CROP LIVESTOCK INTEGRATION FOR MAHAWELI SYSTEMS B AND C

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ABSTRACT

One hundred and twenty-eight farmers owning both crops and livestock in systems B and C were surveyed on their present level of crop-livestock integration, including: farm labour, land holdings, livestock populations and composition, crop production and fertiliser use, by-products, farm power supply and demand, feeds and feeding methods. Feed materials found on the farms were analysed for crude protein, ether extract and fibre as well as in-vitro dry matter digestibility and ash. Cattle manure, poultry litter and crop residues were analysed for N, P, K, Ca and Mg. Maximum feed quantities available on the farm were then estimated, this included improved grasses, legumes and by-products.

In Mahaweli systems B and C combined, 51% of cattle and 93% of buffalo were indigenous breeds, the remaining cattle were Tharpakar, Sahiwal and Sindhi, their crosses and European breeds, the other buffalo were Murrah and their crosses. The average farm is 1.0 ha lowland and 0.4 ha highland with 0.9 cows and 1.0 bull, 0.94 female-buffalo and 0.6 male-buffalo, the milk yields were 2.3 and 0.7 litres per day, respectively. Paddy yielded 3.5 t (straw 4.5% CP, 43% IVDMD), maize 3.2 and cowpea 0.9 t ha^{-1}. No farmer had access to private grassland and almost all animals were tethered in maha and three-fourths cut-and-carried for night feeding. Panicum maximum (5.4% CP, 50% IVDMD) is endemic to system C, but Imperata cylindrica (3.8% CP, 24.7% IVDMD) dominates in system B. Farmers do not use straw treatment, supplements or concentrates. Three-fourths of farmers use animal draught power. Almost all farmers apply inorganic fertiliser, at 370 kg ha^{-1}, none applied manure (18.8% CP, 49.0% IVDMD and 0.64% P, 0.33% K) to paddy, but a few used it on upland crops.

With present by-products and full integration farmers could keep three cattle or buffaloes, or fifteen goats and about a dozen poultry. Full integration requires: stall feeding with treated straw, rice mill feed, all crop residues, 10% manure and browse legumes. If Indian breeds were raised, milk yields would increase three-fold, but with the above management the expected increase could be up to tenfold. Draught

power would also increase.