
Beef cattle feedlots — Design and construction



Table of contents

1 Scope 1

2 Normative references 1

3 Terms and definitions 1

5 Space requirement..... 2

6 Structural requirements 2

7 Functional requirements..... 3

Annex A (informative) Typical layout of a cattle feedlot..... 7

Annex B (informative) Lighting requirements..... 8

Foreword

The African Organization for Standardization (ARSO) is an African intergovernmental organization established by the United Nations Economic Commission for Africa (UNECA) and the Organization of African Unity (AU) in 1977. One of the fundamental mandates of ARSO is to develop and harmonize African Standards (ARS) for the purpose of enhancing Africa's internal trading capacity, increase Africa's product and service competitiveness globally and uplift the welfare of African communities. The work of preparing African Standards is normally carried out through ARSO technical committees. Each Member State interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, Regional Economic Communities (RECs), governmental and non-governmental organizations, in liaison with ARSO, also take part in the work.

ARSO Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare ARSO Standards. Draft ARSO Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an ARSO Standard requires approval by at least 75 % of the member bodies casting a vote.

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

This African Standard was prepared by ARSO Technical Committee ARSO/TC 23, *Live animals*.

© African Organisation for Standardisation 2025 — All rights reserved*

ARSO Central Secretariat
International House 3rd Floor
P. O. Box 57363 — 00200 City Square
NAIROBI, KENYA

Tel. +254-20-2224561, +254-20-3311641, +254-20-3311608

E-mail: arso@arso-aran.org

Web: www.arso-aran.org

* © 2025 ARSO — All rights of exploitation reserved worldwide for African Member States' NSBs.

Copyright notice

This ARSO document is copyright-protected by ARSO. While the reproduction of this document by participants in the ARSO standards development process is permitted without prior permission from ARSO, neither this document nor any extract from it may be reproduced, stored or transmitted in any form for any other purpose without prior written permission from ARSO.

Requests for permission to reproduce this document for the purpose of selling it should be addressed as shown below or to ARSO's member body in the country of the requester:

© African Organisation for Standardisation 2025 — All rights reserved

ARSO Central Secretariat
International House 3rd Floor
P.O. Box 57363 — 00200 City Square
NAIROBI, KENYA

Tel: +254-20-2224561, +254-20-3311641, +254-20-3311608

E-mail: arso@arso-oran.org
Web: www.arso-oran.org

Reproduction for sales purposes may be subject to royalty payments or a licensing agreement. Violators may be prosecuted.

Introduction

It is accepted now-a-days by everyone, including consumers, and more particularly groups or organizations defending animal welfare and protection, that the keeping or production of animals would be conducted in compliance with a minimum of rules of ethics and good practices. To this end, the rearing of growth-fattening cattle (beef cattle) should not deviate from these rules. It is for this reason that the present standard dealing with minimum conditions, requirements and good practices related to the design and construction of the beef cattle feedlots has been proposed by ARSO for its member states.

Beef cattle feedlots — Design and construction

1 Scope

This committee Draft African Standard specifies environmentally relevant aspect of the site, design, construction and operation of a feedlot area where beef cattle are kept for fattening which complies the animal welfare to produce high quality grade selection for the slaughter market and make sustainable profit.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

feedlot

area with its physical facilities used for cattle fattening

3.2

cattle

breeding male of any age

3.3

Fan meat grain fed

beef cattle are kept in an area for fattening and are fed a nutritionally balanced ration of high energy content, meaning concentrates are fed in excess of 1% of bodyweight, for a minimum period of 40 days

3.4

cattle

large ruminant animal / bovine, raised for meat, leather and/or milk production

3.5

hormone free

beef cattle prohibited to receive any feeding contain hormones to promote the growth

3.6

antibiotic residue free

Antibiotics are not used preventive or for the purpose of growth or fattening, Beef cattle are only presented for the slaughter after the prescribed withdrawal period for meat in case of necessary treatment with antibiotics.

Not a clear definition

3.7

Humane Handling

Beef cattle are kept, reared, transported, handled and slaughtered in accordance with the five freedoms which form the basic principles of animal welfare.

Not a clear definition

4 Site requirements

4.1 The location shall conform to the land use plan of the area.

CD-ARS 1850:2025(E)

- 4.2** The site shall be accessible to service roads and have adequate water and power supply.
- 4.3** The site shall be well drained and allow for free air circulation.
- 4.4** The building shall be constructed in an east-west orientation and the structure for marketable animals shall be located near the service road.
- 4.5** The site shall be located where the prevailing winds will not carry odours to the farmhouse.

5 Space requirement

The recommended minimum floor space requirement for cattle is given in Table 1.

Table 1 — Minimum floor space requirement for cattle

Area	Floor space m ² /cattle
Shed area	4
Loafing area	5

6 Structural requirements

6.1 Floor

- 6.1.1** Concrete floors shall be skid resistant. The minimum floor thickness shall be 100 mm with 2 % - 4% slope towards the drainage.
- 6.1.2** If the floor is earth lot, it shall have a slope of 4% - 7%.

6.2 Roof

- 6.2.1** Adequate roofing shall be provided against excessive heat from the sun.
- 6.2.2** The roof slope shall not be less than 25%. If roofing is made of indigenous materials, the minimum roof slope shall be 58%.
- 6.2.3** The minimum height of the top of the roof beam shall be 2.5 m from the floor.

6.3 Pen wall

- 6.3.1** Pen walling and post shall be preferably made of G.I. pipes schedule 40. The diameter of vertical and horizontal railing member of the pen wall shall be at least 50 mm and 75 mm for the post.
- 6.3.2** The maximum centre to centre spacing between vertical railing members shall be 1.5 m and for horizontal railing member, spacing shall be 400 mm.
- 6.3.3** The maximum centre to centre spacing between post shall be 3 m and shall be embedded in a concrete pedestal with a minimum depth of 400 mm (Figure 1).
- 6.3.4** Each post shall be provided with 150 mm concrete protectors.
- 7.3.5** The pen shall be 1.2 m – 1.5 m high.
- 6.3.6** Fittings and internal surfaces of the pens shall be free from sharp edges or projections to avoid injury to the animals.

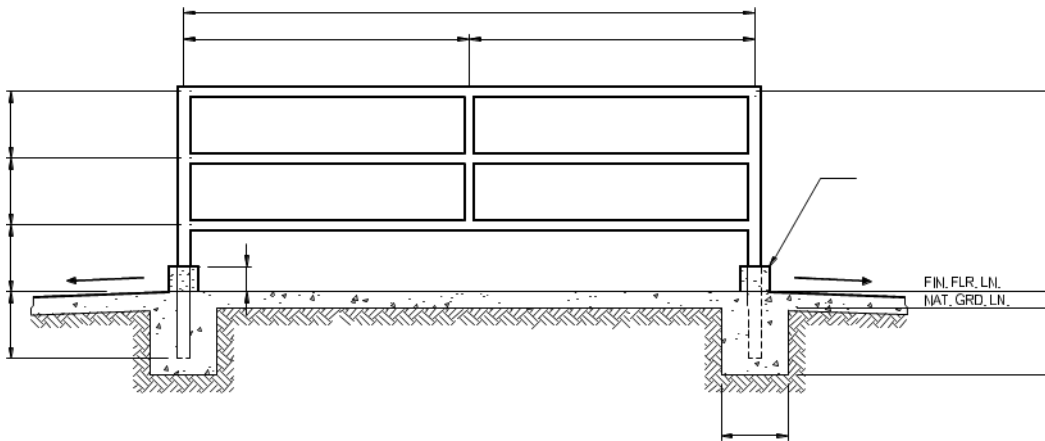


Figure 1 — Sample of slotted pen wall

6.3.7 Paints that may be toxic to animals shall not be used on surfaces accessible to them.

7 Functional requirements

7.1 Pen size

Pen width should be adequate to provide the required trough length for the number and size of cattle being fed in the pen.

7.2 Pen Facilities

7.2.1 Feeding trough

7.2.1.1 Feeding trough shall be placed in front of the pen to allow all cattle to feed at the same time

7.2.1.2 Inside surfaces of the feeding trough should be smooth and it should have rounded corners to facilitate cleaning

7.2.1.3 The dimension of the feed trough should be 400 mm depth, 450 mm – 700 mm bottom width and 700 mm – 900 mm top width (Figure 2).

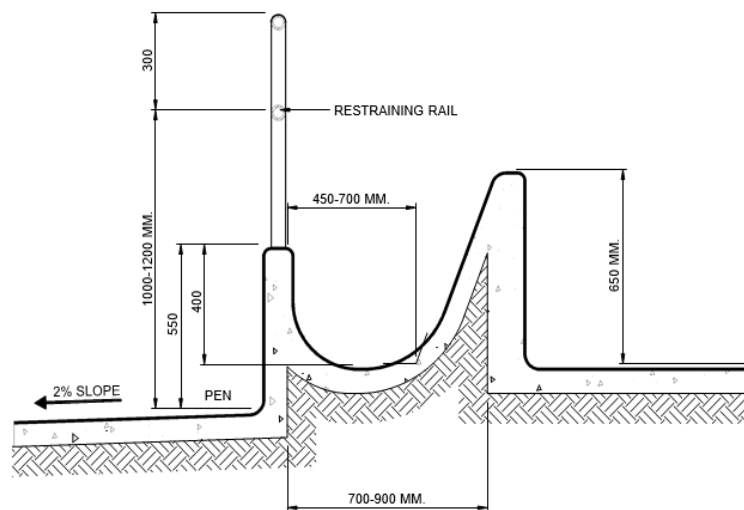


Figure 2 — Typical cross section of a feeding trough

7.2.1.4 The bed of the trough should be 150 mm above the level of the apron to facilitate natural feeding stance.

7.2.1.5 Feeding trough shall be provided with horizontal rail to restrain the cattles from stepping the trough. The height from the pen floor should be 1m - 1.2 m.

7.2.1.6 The feeding troughs shall be provided with concrete or gravel packed aprons to improve sanitation, if the pen has an earth floor. Minimum length of concrete aprons shall be 1.5 m.

7.2.1.7 The minimum space requirement for feeding shall be 750 mm/cattle.

7.2.1.8 The feeding troughs shall be designed to allow feeding of all the cattle at the same time.

7.2.2 Watering facility

7.2.2.1 Water troughs should be made of concrete (Figure 3) or galvanized metal tanks. Float activated valve should be provided to regulate the water level.

7.2.2.2 The water troughs shall be provided with concrete or gravel packed aprons to improve sanitation and keep the water clean, if the pen has an earth floor. Minimum length of concrete aprons shall be 1.5 m.

7.2.2.3 For the open water tank, 250 linear mm shall be provided for 8-10 head.

7.2.2.4 If automatic waterer is used, one automatic waterer should be provided for 15 animals and it should be placed at a height of 1m.

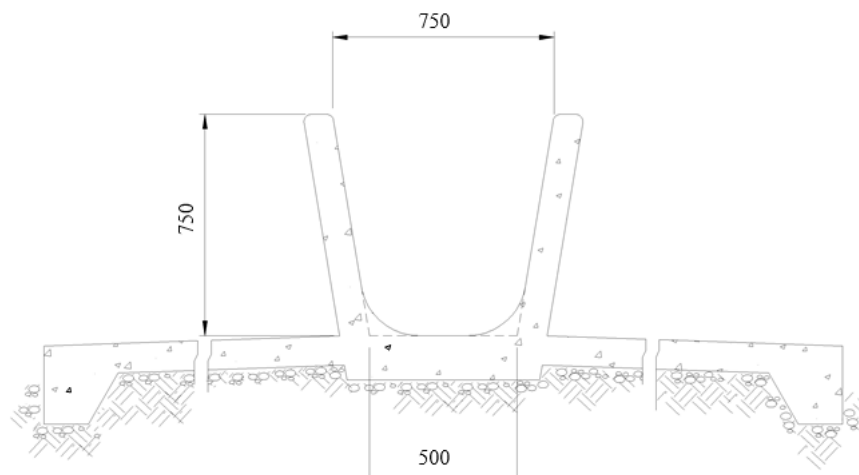


Figure 3 — Typical drinking trough

7.2.3 Feeding management

7.2.3.1 Only registered feeds may be used as a beef cattle feed besides commercially available feeds and should be fed a fan meat grain fed (containing concentrates in excess of 1% body weight) to produce meat with a specific taste and colour expectation with higher levels of intramuscular fat.

7.2.3.2 On farm mixtures may also be fed but may not contain any prohibited substances.

7.2.3.3 A balanced energy rich feed should be used in such a way as to support production needs of the beef cattle for the purpose of fattening and rounding off without affecting the health of the animals.

7.2.3.4 No feeds containing ingredients from carcass, blood, bone or any other bone products as hoofs or horns, and meat meals from any animal or mammalian source or other illegal substances as hormones/antibiotics as a promote the growth.

7.2.3.5 Feed and water shall be available a daily basis, a contingency plan shall be in place in case of failure of feed or water supply and shall implement appropriate actions at once, Stale and spoiled feed should be removed daily.

7.2.3.6 Beef cattle are kept for fattening and are fed.

7.2.3.7 Water troughs shall be regularly inspected and maintained, ensuring that there is a clean drinking water available to animals at all times.

7.2.3.8 Water should be easily accessible for the animals without any risk of injury.

7.2.3.9 Feedlot are sited, designed and constructed to prevent or minimize adverse impacts on ground waters or surface waters external to the site of feedlot.

8 Health management

8.1 For the beef cattle in feed lots, health management practices shall be applied including vaccination programs disease prevention, and regularly health monitoring are essential for maintaining optimal growth performance of feed lot cattle, preventing the transmission, spread and severity of the beef cattle diseases and can decrease morbidity and mortality rates.

8.2 Illness or poor health can significantly hinder weight gain, reducing overall productivity.

8.3 Environmental factors such as temperature, humidity and housing conditions or other stress can affect feed intake and growth rates.

8.4 Regular surveillance and inspection of beef cattle.

8.5 Preventive treatment of cattle against internal and external parasites.

8.6 Sick or injured animals shall be treated immediately under the supervision of the authorized veterinarian.

8.7 All veterinary treatment medications and equipment shall be stored and used under cleaning and hygienic conditions and shall be used according to its label construction.

8.8 Emergency information and corresponding equipment or drugs shall be available with accidents

8.9 After each treatment or vacation or emergency carried out the record shall be kept.

8.10 Identifications of cattle shall be applied complying to the animal welfare rules to can trace them and their products.

8.2.3 Lighting

8.2.3.1 The housing shall be provided with natural or artificial lighting intensity of 200 lux (Annex B).

8.2.3.2 All electrical installations shall be inaccessible to all animals and it shall conform to relevant regulations

8.3 Loading chute

8.3.1 Loading chute should be provided and should be oriented so as to minimize the effect of bright sunlight. The width shall be a minimum of 760 mm.

CD-ARS 1850:2025(E)

8.3.2 A catwalk on one side of the chute should be provided to allow the handler to load the cattle easier.

8.3.3 Loading chute should be provided with telescoping side panels and a self-aligning dock bumper.

8.3.4 The chute should be provided with loading ramp with a level-loading surface of about 1.5 m wide to walk on or off the truck. The height of loading ramp for different types of vehicle is shown in Table 2.

Table 2 — Ramp height for different vehicles

Vehicle	Height m
Gooseneck trailer	0.4
Pick-up truck	0.7
Van-type truck	1.0
Tractor trailer	1.2
Double deck	2.5

8.4 Loading ramp

8.4.1 Loading ramp floor shall have cross battens every 200 mm to prevent slipping.

8.4.2 Ramp should have a slope of 10 % to 20 %.

8.4.3 The slope of the permanently installed ramp shall not 20 degrees.

8.4.4 If stair-stepped concrete ramps are provided, each step should have 90 mm – 100 mm rise and 300 mm tread width. The step surface shall be roughened.

8.5 Passage (if necessary)

The central alley or the driveway should be elevated and shall have a minimum width of 3 m if vehicles are allowed to enter within the building and it shall have a solid base.

8.6 Weighing scale

Platform weighing scale should be provided.

8.7 Drainage

The gutter shall have a minimum width of 460 mm and a minimum depth of 200 mm.

8.8 Feed storage

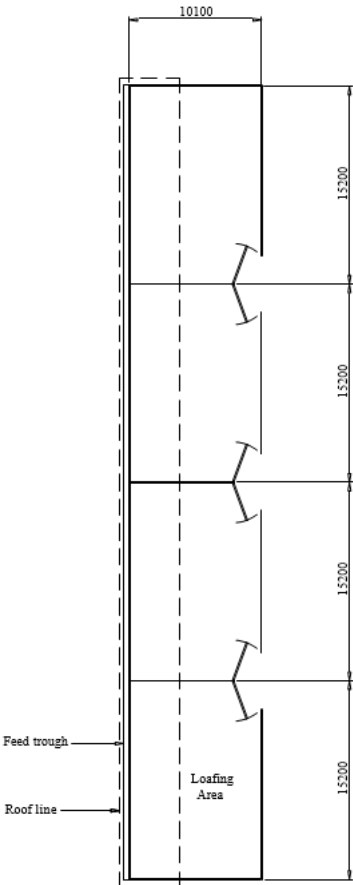
Storage sheds for all feedstuffs – hay, grain, mineral salt, shall be provided to keep it dry, protect from rodents and be inaccessible to animals.

9 Waste disposal

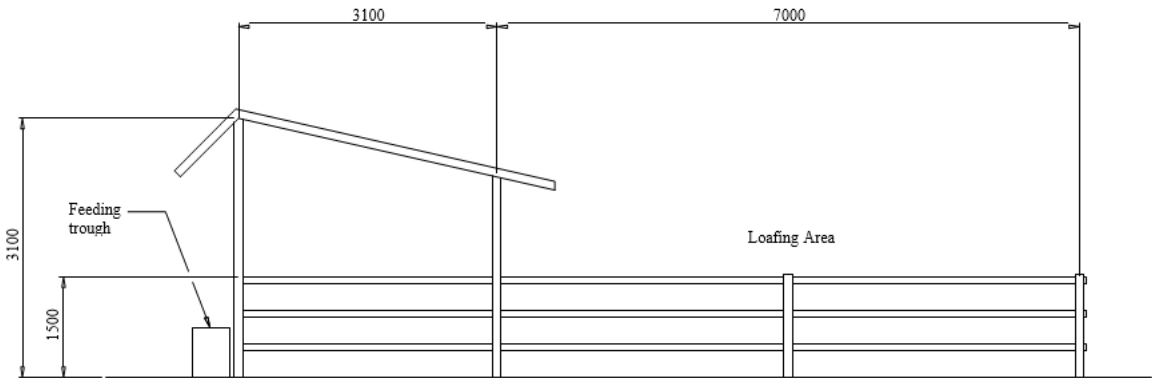
Waste management shall be in accordance with relevant regulations. j

Annex A
(informative)

Typical layout of a cattle feedlot



Floor plan



Side Elevation

Annex B
(informative)

Lighting requirements

Lighting Intensity lux	No. of bulbs required per m ²							
	Incandescent lamp						Fluorescent lamp	
	25 W	40 W	60 W	100 W	150 W	200 W	20W	40W
500	3.935	1.989	1.052	0.520	0.314	0.226	0.682	0.266
400	3.148	1.591	0.842	0.416	0.251	0.181	0.546	0.213
300	2.361	1.193	0.631	0.312	0.189	0.136	0.409	0.160
200	1.574	0.796	0.421	0.208	0.126	0.090	0.273	0.107
150	1.180	0.597	0.316	0.156	0.094	0.068	0.205	0.080
100	0.787	0.398	0.210	0.104	0.063	0.045	0.136	0.053
50	0.393	0.199	0.105	0.052	0.031	0.023	0.068	0.027
10	0.079	0.040	0.021	0.010	0.006	0.005	0.014	0.005

Bibliography

- [1] PNS/BAFPS 60:2008, *Code of Good Animal Husbandry Practices*. Department of Agriculture. Philippines
- [2] PNS/BAFS 163: 2015, *Animal Feed Ingredients*. Department of Agriculture. Philippines
- [3] PNS/BAFS 164:2015, *Code of Slaughtering Practices for Goats*. Department of Agriculture. Philippines
- [4] *Guide to Good Farming Practices for Animal Production Food Safety*. 2009. Food and Agriculture Organization of the United Nations and World Organization for Animal Health. Rome
- [5] *Food Safety Module - Good Animal Husbandry Practices for Layers and Broilers in ASEAN Countries*. 2015. Association of Southeast Asian Nations (ASEAN). Jakarta, Indonesia