

ECONOMIC ANALYSIS OF FARMING SYSTEMS
IN MAHAWELI SYSTEMS B AND C

By

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ABSTRACT

The farming systems in Mahaweli systems B and C were evaluated in terms of management of crops and livestock, the factors affecting paddy and milk production, area under paddy and subsidiary food and perennial crops, herd size of cattle and buffaloes, input use, marketing and price of paddy. Data for the analysis were gathered from a cross sectional farm survey during 1984/85 maha and 1985 yala from a sample of 55 farmers from system B and 40 farmers from system C, all having both crops and livestock enterprises. The economic evaluation was by a system of simultaneous equations, estimated using the two stage least squares procedure. The estimated coefficients and the elasticities computed using these coefficients were used to explain the existing farming system in addition to the statistics such as averages, percentages, standard deviations and Gini coefficient in the case of income.

The farming systems' components were lowland farming, based on irrigated paddy, highland cropping of subsidiary food and perennial crops, livestock and off-farm enterprises. Many cropping systems, including paddy, chillies, maize, pulses, vegetables, root crops, fruit and tree crops, were identified interlinked with several livestock enterprises including cattle, buffaloes and poultry.

Although modern varieties of paddy, chillies, cowpea, etc were grown, a wide yield gap existed between farmer and experimental yields due to differentials in adoption of recommended management practices. The yield of lowland irrigated paddy averaged 3.7 and 3.2 t/ha in systems B and C respectively. The rainfed highland paddy yield was 1.85

t/ha. The average maize yield was 0.6 t/ha in system B and 1.3 t/ha in system C. The average highland chilli yield was 0.65 t/ha. Cowpea yields averaged 0.5 t/ha. Net returns from paddy were less than from major subsidiary crops.

Most livestock were local animals managed and grazed extensively giving low levels of production. The milk yield averaged 225 and 174 l/cow/year in systems B and C respectively.

The production levels of individual farms were highly variable and was associated with a considerable inequality of income distribution among farmers. Overall, 60 percent of income came from crops, 11-22 percent from livestock and the rest from off-farm activities.

In the econometric analysis, paddy yield per hectare was positively related to fertiliser and agrochemicals use and to the level of household income, and was negatively related to labour use and milk production on the farm. Milk yield per cow increased with increased frequency of milking and for improved breeds. The ratio of extent under paddy to net cultivable land increased with increased proportion of net cultivable lands under irrigation, availability of animal power and decreased with increased farm size and extent under other crops. The area under other crops was greater with increased availability of animal power and was less with an increased extent under paddy. The herd size of cattle and buffaloes was positively related to household income and the availability of labour and was negatively related to paddy production. The labour use for paddy increased with increased tractor power use and the practice of transplanting, and decreased with increased household income. Increased intensity of fertiliser application, frequency of crop protection and household income caused

increased demand for fertiliser, and increased farm size reduced fertiliser demand. The increased frequency of crop protection measures increased the demand for agrochemicals including pesticides and weedicides. Animal power use was positively related to the intensity of land preparation and animal power availability and was negatively related to farm size. Tractor use was negatively associated with animal power availability and was positively related with farm size. The marketable surplus of paddy decreased with increased share of consumption and farm size and increased with increased price. The price farmers received for their paddy was greater with increased total production and was less with increased proportion of net cultivable lands under paddy. Furthermore, the public institutions paid a higher price than private traders.