

Abstract

Timely availability of well-sprouted seed potato tubers at the on-set of rains is critical for attaining high yields. In the major potato regions in Kenya with a bimodal rainfall, the window of planting is two weeks. However, most potato varieties are dormant for longer than three weeks. Consequently, seed tubers planted too soon after their harvest exhibit delayed plant emergence, poor establishment and produce low yields. Therefore, rapid tuber dormancy breakage is desirable for tubers meant for seed. Gibberellic acid (GA) and benzylaminopurine (BA) are known to cause dormancy breakage but little information is available on their combined application. A field experiment was undertaken to determine the effects of combined application of GA and BA on tuber sprouting and subsequent yields of Asante, Dutch Robyn and Kenya Sifa potato varieties. Foliar application of GA and BA was done alone or in combination at four levels; 0, 50, 100 and 300 ppm for GA and 0, 50, 75 and 100 ppm for BA. There was no significant difference between GA when applied singly or in combination with BA on dormancy breakage but there was significant effects of combined application of GA and BA on tuber sprout length, number of sprouts per tuber and sprouts vigour in a dose dependent manner. In the field, tubers from GA and GA+BA treated plants gave plants with more stems per plant, leaflets per plant, number of tubers per plant and total yields at harvest with increased rate of application. BA alone was not effective on breaking dormancy. The results from this study show that GA and BA work synergistically to initiate dormancy breakage and sprouts growth. Therefore, foliar application of GA alone or in combination with BA can be used to break dormancy in tuber potatoes and improve the subsequent sprout growth and tuber yields.