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ABSTRACT

Gibberellic acid ( $GA_3$ ) was applied to the foliage and tubers of Chinese yam (*Dioscorea esculenta* (Lour.) Burk. cv. chinese) in a series of experiments conducted at the University of the West Indies, Trinidad, during 1981 - 82 and 1982 - 83 to determine the effect of concentration, time, number and duration of applications, on yields, storage at ambient conditions, and changes in dry matter and starch content of tubers.

$GA_3$  applied preharvest had no measurable effect on yield and number of tubers. Dormancy was prolonged and the rate of sprouting reduced in all  $GA_3$  treatments. The dormancy response to applications of  $GA_3$  was quantitative. The extension of dormancy induced by preharvest  $GA_3$  treatments was reduced in applications close to harvest (3 weeks), but the effectiveness of the  $GA_3$  was not significantly affected by the time of application when applied between 15 and 6 weeks before harvest. Repeated applications for any given level of  $GA_3$  resulted in a significant increase in the dormancy extension induced.

The dormancy of tubers was significantly increased when immersed in a 1000 ppm  $GA_3$  solution for 5 minutes. Higher concentrations resulted in no further increase.

Weight loss in storage was directly related to sprout growth and  $GA_3$  had no significant effect on the dry matter loss of tubers during storage. Starch and dry matter content of tubers at harvest were influenced by time of preharvest application of  $GA_3$ .

The study concluded that the limitation to increased production of Chinese yam in tropical countries imposed by the poor storage characteristics of the tubers can be overcome by the use of  $GA_3$  to extend the dormancy of the tubers, and the storage of sound tubers.