

#### 4.1.3



**Kanyomeka, Luke. (1994). The efficacy of pre-emergence herbicides in combination with post-emergence weed control in soybean (*Glycine max* (L.) Merr.) under minimum tillage cultivation in Zambia. (Supervisor: Dr. W. Schmidt).**

A study to test herbicides for weed control in soybean under minimum tillage was conducted at Lilayi farm on two different sites in Lusaka during the 1993/94 season. One site was irrigated land where wheat is grown under irrigation in the dry season followed by rainfed soybean. The other site was rainfed land where maize and soybean are rotated. In irrigated land, Metribuzin + Metalochlor, Oxadiazon + Metalochlor and Imazethapyr + Metalochlor, each with post-emergence applied Fomesafen in one series of treatments and with tractor cultivation in another series of treatments, were tested. In rainfed land, Acifluorfen + Fluazifop-butyl and Oxadiazon + Metalochlor were tested. These were compared with clean weeding and no-weeding controls and also with Metribuzin + Metalochlor and Fomesafen + Fluazifop-butyl standard treatments. In irrigated land, the highest yields and net benefits were obtained from Oxadiazon + Metalochlor (1.95t/ha, K244,038/ha), Metribuzin + Metalochlor (1.71t/ha, K216,535/ha) and Imazethapyr + Metalochlor (1.92t/ha, K208,512/ha) treatments, all with Fomesafen post-emergent. These treatments also had the best control of weeds. In rainfed land, Acifluorfen + Fluazifop-butyl

outyielded other herbicide treatments. Metribuzin + Fluazifop-butyl gave the best benefits among the herbicide treatments. In irrigated land, therefore, season long weed control and high economic benefits can be achieved using combination treatments with Fomesafen, applied post-emergence, to control weeds in soybean production under the conditions the experiment was done. In rainfed land, post-emergence herbicide application gave the best control of weeds.