

ABSTRACT

A large and important proportion of coconut area of Sri Lanka is owned and operated by smallholder farmers. Low productivity and resource use are common features of these farms and ways to improve productivity and farm income rest largely on efficient utilization of existing resources, basically land and labour, since no expansion of the farm area is possible. Since large proportions of land are underutilized under coconut monoculture systems, the expansion of multiple enterprise farming systems in coconut associations would be a useful approach to improve the productive capacity of these farms.

This study aims to identify and describe existing farming practices on the small farms in the Matara district of Southern Sri Lanka, and to evaluate alternative multiple enterprise farm models to suit the constraints of the cropping calendars and the resource base. Data on 270 farms were collected in 1982, and are analysed in this study. This is followed by whole farm planning using Linear Programming(LP). The model considers the farm household as a production-cum-consumption unit with a common resource base at their disposal and involving in a variety of enterprises.

Prior to development and evaluation of alternate cropping patterns using LP, the relevance of the Farming System Approach to the present study is discussed and the study area is then introduced. The present structure of the small farms are examined and the farms are classified based on the resource endowments and the current cropping patterns.

The survey reveals that these small farmers are involved in multiple enterprise farming systems with coconut as a major but not the sole concern. Different farm types are identified based on the component structures, namely: lowland, upland and homegarden. The three component farm type were the most widespread and appear to have the highest potential for improvement. Wherever lowland rice is found as a component of these systems, the activities of the seasonal

cropping calendar are dominated by the rice except in the case of larger holdings where more systematic cultivation is carried out using hired labour, for market production.

Present utilization of coconut lands is limited to occasional instances of systematic cultivation of intercrops, such as cinnamon and banana, while a fair proportion of farmers practice some form of mixed culture where unorganised, indiscriminately planted crop combinations, including perennial, semi-perennial and annual crops are grown. These are typically cultivated on a small area surrounding the homestead whilst a significant proportion of the area among coconuts is grossly underutilized. The area planted to intercrops does not appear to vary as farm size increases. Thus the absolute area under intercrops remains the same on most farms.

The LP analyses demonstrates that the major obstacle for system improvement in these farms is closely related to the farm size. While the smaller farms suffer from the limitations of available capital budget for farm improvement, the larger farmers find difficulties due to restrictions in available labour during peak periods. The mid size farms too appear to suffer from capital limitation, but are better off than their smaller counterparts.

The optimal crop mix changes with the capital availability in the models and certain farm areas are not brought into the plan in the larger farms due to limitation in available family labour. Pepper and vegetables enter the plan as intercrops under low levels of capital availability, while banana dominates the crop mix as the capital restraints are relaxed.

The intertemporal LP approach appear to have useful applications in selecting appropriate crop mixes to suit the farm endowments. However, the need to evaluate a wider range of enterprises, including livestock management options, before farm level recommendations could be made is highlighted. Furthermore, this study establishes the importance of considering the whole farm unit in planning and extension, rather than concentrating on particular crops or enterprises.