Simunji, Simunji. 2010. Evaluation of maize (Zea mays L.) – cowpea (Vigna unguiculata (L.) Walp) intercropping system for improved weed management and land use. (Supervisors: Dr. K. Munyinda and Dr. M. S. Mwala).

Weed control in maize fields among small holder farmers is a major constraint. Farmers spend about 50% of the time to control weeds mechanically with hand hoes. Better and more sustainable methods to control weeds in maize need to be developed for small scale farmers who may not afford to purchase herbicides. This could be through maize-cowpea intercropping. Therefore a study of using cowpea as inter crop in maize to control weeds was conducted at Golden Valley Agricultural Research Trust (GART) in Zambia. The trial design was a 3x3 factorial experiment arranged in a Randomized Complete Block Design and replicated four times. The two factors were cropping systems of sole maize, maize cowpea intercrop and sole cowpea and weeding regimes of weeding once, twice and three times forming nine treatments. The data collected included weed score, weed number, maize and cowpea yield, labour to weed, land equivalent ratio (LER) and partial budget (PB). All data were subjected to analysis of variance (ANOVA) using genstat. Statistically significant means were separated using the LSD test. The study revealed that intercropping maize with cowpea reduced weed density significantly (P≤0.05). The reduction in weeds was 90% for weed score over the score of 2.1 in the sole maize crop. Weed dry matter was lowered by 27% of the sole maize crop (245kg/ha) while the weed number was lower in the intercrop and sole cowpea by 35% as compared to the sole maize which had 4million weeds. Maize yield was highest in the intercrop whereas LER was greater than 1.0 at all weeding regimes. Maize yields of sole crop improved by increasing weeding frequency from one to two or three. Weeding in the maize-cowpea intercrop once significantly generated 34% more net benefit than in the sole maize crop of the same weeding regime. It can, therefore, be concluded that intercropping maize with cowpea can increase productivity of maize through weed suppression, increased yield and net benefits.