

ESTABLISHMENT OF AN AZOLLA (*Azolla pinnata*) POND AND USE OF AZOLLA AS A FEED INGREDIENT IN CALF DIETS

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There is significant potential to enhance livestock productivity by providing balanced diets formulated from locally available feed resources, such as *Azolla pinnata*. This study aimed to achieve two objectives: (1) to introduce effective management practices for an azolla pond, and (2) to evaluate the impacts of azolla on the growth performance of young cattle. A pond (3 m x 1 m x 0.3 m) was constructed with a 20cm water level for azolla cultivation. The pond was fertilized with 14 g of triple super phosphate, 3kg of cow dung, and 25kg of topsoil, followed by the introduction of 1kg of azolla. For the second objective, a feeding trial was conducted with nine young cows aged 3 to 24 months, randomly assigned to three treatments in a complete block design at the faculty farm in the Faculty of Agriculture at the Rajarata University of Sri Lanka. Treatment 1 (T1) served as the control, provided with the farm diet; 99.5% *Megathyrsus maximus* and 0.5% concentrates. Treatment 2 included 69.9% *Megathyrsus maximus*, 0.4% concentrates, and 35.7% azolla, while Treatment 3 consist of 32.4% *Gliricidia sepium*, 42.6% *Megathyrsus maximus*, 0.2% concentrates, 23.8% azolla, and 1.0% mineral mixture. Daily feed intake and weekly growth rates of the calves were recorded. Related to the first objective; the first harvest of azolla was collected after one week of establishment, followed by subsequent harvests of 1 kg on alternate days. Azolla must be harvested regularly to prevent overgrowth, otherwise, the growth of new plants and the pond's ecosystem are potentially disrupted. As expected, the mean feed intake ($5.0 \pm 0.06 \text{ kg calf}^{-1}$) was significantly higher in T3 compared to T1 ($4.7 \pm 0.06 \text{ kg calf}^{-1}$) and T2 ($4.6 \pm 0.06 \text{ kg calf}^{-1}$). Cattle in T3 exhibited a significantly higher mean body weight ($120.8 \pm 5.23 \text{ kg}$) compared to T2 ($111.7 \pm 5.23 \text{ kg}$) and T1 ($106.1 \pm 5.23 \text{ kg}$). Moreover, incorporating azolla into grass mixtures (T1 and T2) or providing young cattle with a balanced diet (T3) can effectively promote healthier growth and development.

Keywords: Azolla cultivation, Calf diets, Calf performance, Feed resources