The measurement of agricultural land use intensity is fundamental to the understanding of spatial organization of agriculture. The selection of high potential regions for the development of intensive land use is an essential component of agricultural planning. This choice must be preceded by systematic studies on the potentialities for food production in different parts of the country.

Siaya District is a high potential area. Plant growth potential ranges from very high in the upper midland zones to medium in the marginal cotton zone. The District exhibits high population growth rate. Hundreds of impoverished families are dependant on the poor agrarian system for their subsistence and cash earnings. The rising population density has not catalyzed greater intensity of land use. There remains a huge untapped agricultural potential characterized by large areas of uncultivated land and low level of capital inputs. Land use intensity varies greatly from one farmstead to another. This variation reflects socio-economic disparities between them.

This study examines the complex nexus between agricultural land use intensity and the socio-economic milieu in which the farming households operate. Socio-economic factors investigated include demographic characteristics, education, income differentials, farm inputs, and distance and land tenure. It is hypothesized that socio-economic characteristics of the farmers do no significantly influence variations in land use intensity. The study is based largely on field interviews conducted on 257 homesteads chosen randomly using multistage sampling. Data are analysed using both simple mathematical calculations and computerized multivariate techniques including stepwise Regression and Factor Analysis.

The study reveals that socio-economic factors studied accounted for about 92 per cent of the spatial variations in land use intensity between the farmsteads. The regression of the 17-predictor variables on land use intensity using the stepwise method reveals that dependency ratio, sex ratio, Family size, farm size, crop index, distance to the furthest plot, farmers' income and the number of visits by extension agents accounted for about 91 per cent of the total variations in the dependent variable. These are the most significant factors influencing variations in land use intensity levels between the farmsteads. The remaining nine variables are not significant.

Agricultural land use intensification in Siaya District hinges upon increased extension services and loan availability. Raising farmers' income is a necessary precursor to high capital investment in agriculture. This can be achieved through reducing the sizes of families and hence dependency ratio. Increased involvement of women in decision-making framework will stimulate their participation in farming activities. Land consolidation and the even distribution of market centres should also encourage land use intensification in the district. Farmers should be encouraged to commercialise their farms by cultivating high value crops such as coffee. There is also need for scholars to determine the "Optimum Farm Size" necessary for intensive land use. Farmers with surplus land can be induced to lease out for intensive agricultural production.