Effects of drip irrigation frequency, fertilizer sources and their interaction on the dry matter and yield components of sweet corn

ABSTRACT

Irrigation frequency is one of the most important factors in the management of water in the agriculture sector to sustain crop productivity, especially in arid and semi-arid regions of the world. Additionally, fertilizers have to be adequately applied. An experiment was carried out under a rain shelter from July to December 2012 in Malaysia to determine the effects of irrigation frequency and fertilizer sources on the growth and yield of sweet corn planted on a limed sandy clay, Ultisol, using a drip-irrigation system. This experiment was conducted using a split-plot design with four drip-irrigation frequencies (daily, once every 2 days, once every 3 days and once every 4 days) and four sources of fertilizers (NPK, goat manure, poultry manure and control). The drip irrigation was the main plot, while fertilizers were the subplot factors. The results of the study indicated that total dry matter and yield components increased with the increase in drip-irrigation frequency with values of 44% and 32% respectively. The highest growth parameters and shoot dry weight were recorded from daily irrigation intervals with goat manure, while the highest yield components were obtained from daily irrigation frequency with NPK fertilizer and poultry manure. In the light of these results, therefore, for optimum biomass of corn, high irrigation frequency with goat and poultry manure is the most viable option while yield was greatly favoured by a high irrigation frequency with NPK.

Keyword: Drip irrigation; Goat manure; Inorganic fertilizer; Poultry manure; Sweet corn; Ultisols