for body maintenance.

The composition of the Committee responsible for the formulation of this standard is given in Annex B.

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 FEED FOR BUFFALO — SPECIFICATION

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for compounded feed for buffalo.

2 REFERENCES

The standards listed in Annex A contain provisions which through reference in this text, constitute provision 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 REQUIREMENTS

3.1 General

Compounded feed for buffalo shall be in the form of meal or cubes or pellets. The feed shall be free from harmful constituents, metallic pieces and adulterants. The feed shall also be free from fungal growth and insect infestation and from fermented, musty, rancid or any other objectionable odour.

3.2 Ingredients

3.2.1 Ingredients as listed in Annex B of IS 2052 may be used for compounded feed for buffalo.

3.2.2 The proportion of urea when incorporated shall not exceed 1.0 percent by mass. When urea has been added, the compounded buffalo feed shall contain not less than 10 percent by mass of easily digestible carbohydrates like molasses, cereal grains, potato starch, tapioca starch, etc and a ratio of total nitrogen to sulphur of 10 : 1 to 12 : 1 shall be maintained in the compounded buffalo feed. For testing of total nitrogen, the test method given in IS 5983 (Part 1)[1] or IS 5983 (Part 2) shall be used and for testing of sulphur, the method given in Annex B of IS 1664 shall be used.

3.2.3 Any material of animal origin except milk and milk products shall not be used as ingredient for manufacturing the product.

3.2.4 Materials of plant origin used for manufacturing the product shall not have aflatoxin B_1 content more than 20 ppb, except solvent extracted rice bran as livestock feed (*see* IS 3593, commonly called as de-oiled rice bran or DORB), rice polish (*see* IS 3163) and whole grains; wherein aflatoxin B_1 shall not be more than 50 ppb when tested as per IS/ISO 14718[2] or IS 18143 or AOAC 2003.02.

3.3 The material shall also conform to the requirements prescribed in Table 1.

4 PACKING AND MARKING

4.1 Packing

Compounded buffalo feed shall be packed in clean and sound plain or polyethylene lined jute or laminated paper bags or HDPE bags. The mouth of each bag shall be machine stitched.

4.2 Marking

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

a) Name and type of the material;

b) Name of the manufacturer and address;

c) Net mass in kg;

d) Batch or code number;

e) Proximate composition including crude protein content; crude fat content; crude fibre content; calcium content; total phosphorus content; available phosphorus content and urea percent, if present;

f) Acid insoluble ash;

g) Aflatoxin B_1 content;

h) Date of manufacture;

j) Best before date in month and year format;

k) Directions for use; and

m) Any other requirement as given under the *the Legal Metrology* (*Packaged Commodities*) *Rules*, 2011.

4.2.1 *BIS Certification Marking*

The product(s) conforming to the requirements of this standard may be certified as per the conformity

[1]In case of dispute, the method given in IS 5983 (Part 1) shall be the referee method.
[2]In case of dispute, the method given in IS/ISO 14718 shall be the referee method.

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.

5 SAMPLING

Representative samples of the material for ascertaining conformity to this standard shall be drawn according to the method prescribed in Annex D of IS 2052.

6 TESTS

6.1 Tests shall be carried out as prescribed in col (4) of Table 1.

6.2 Quality of Reagents

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

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

Table 1 Requirements for Compounded Feed for Buffalo

(*Clauses* 3.3 *and* 6.1)

Sl No.	Characteristic	Requirement(s)	Method of Test, Ref to
(1)	(2)	(3)	(4)
i)	Moisture, percent by mass, *Max*	11.0	**4** of IS 7874 (Part 1)
ii)	Crude protein (N × 6.25), percent by mass, *Min*	22.0	IS/ISO 5983 (Part 1)* or IS 5983 (Part 2)
iii)	Crude fat, percent by mass, *Min*	5.0	IS/ISO 6492
iv)	Crude fibre, percent by mass, *Max*	10.0	IS/ISO 6865
v)	Acid insoluble ash, percent by mass, *Max*	2.5	Annex A of IS 1712 or IS 14826*
vi)	Salt (as NaCl based on Na or Cl), percent by mass, *Max*	1.0	**4** of IS 7874 (Part 2)
vii)	Calcium (as Ca), percent by mass, *Min*	1.0	IS 13433 (Part 1) or IS 15121* or EN 15621
viii)	Total phosphorus, percent by mass, *Min*	0.7	IS 14828* or EN 15621
ix)	Available phosphorus, percent by mass, *Min*	0.3	Annex F of IS 1374
x)	Urea, percent by mass, *Max*	1.0	IS 7874 (Part 1) or AOAC 967.07*
xi)	Vitamin A, IU/kg, *Min*	10 000	IS 15120
xii)	Vitamin D_3, IU/kg, *Min*	1 300	Annex C of IS 2052* or *J. AOAC Int.* 2012, Vol. 95, No. 5, *Pages* 1487-1494
xiii)	Vitamin E, IU/kg, *Min*	40	IS 15948
xiv)	Aflatoxin B_1, ppb, *Max*	20	IS/ISO 14718* or IS 18143 or AOAC 2003.02
xv)	Cadmium, mg/kg, *Max*	0.5	EN 17053

NOTES

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

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

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

ANNEX A

(*Clause 2*)

LIST OF REFERRED STANDARDS

IS No./Other Standards	*Title*
IS 1070 : 2023	Reagent grade water — Specification (*fourth revision*)
IS 1374 : 2024	Chicken feeds — Specification (*sixth revision*)
IS 1664 : 2002	Mineral mixtures for supplementing cattle feeds — Specification (*fourth revision*)
IS 1712 : 2022	Cottonseed oilcake as livestock feed ingredient — Specification (*third revision*)
IS 2052 : 2023	Compounded feeds for cattle — Specification (*fifth revision*)
IS 3163 : 2022	Rice polish as livestock feed ingredient — Specification (*first revision*)
IS 3593 : 2022	Solvent extracted rice bran (De-oiled rice bran) as livestock feed — Specification (*third revision*)
IS/ISO 5983 (Part 1) : 2005	Animal feeding stuffs — Determination of nitrogen content and calculation of crude protein content: Part 1 Kjeldahl method
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 (*first revision*)
IS/ISO 6492 : 1999	Animal feeding stuffs — Determination of fat content
IS/ISO 6865 : 2000	Animal feeding stuffs — Determination of crude fibre content — Method with intermediate filtration
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 (*first revision*)
IS/ISO 14718 : 1998	Animal feeding stuffs — Determination of aflatoxin B_1 content of mixed feeding stuffs — Method using high-performance liquid chromatography
IS 14826 : 2021/ ISO 5985 : 2002	Animal feeding stuffs — Determination of ash insoluble in hydrochloric acid (*first revision*)
IS 14828 : 2000/ ISO 6491 : 1998	Animal feeding stuff — 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
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 15948 : 2011/ ISO 6867 : 2000	Animal feeding stuffs — Determination of vitamin E content — Method using high-performance liquid chromatography

IS No./Other Standards	*Title*
IS 18143 : 2023/ ISO 17375 : 2006	Animal feeding stuffs — Determination of aflatoxin B1
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
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)

ANNEX B

(*Foreword*)

COMMITTEE COMPOSITION

Animal Feeds and Nutrition Sectional Committee, FAD 05

Organization	*Representative(s)*
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Bureau of Indian Standards

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