Abstract

Seed borne viruses are a major problem to seed and ware potato growers because they cause yield depression and reduction in quality of tubers. The effects of seed borne virus infections in 34 potato cultivars selected from the Kenyan potato germplasm collection were determined by comparing the yield performance of plants grown from virus infected seed with those grown from virus free seed during the 2007 short rains and 2008 long rains seasons. The treatments were laid out in a randomized complete block design (RCBD) with a factorial arrangement and replicated three times. Total yield was reduced by between 52.9 and 89.6% in 2007 and by between 47.4 and 90.2% in 2008 due to seed borne virus infections. In 2007, ware yield was reduced by 100% in 25 of the cultivars while in 2008, 24 cultivars had their proportion of ware yield reduced by 100% due to seed borne virus infections. Plants grown from virus infected seed produced between 3.0 and 6.3 tubers per plant in 2007 and between 2.3 and 7.3 tubers per plant in 2008. Plants grown from healthy seed tubers had between 6.0 and 14.0 tubers per plant in 2007 and between 5.7 and 14.3 tubers per plant in 2008. Reduction in tuber weights in 2007 ranged from 6.4 and 76.0% while the reduction in tuber weights varied between 10.2 and 77.4%. This study demonstrated that seed borne virus infections significantly reduced total yield, ware yield, seed yield, average tuber weight, and number of tubers per plant but the magnitude of the reductions varied among the cultivars. Farmers can improve potato productivity by planting disease-free seed tubers and minimizing current-season infections particularly where own saved seed is preserved for use later.