A preliminary technical evaluation of the biological potential and management of alley cropping systems in semiarid areas, based on ecophysiological research carried out at the National Dryland Farming Research Station, Machakos, Kenya, in 1987-88, as part of the TTMI (Traditional Techniques of Microclimate Improvement) Project. The study involved *Cassia siamea* hedgerows and maize, and this report includes brief yield data and suggestions for relevant variables for a cost benefit analysis of the system.