Abstract

Poor soil fertility and weed infestation are among major constraints facing agricultural production in Western Kenya. Recommended technologies differ in resource requirement and their effectiveness are seasonal site-specific. Onfarm experiments were conducted during 2008/09 cropping seasons on two soil types of western Kenya using maize as a test crop. Seven technology options were assessed on agronomic performance, resource requirement, and economic returns. Maize grain yield differed between cropping seasons with generally higher yields during long rainy season, and across soil types with organic manure-based options performing better on Ultisol than on Alfisol. Response of soil parameters reflected the amount of added nutrients and soil type with strongest effect of added N on Alfisol and of added P on Ultisol. All options significantly reduced weed biomass in the maize fields in the long (>90%) than in the short rainy seasons (>50%). Green manure-based option required more labour while mineral fertilizer-based options required largest capital. The economic net-benefit varied between -112 and +892 € ha-1 with highest values in organic manure-based options during short rainy season and in mineral fertilizer-based options during long rainy season. This example illustrates the need to define site-specific technology evaluation for successful targeting of technology options.