

# The Design of Feeding Barriers and Mangers and Its Effect on Incidence of Injuries and Feed Wastage

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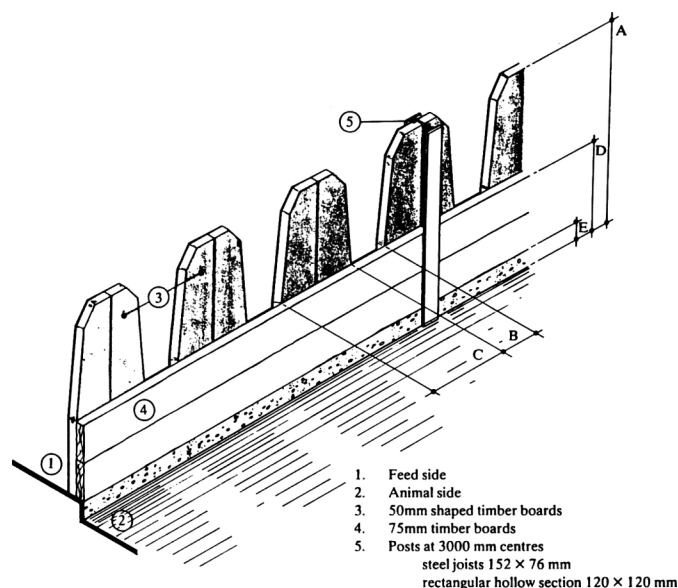
## Performance specification

- robust; to restrain animals while feeding
- to prevent animals walking in or defecating into manger
- to retain the feed within comfortable reach
- easy to construct and maintain
- easy to remove feed residues and to keep clean
- to prevent injuries to nape and knees of cattle
- sufficient holding capacity to allow one or two days feed supply according to the feeding system
- easy to fill by mechanical means without scattering feed outside of the manger area
- to control bullying
- to provide sufficient manger frontage to ensure proper feed intake by all animals using the manger.
- ensure unobstructed view of animals.

## Tombstone barrier

The dimensions of the tombstone barrier based on the animal weight and zoometry are shown in Figure 1 (1).

Figure 1. Tombstone barrier.



Paper presented at the "How To" seminar, AABP annual meeting in Phoenix, AZ, November, 1987.

Animal	Age (months)	Weight (kg)	Dimensions (mm)				
			A	B	C	D	E
Heifers	6	120-150	930	150	300	410	
	12	220-280	1050	170	360	440	100-300
	18	350-420	1100	190	410	460	
Bull beef	6	150-200	990	170	290	420	
	12	150-350	1100	200	310	460	100-300
	18	450-550	1160	200	400	480	
Dairy cows	—	550-650	1220	200	500	500	100-300

## Advantages:

- efficient in controlling wastage and bullying
- durable
- minimising injuries

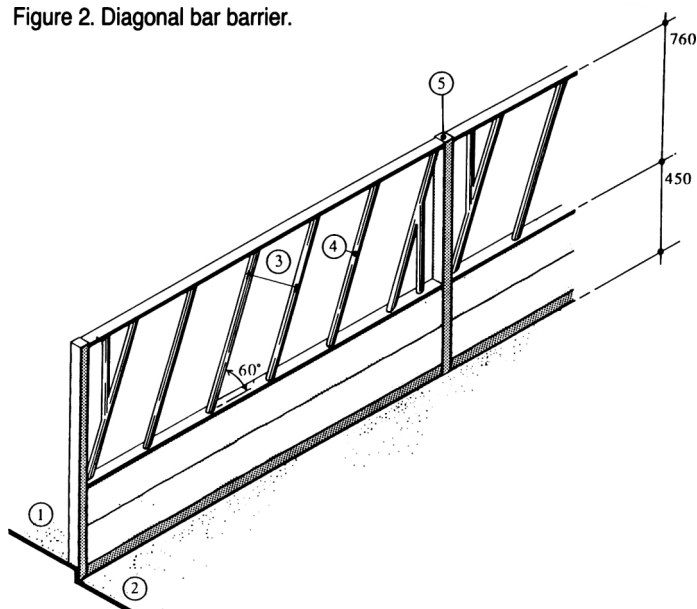
## Disadvantages:

- relatively costly to install
- dimensions sensitive to its efficient operation
- parallel openings of the neck slots dangerous to young cattle. Tapered openings preferred.

## Diagonal bars

The general arrangement is shown in Figure 2. (1).

Figure 2. Diagonal bar barrier.



**Advantages:**

- lower cost than tombstone barrier
- easy to install
- helps to control bullying
- efficient control of feed wastage

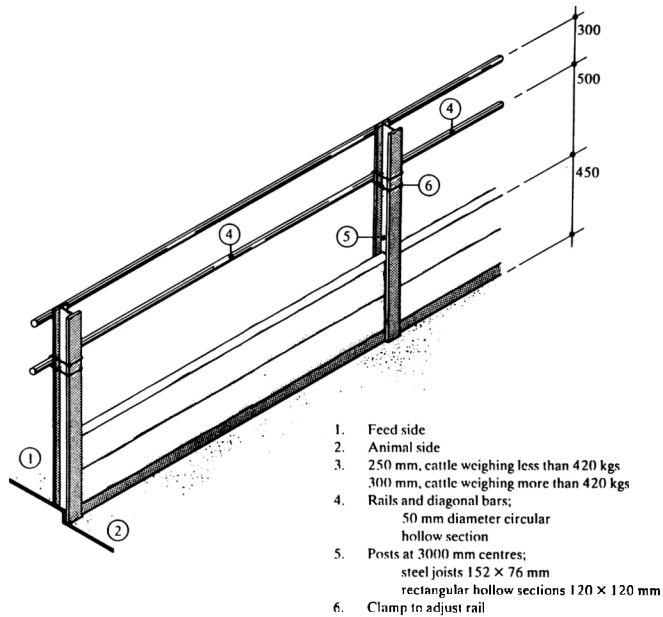
**Disadvantages:**

- animals forced to carry head forward towards the right while eating; possibly interfering with neighbouring animals and promoting bullying particularly while feeding whole turnips or potatoes.
- dimensions sensitive to its efficient operation
- small corner openings should be blanked off to prevent animals getting trapped (See figure 2).

**Post and Rail**

The dimensions of the post and rail barrier are shown in Figure 3 (1).

Figure 3. Post and Rail



**Advantages:**

- cheap to install
- variety of materials may be used (steel cables, timber or steel rails or tubes; steel rope should be sleeved in plastic tubing to prevent injuries to rope)
- easy access to all animals.

**Disadvantages:**

- feed easily displaced by cattle outside of their reach.
- excessive feed wastage possible
- secondary forking necessary to push feed within the reach of cattle.

**Mangers—shaped profiles**

- retains feed within animals' reach
- low feed wastage
- less injuries to nape and knees as animals do not have to push hard against the barrier to reach feed.

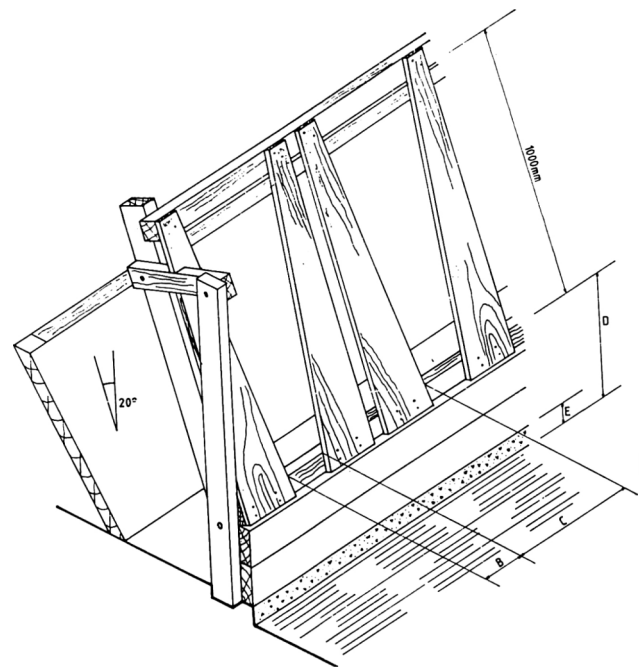
**Disadvantages:**

- installation cost higher
- more difficult to keep clean and to remove feed residues
- requires more space within the feeding passage.

**Dovetail feeding barrier and shaped manger**

This barrier is similar to the tombstone type barrier but it is inclined at an 20° to the vertical. This allows cows to reach more food, more comfortably. The general arrangement is shown in figure 4 (2).

Figure 4. Dovetail feeding barrier and shaped manger.



**Advantages:**

- virtually eliminates feed wastage and injuries
- forces exerted by cows on the barrier considerably reduced since animals do not have to push against it to reach food
- cheap and simple, made entirely from timber, suitable for DIY construction and installation.

**Disadvantage:**

- possibly some obstruction to stockmen's view of the cows.

**References**

1. Feeding barriers. Ministry of Agriculture, Fisheries and Food, Internal Technical note TN/FBS/62, November 1985. 2. Dumelow, J., The Dovetail feeding barrier, NAC Summer Newsletter, 1987.