

## **Comparative growth and economic performances between indigenous Swamp and Murrah crossbred buffaloes in Malaysia**

### **ABSTRACT**

This study was conducted to compare the growth and economic performances between Swamp and Murrah crossbred buffaloes. The records of 108 Swamp and 276 Murrah crossbred buffaloes born between January 2010 and December 2015 were used in this study. The farm was practicing an extensive grazing system without supplementation from January 2010 to December 2011 (pre-intervention) and a new implementation of supplement in the feeding regime from January 2012 to December 2015 (post-intervention). The birth, weaning, and body weight at three monthly intervals, number of calves born, and mortality rate of calves at different years and during pre- and post-intervention were analyzed using a general linear model procedure. The interventions in 2012 had a positive effect on increasing the number of calves born for both breeds, average birth weight, economic performance, and reduce mortality calf rate. As a result, the birth weight of Murrah crossbred buffaloes was higher ( $36.63 \pm 0.50$  kg) than Swamp buffaloes ( $34.69 \pm 0.40$  kg) ( $p < 0.05$ ). The average pre-weaning daily weight gain for Swamp and Murrah crossbred buffaloes was 0.73 and 0.98 kg/day ( $p < 0.05$ ), while the average post-weaning daily weight gain was 0.39 and 0.44 kg/day, respectively ( $p < 0.05$ ). The Swamp and Murrah crossbred buffaloes achieved the targeted market weight of 250 kg at 18 and 15 months old, respectively, while the targeted breeding weight of 385 kg was achieved at 30 and 26 months old, respectively. In this farm, on average a total of 64 calves were born yearly, with the ratio number of born calves per number of mated dams recorded higher in Murrah crossbred buffaloes as compared to Swamp buffalo (0.64 vs. 0.37) ( $p < 0.05$ ). Furthermore, the average number of calves born in the post-intervention period (January 2012–December 2015) was significantly higher than in the pre-intervention period (January 2010–December 2011), respectively (Swamp: 23 vs. 8 and Murrah crossbred: 53 vs. 31, respectively) ( $p < 0.05$ ). Partial budget method was used to estimate the net gain or loss between the two breeds. The average annual revenue was 2304.14 MYR (566.13 USD) for Swamp buffaloes and 4531.50 MYR (1113.39 USD) for Murrah crossbred buffaloes. The average annual cost saving was 340.02 MYR (83.54 USD) for Swamp and 215.75 MYR (53.01 USD) for Murrah crossbred buffaloes. On the other hand, annual added cost was 84.95 MYR (20.87 USD) for Swamp and 96.76 MYR (23.77 USD) for Murrah crossbred buffaloes. Therefore, the annual net benefit was 2559.21 MYR (628.80 USD) for Swamp and 4650.49 MYR (1142.63 USD) for Murrah crossbred buffaloes. As a conclusion, this study had shown that the higher average daily weight gain contributes to better cost savings, as shown by the crossbred buffaloes.