

INTERCROPPING OF YOUNG CASHEW (ANACARDIUM OCCIDENTALE L.)
AND ITS EFFECT ON CROP COMPETITION, SOIL FERTILITY MANAGEMENT
AND LAND PRODUCTIVITY

By

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ABSTRACT

Cashew, a crop recommended for the drier regions of Sri Lanka, has a long gestation period (3-5 years) prior to producing an economic yield. It is therefore important to introduce an intercropping system approach to improve the efficiency of land use and generate income to farmers, who grow cashew as a crop.

Experiments were conducted to study the feasibility of utilizing the inter row space in young cashew plantations for cultivating annual food crops during the early unproductive period. Young cashew plantations of three different age groups i.e. a newly planted cashew plantation, a two-year-old cashew plantation and a five-year-old cashew plantation were selected for intercropping experiments. Selected annual food crops were planted as sole or intercrops with these cashew plantations. The crops and seasons were as follows:- *Maha* - pigeonpea (*Cajanus cajan* L.), maize (*Zea maize* L.), groundnut (*Arachis hypogaea* L.), cowpea (*Vigna unguiculata* L. Walp.) and mungbean (*Vigna radiata* L. Wilczek.) *Yala*- pigeonpea (ratoon crop), sesame (*Sesamum indicum* L.), cowpea (var. Varuni), cowpea (var. MI 35) and mungbean.

Growth of cashew in terms of girth and height in all intercropping plots was comparable to that of sole cashew, except when pigeonpea was intercropped with newly planted cashew. This illustrated that cashew is not affected during early growth by intercropping with selected annual food crops.

The growth and yield of annual food crops which were intercropped with newly planted cashew and two year old cashew were only marginally lower than sole annual food crops. In contrast, growth and yields of annual food crops were affected when intercropped with five-year-old cashew plants. This was due to competition between five-year-old cashew and intercrops for growth resources suggesting that intercropping with annual crops could not be possible in cashew plantations beyond three or four years from the establishment of cashew.

The results of this study indicate a marginal build up of soil fertility due to incorporation of weeds and intercrop residues after each season. Long-term studies are required to confirm this. Weeds were suppressed to a greater extent in the intercropped plots than in pure stands of cashew.

The relative yields of most of the annual food crops in the intercropped plots were higher than 40%, giving Land Equivalent Ratios (LER) over 1, indicating high yield advantages and efficient land use. The highest LER values of 1.51, 1.54 and 1.53 were observed in cashew/maize and cashew/groundnut in the *Maha* season and cashew/sesame in the *Yala* season respectively.

Cost and returns analysis using 1999 prices indicated that intercropping with newly planted and two year old cashew with maize and groundnut in the *Maha* season and sesame in the *Yala* season is a profitable venture.