AN IMPROVISED CHUTE FOR MUTURU CATTLE

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ABSTRACT

To determine the efficiency of an improvised chute on the progressive walk of Muturu cows, a handling section comprising a squeeze, 10m long, 1.35m high and 0.60m – 0.80m wide, was improvised with Gmelina posts chalked in 0.60m deep holes at 1.50m distance from each other and connected with rows of barbed wire. In two replicate trials 10 Muturu cows, aged 30-36 months, were passed through the alley until they reached the handling point. The two passes resulted in a mean success rate of 75% attributed to the working efficiency of the improvised chute. It is concluded that in spite of the observed 75% efficiency, the 0.80m – 0.60m width of the improvised chute was on the large side, and that narrower, or width-wise adjustable squeezes could be more efficient if tested.

Keywords: Chute, Improvisation, Muturu Cattle.

INTRODUCTION

In managing the Muturu cattle using a modern beef rearing technique, a number of ranching structures, namely, organized and regulated grazing paddocks, collecting and holding yards, dip or spray race, weigh bridge, and very importantly, a handling area must have to be accessed (O'Mary and Dyer, 1974; Barret and Larkin, 1979). A handling unit comprising a forcing (funnel) yard, a crush and the handling point proper is a very vital aspect of modern cattle husbandry as it enables for the restraining of animals for veterinary attention, pregnancy diagnosis, AI, branding, and all anthropometrical measurements (Self, 1974; Porter, 1988). However, the inclusion of

the muturu cattle in existent beef cattle ranches where larger breeds are held will present some monitoring problems since the small compact animals will also have to move through the wide crushes originally designed for passing and handling bigger cattle obtainable in those farms. It has, therefore become necessary to design and test crushes and handling points best suited for the small sized muturu cattle. The improvised walking and handling chute constructed and installed at the ESUT beef cattle research farm at Abakaliki was intended to achieve the above objective and as well satisfy this necessity.

MATERIALS AND METHODS

A handling chute was constructed at the Beef Cattle Improvement and Multiplication Research Unit of the Department of Animal Science, ESUT, at Abakaliki in Ebonyi State of Nigeria. It was installed as an inside part of the Beef Cattle holding yard. The handling section consisted of a funnel-like collecting yard leading into the veterinary crush which ended with a weigh-bridge. The fences of the handling unit were made of wooden posts, with barbed and woven wires. The posts were cut from aged Gmelina trees of a Forest Reserve near the University Campus at Abakaliki. The logs, after cutting, were immediately treated in a 2: 1(v/v) solignum – paraffin mixture and allowed to dry for one month. The posts were then chalked (with cement concrete) in 0.60m deep holes at 1.50m distance from each other to stand 1.35m high. Thereafter, the posts were connected with four rows of barbed wire from top to 0.60m above ground, and one row of woven wire from there to the ground.

The squeeze measured 10m long while its width ranged from 0.80m at the forcing yard (funnel) gate to 0.60m at the handling (veterinary) crush before the weigh-bridge.

The Muturu cows aged 30-36 months were allowed to pass through the alley from the forcing yard into the handling crush on two occasions at two weeks interval, at 8.00 a.m. each day. The passage was closely monitored to assess the success rate or the efficiency of the squeeze in making the muturu cattle to pass forward without turning around or sneaking out through the two sides.

An animal that passed successfully into the crush without turning was recorded with the code "1" whereas a cow that managed to turn around in the passage process, was deemed to have failed the test, and was thus coded with "0". The total number of successes (1's), of failures (0's) were counted and expressed as a percentage of the total number of the cows that entered for the test to obtain the success or failure rate respectively, indicating the efficiency of the squeeze. In this manner, efficiency of the chute (or crush) was expressed as:

Efficiency of chute =

$$\frac{\text{No. of cows passing forward without turning} \times 100\%}{\text{Total No. of cows involved in the test}}$$

During the first passage, the 10 cows were restrained for handling at the crush where their body measurements were taken. These included body length, and heart girth. The body size of the individual cows was estimated as an index extrapolated as follows:

$$\text{Body size index 1} = \frac{\text{Heart girth of cow}}{\text{Body length of cow}}$$

RESULTS

The body length, heart girth, body size index characteristics of the 10 Muturu cows allowed into the handling squeeze are presented in Table 1 along with the records of their passage score of the 10 animals that were made to pass

through the improvised chute on two respective occasions. Seven (7) and eight (8) cows moved successfully forward into the handling point without turning around, while three (3) and two (2) respectively failed the test by being able to turn back on their own. The percentage efficiency of the improvised chutes are 70.0 and 80.0 in the replicates respectively, with an average value of 75.0% in the overall test. The mean body length and heart girth measurements recorded for the 10 cows were $131.8 \pm 1.31\text{cm}$ and $124.7 \pm 2.22\text{cm}$ respectively, while the mean values of the extrapolated body, length-heart girth difference (D), and body size index (1) records were $8.30 \pm 2.22\text{cm}$ and 0.947 ± 0.02 respectively. Table 1 also shows the mean success and failure scores in the two replicates to be 0.70 ± 0.15 and 0.80 ± 0.13 respectively.

DISCUSSION

During the first trial seven (7) out of the 10 cattle successfully walked through the chute without turning around, whereas in the second trial, eight (8) successfully passed (Table 1). Conversely, three out of the experimental animals turned around in the first replicate passing, which reduced to two (2) in the second passing after two weeks. This showed success and failure rates of 70% and 30% in the first trial and 80% and 20% in the second trial passes respectively. The working efficiency of the chute is evidenced by the success rate average from the figures generated by the two replicate passes, and in this case has been calculated to be 75.0%. A failure or deficiency rate of 30-20% due to the turning of 3-2 cows in the two trials seems high. The turning could be as a result of the width of the chute which varied from 800mm-600mm that could have been narrower. From available literature widths of 750mm-600mm or less have been used (Barrett and Larkin, 1979; Grandin, 1981). The squeeze in this study was improvised to have fixed, non-adjustable sides (fixed from the ground level to the top) as against the adjustable types reported by Barrett and Larking (1979) and

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TABLE 1: BODY MEASUREMENT AND PASSAGE RECORDS OF 10 MUTURU COWS IN A HANDLING CRUSH

ID No of Cow	Body Length (cm)	Heart Girth (cm)	Body Difference (BL-HG)	Body Size Index (HG+HL)	Passage success (1) or Failure (0) Replicate	Coding for or Failure
	BL	HG	D	I	1	2
1	135	121	14	0.896	1	1
2	134	114	20	0.851	1	1
3	132	132	0	0.000	0	1
4	123	120	3	0.976	0	0
5	135	129	6	0.952	1	1
6	137	126	11	0.920	1	1
7	131	126	5	0.962	1	1
8	127	129	(2)	1.016	0	1
9	131	135	(4)	1.032	1	0
10	133	115	18	0.865	1	1
Mean	131.8	124.7	8.30	0.947	0.70	0.80
±SE	1.31	2.22	2.22	0.02	0.15	0.13
No. Passage Successes					7	8
No. Passage failures					3	2
Chute efficiency, replicate (%)					70.0	80.0
Chute efficiency, average (%)					75.0	

Grading (1981) and which have the fixed narrow bases (750-600mm or 680-600mm) that widened towards the top by adjustment. The choice of permanently fixed sides is based on the reported disadvantages attributed to the adjustable chutes namely: with very narrow bases, heavier cattle develop problems of walking on the side rails instead of on the floor; they may not "pack" themselves well as they are meant to file pass to the crush (Barret and Larkin (1979).

With an average success rate of 75.0% attributable to the working efficiency of the handling chute one would conclude that the dimensions of the alley were adequate. However, judging from the high failure rate of 20-30% observed, problems could arise with the attempt to closely monitor or handle larger heads of the Muturu involving tens or more numbers. Also, cattle of younger age may be difficult to be entered for handling and measurement purposes. It is, therefore, recommended that while the narrower end of 600mm width be retained, the larger end of 0.80m towards the forcing yard should be

reduced by between 0.05-0.10m, and tested for efficiency in like manner as presented. It might also be worthwhile to design squeezes with basetop adjustable mechanisms especially for ranches that intend to integrate the Muturu breed with larger stock already quartered.

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