

Abstract

The effects of weeding regimes and maize planting density on maize growth and yield were evaluated during the 2001/2 short rains in the Centre Highlands of Kenya. Weeding regimes were weed free (w1), weedy (w2), pre-emergence herbicides (w3) and land weeding twice (w4). Maize densities were 9 (D1) and 18 plants M-2 (D2). Maize was thinned and assessed as forage at tasseling. Thinnings dry matter was higher where weeds controlled and least in the weedy control (8.1 t/ha). Thinnings dry matter was also greater if maize was planted at high (15.2t/ha) density (8.7t/ha). Conversely, stover and grain yields were higher for the low planting density. Interception of photosynthetically active radiation (PAR) was higher in D2 than in D1 before thinning time but was higher in D1 than D2 after thinning. This difference in light interception may account for yield differences between the density treatment before and after thinning. Interception of PAR was highest in W2 but similar in W1, W3 and W4. Total weed biomass higher in W4 (2.1t/ha) than in W3 (0.2t/ha) and was also higher in D1 (3.2t/ha) than in D2 (2.5t/ha). On the whole, yields were lowest in the treatment so that failure to control weeds reduced both grain and forage yields. Weeds infesting maize crops provide a measurable source of animal forage but they greatly and directly reduce maize forage and grain maize. Moreover, of 9.1t/ha of weed biomass from W2, only 55% was considered to be edible by livestock and could be used as forage. It is predicted to be less expensive for a farmer to control weeds using chemicals than by hand weeding each crop twice since the latter was three times more expensive (15,015 Kshs/ha) than W3 (5,000 Kshs/ha). Planting maize at high density would not reduce the forage yield but needs careful management to avoid reducing the grain yield.