

Abstract

Potato (*Solanum tuberosum* L.) is an important food crop worldwide. Growers prefer potato because of its short growing season and tolerance to poor soils. Growers are using different agrochemicals so as to improve tuber yield, quality and maturity period under erratic and unreliable rain patterns. Biozyme® foliar feed is widely used to hasten maturity and enhance yields of crops. Biozyme® is said to be a storehouse of hormones and nutrients that improve the health of a crop. It contains major hormones along with primary and secondary mineral nutrients. This study determined Biozyme® rate that is lower than the commercially recommended 500 ml/ha to curb overuse and misuse, but still enhance potato tuber yields under climate change deficit rainfall adaptation. The study was set up in split plots arranged in a randomized complete block design, replicated three times and repeated once. Main plots were assigned to two contrasting potato cultivars (Tigoni and Asante), while subplots were assigned to Biozyme® rate (0, 125, 250, 500 and 750 ml/ha). Each subplot was planted with 28 seed potato tubers spaced at 30 cm × 70 cm in four rows. A distance of 1 m separated plots. The 750 ml/ha Biozyme® significantly ($P < 0.05$) increased total potato tuber yields by 3% to 7%, reduced unmarketable tubers by up to 3%, enhanced dry matter by 10% and starch by >2% compared to the 0 ml/ha Biozyme®. The 0 ml/ha Biozyme® produced 2-11 t/ha and 7-14 t/ha in 'Tigoni' and 'Asante', while the 750 ml/ha Biozyme® produced 25-33 t/ha and 39-43 t/ha in 'Tigoni' and 'Asante', respectively. The 750 ml/ha Biozyme® also increased leaf tissue N by >1%, P by >100 ppm and K by > 9 ppm in both seasons and cultivars. The difference in performance for 500 and 750 ml/ha Biozyme® was always not significant ($P > 0.05$). Thus, it is not advisable to foliar-feed potato plants using Biozyme® rates exceeding 500 ml/ha since this will amount to overuse and misuse and exacerbate tuber perishability. Slightly lower Biozyme® rates than 500 ml/ha may be recommended to guarantee production of "hardier" potatoes ideal for safe handling.