

EVALUATION OF ARTIFICIAL FEEDING METHODS IN DAIRY CALVES

(BUCKET Vs NIPPLE BOTTLE) //

HERBERT MUNTUYERA | NUWAGABA

THIS THESIS HAS BEEN ACCEPTED FOR  
THE DEGREE OF..... M.Sc. - 1981 .....

AND A COPY MAY BE PLACED IN THE  
UNIVERSITY LIBRARY.

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF MASTER OF SCIENCE IN ANIMAL PRODUCTION IN  
THE FACULTY OF AGRICULTURE, UNIVERSITY OF NAIROBI

1981.

UNIVERSITY OF NAIROBI  
LIBRARY

ABSTRACT

Thirty two dairy calves balanced for breed, sex and liveweight were used in a 2 x 2 factorial design experiment to evaluate both method of feeding milk to calves (bucket and nipple feeding) and level of milk intake (5 and 10% of bodyweight). The treatments were: milk intake at 5% of bodyweight in (a) open buckets and (b) nipple bottles and milk intake at 10% of bodyweight in (a) open buckets and (b) nipple bottles. Fresh whole milk was fed individually to the calves twice a day from 4 days of age; and calf pellets, water and hay were provided fresh daily, ad libitum, up to 63 days of age. The calves were housed individually in indoor pens and routine deworming, and spraying were carried out. Liveweight gains, disease incidence, rate of milk consumption, body development and labour requirement were recorded.

Method of milk feeding to calves but not level of milk intake had a significant ( $P < 0.05$ ) effect on liveweight gains of calves. The calves that consumed milk from open buckets showed higher ( $P < 0.05$ ) average daily gains than those that received milk in nipple bottles. However, level of milk intake showed a significant ( $P < 0.05$ ) effect on the consumption of calf pellets. Neither method of feeding milk nor level of milk intake by the calves had any significant effect on water consumption by the calves.



Method of feeding did not have a significant ( $P > 0.05$ ) effect on any of the body measurements; but level of milk intake showed a significant ( $P < 0.05$ ) effect on height at the withers while there was a significant ( $P < 0.05$ ) effect of the method x level interaction on bodylength. Calves that received milk at 10% bodyweight had higher changes in height at withers than those that consumed milk at 5% of bodyweight. Calves that fed via nipple bottles at 10% level of milk intake had the largest increase in bodylength while those that consumed milk at 5% of bodyweight in nipple bottles had the least increase. Between the two methods of milk feeding, the milk consumption rates of calves were only significantly ( $P < 0.05$ ) lower for bucket-fed calves in weeks 1 and 3 but higher in weeks 7 and 8. In general there was a concomitant increase in the rate of milk consumption with age under both methods of feeding. There was no clear cut pattern of disease occurrence attributable to any particular method of milk feeding or level of milk intake.

A significant ( $P < 0.05$ ) positive correlation between average daily gain (ADG) and milk intake was obtained for calves that consumed milk at 5% bodyweight in nipple bottles; while positive correlations between average daily gain (ADG) and pellet intake were significant ( $P < 0.05$ ) for calves that received milk at 5% bodyweight on both methods of feeding. Correlation between average daily gain (ADG) and pellet intake for calves consuming milk at 5% bodyweight in nipple bottles was significant ( $r = 0.95$ ;  $P < 0.01$ ).

Under the conditions of the experiment, the cheapest method that gave satisfactory weight gains was feeding milk to calves at 5% bodyweight in buckets and offering liberal amounts of good quality calf starter.