ABSTRACT

Buffalo farming is a supplementary income generating activity for agricultural small holdings, but is under pressure from intensification of land use. A farming systems research study was initiated to demonstrate the feasibility of intensification of buffalo farming under dry zone conditions and to study the costs and benefits. A rapid rural appraisal (RRA) was conducted and a human settlement area in System H of the Mahaweli Project was selected. Constraints were identified through a questionnaire survey and RRA and a cluster of nine small-holder farmers was selected. A model for 'small-holder intensively managed buffalo units' (SIMBU) was designed for maintaining three adult dairy buffaloes on crop residues and agro-industrial byproducts. One such unit was established on a state farm for demonstration, followed by nine units on the selected farmers' premises using family labour. Each SIMBU was supplied with two Surti buffalo cows and one heifer. Their average lactation yield was 1018±347 liters at the farm of origin. Based on prior information from on-station trials, a feeding system consisting of grass, tree fodder and rice straw *ad libitum*, supplemented with 1 kg/day of urea-molasses-multinutrient mixture (UMMM) containing 5.5% urea, 25.7% molasses, 60% rice bran and 8.6% minerals was selected. The testing and refinement of the feeding system was conducted in 4 successive phases, with roughage as the basal diet, supplemented with: 3 kg coconut poonac and 3 kg rice bran per day for one month (Diet 1, identical to that on farm of origin); 1 kg/day of UMMM given as a lick for 4 months (Diet 2); 1 kg/day of UMMM fortified with 50 grams fish meal for 6 months (Diet 3): and 1 kg/day of a urea-molasses-multinutrient-block (UMMB) containing 12% urea, 40% molasses, 30% rice bran, 10% cement 5% minerals and 3% fish meal for 12 months (Diet 4). For Diets 2, 3 and 4, the mean (±SD) feed intake on DM basis was 10.0±3.5, 10.4±3.2 and 11.4±0.3 kg per day. During the four phases, the mean body weight (based on chest girth) was 441.3±95.9, 476.3±40.1, 467.2±45.9 and 464.1±27.1 kg and mean milk yield was 2.4±2.6, 3.9±1.1, 4.0±2.3 and 4.3±1.4 litres, respectively. The cost of supplementary feed per day declined from Rs. 24.00 for Diet 1 to Rs. 5.50 for Diet 4 (US$ 1 = Rs. 55). The annual calving rate during the first year under SIMBUs was 62% and the calving interval 584±80 days. The mean birth weight of calves (29.4±1.9 kg) and growth rate during the first 12 months (256±73 g per day) was similar to those recorded for Surti buffaloes on state farms. The benefits to the farmers were: income from milk for meeting daily cash needs; cushioning the losses from crop failures; availability of manure for home garden as well as rice fields; use of non-lactating buffaloes for draught; and an increase in total assets with progressive increase in herd size. This study demonstrates the feasibility of intensive rearing of buffaloes on a low cost feeding system based on crop residues and agro-industrial by products and the use of idle family labour. It has succeeded in convincing previously skeptical rural farmers that appropriate technology can be used to provide sustainable income from seemingly meagre resources, and confirms the value of the farming systems approach to technology generation and transfer.