

भारतीय मानक

पशुओं के लिए सूखे की स्थिति में यूरिया शीरा
युक्त द्रव आहार की तकनीकी अपेक्षाएं

Indian Standard

TECHNICAL REQUIREMENTS FOR UREA
MOLASSES LIQUID DROUGHT FEED FOR
CATTLE

ICS 65.080

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BUREAU OF INDIAN STANDARDS
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October 1995

Price Group 1

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Livestock Feeds Sectional Committee had been approved by the Food and Agriculture Division Council.

Drought is experienced in some parts of the country almost every year during which balanced feeds play a vital role in animal nutrition. The feeding of cattle during drought periods is aimed at optimizing the available feed resources to balance the nutrients requirement and not merely satisfying the hunger of the animal. If not fed appropriately, the animals tend to lose their production potential which in turn may cause a permanent damage to their productivity.

Molasses is a potential feed for use during drought provided the deficient nutrients are adequately supplemented. It is a rich source of energy and sulphur, though deficient in two major elements, namely nitrogen and phosphorus. However, urea and phosphoric acid incorporated with molasses will correct the above deficiencies. Since molasses will be completely fermented in rumen, the nutrients evolved from it will be microbial protein and volatile fatty acids. To balance the above derived nutrients according to the needs of the animal, adding of bypass protein feed is often recommended.

This Indian Standard has been formulated to provide guidance for formulating and regulating the quality of liquid drought feed intended for maintaining cattle in drought affected areas.

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 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

ONLY

Indian Standard

TECHNICAL REQUIREMENTS FOR UREA MOLASSES LIQUID DROUGHT FEED FOR CATTLE

1 SCOPE

1.1 This standard covers the procedure of preparation, requirements, methods of test and storage for urea molasses liquid drought feed for cattle.

NOTE — The feed should not be offered to calves below 3 months of age.

2 REFERENCES

2.1 The Indian Standards listed in Annex A are necessary adjuncts to this standard.

3 DESCRIPTION

3.1 The feed shall be free from fermented odour, metallic pieces, toxic ingredients, adulterants, visible mould growth and insect infestation. It shall have characteristic molasses aroma.

3.2 The urea molasses liquid drought feed should be prepared as per the procedure prescribed in Annex B.

3.3 The urea molasses liquid drought feed should be used in accordance with the instructions given in Annex C.

4 REQUIREMENTS

4.1 The urea molasses liquid drought feed shall comply with the requirements prescribed in Table 1.

5 STORAGE

5.1 The feed should be stored in steel tanks (*see* IS 5521 : 1980), keeping a headspace of 10 percent so as to counter for gas generation due to fermentation and frothing. The feed shall not be stored for more than 45 days after production. The molasses shall not be pre-heated for the convenience of unloading from the silos and mixing with other ingredients.

NOTE — Pre-heating of urea molasses liquid drought feed shall be avoided as it accelerates the rate of fermentation.

Table 1 Requirements for Urea Molasses Liquid Drought Feed
(Clause 4.1)

Sl No. (1)	Characteristic (2)	Requirement (3)	Method of Test, Ref to (4)
i)	Moisture, percent by mass, <i>Max</i>	25.0	4 of IS 7874 (Part 1) : 1975
ii)	Crude protein ($N \times 6.25$), percent by mass, <i>Min</i>	11.0	5 of IS 7874 (Part 1) : 1975
iii)	Crude fibre, percent by mass, <i>Max</i>	1.0	8 of IS 7874 (Part 1) : 1975
iv)	Total ash, percent by mass, <i>Max</i>	12.0	9 of IS 7874 (Part 1) : 1975
v)	Acid insoluble ash, percent by mass, <i>Max</i>	1.0	10 of IS 7874 (Part 1) : 1975
vi)	Calcium (as Ca), percent by mass, <i>Max</i>	1.0	IS 13433 (Part 1) : 1992
vii)	Phosphorus, percent by mass, <i>Min</i>	0.5	Annex C of IS 1374 : 1992
viii)	Sulphur, percent by mass, <i>Min</i>	0.5	Annex C of IS 13451 : 1992
ix)	Urea, percent by mass, <i>Max</i>	1.6	IS 13399 : 1992
x)	Total reducing matter as invert sugar, percent by mass, <i>Min</i>	30.0	Annex D of IS 1162 : 1958

NOTE — The values specified for characteristics at Sl No. (ii) to (x) are on moisture free basis.

ANNEX A

(Clause 2.1)

LIST OF REFERRED INDIAN STANDARDS

IS No.	Title	IS No.	Title
920 : 1972	Specification for common salt for animal consumption including cattleicks mineralized (<i>first revision</i>)	5521 : 1980	Steel tanks for storage of molasses (<i>first revision</i>)
1162 : 1958	Specification for cane molasses	7874	Methods of tests for animal feeds and feeding stuffs: Part 1 General methods
1374 : 1992	Specification for poultry feeds (<i>fourth revision</i>)	(Part 1) : 1975	
1664 : 1992	Specification for mineral mixtures for supplementing cattle feeds (<i>second revision</i>)	10508 : 1983	Specification for phosphoric acid, foodgrade
1712 : 1982	Cottonseed oilcake as livestock feed ingredient (<i>second revision</i>)	13399 : 1992	Methods of test for animal feeds and feeding stuffs — Determination of urea
1781 : 1975	Specification for urea, technical (<i>first revision</i>)	13433	Animal feeds and feeding stuffs — Determination of calcium : Part 1 Titrimetric method
3592 : 1985	Solvent extracted decorticated cottonseed oilcake (meal) as livestock feed ingredient (<i>second revision</i>)	(Part 1) : 1992	
		13451 : 1992	Urea molasses block as ruminant feed supplement—Specification

ANNEX B

(Clause 3.2)

PREPARATION OF 1 MT LIQUID DROUGHT FEED

B-1 EQUIPMENT

B-1.1 A paddle mixer with 60 to 80 rev/min and 1200 l capacity.

B-2 PREPARATION OF UREA PHOSPHATE MIXTURE

B-2.1 Pour 50 litre water into the mixer, add 11.4 kg phosphoric acid (*see* IS 10508 : 1983) and mix it. Add 28.6 kg urea (*see* IS 1781 : 1975). Mix well till urea is completely dissolved.

B-3 PREPARATION OF FEED

B-3.1 Add the following ingredients in the recom-

mended proportion, into the urea phosphate mixture (*see* B-2.1) in the mixer and run the same for two minutes to ensure homogeneity:

Molasses (<i>see</i> IS 1162 : 1958)	83 percent
Cotton seed meal (<i>see</i> IS 1712 : 1982 and IS 3592 : 1985)	10 percent
Salt (<i>see</i> IS 920 : 1972)	2 percent
Mineral mixture (<i>see</i> IS 1664 : 1992)	1 percent
Vitamin A	5 000 IU/kg

ANNEX C

(Clause 3.3)

INSTRUCTIONS FOR USE OF UREA MOLASSES LIQUID DROUGHT FEED

1. It should be kept in troughs or mangers for group feeding as free choice consumption.
2. The feed should be given at the rate of 3 to 4 kg per adult unit per day.
3. The feed should be fed as such to the animals, without dilution with water.
4. Straw/dry fodder may be supplemented, if available.

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This Indian Standard has been developed from Doc : No. FAD 5 (18).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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