148 B

Effect of different levels of calcium and potassium application on the control of Internal Browning of Pineapple (Ananas comosus) cv. Mauritius under cold storage conditions

This study was conducted to investigate the effect of different combinations of calcium (lime) and potassium (MOP) application on the control of Internal Browning (IB) of the fruits of Pineapple cv. Mauritius. A randomized complete block design with three replicates was selected. Three levels of calcium (100 kg/ ha, 125 kg/ ha, 150 kg/ ha) and potassium (55 kg/ ha, 110 kg/ ha, 220 kg/ ha) were applied as basal dressing in nine treatment combinations. After six months of planting three levels of calcium (50 kg/ ha, 75 kg/ ha, 100 kg/ ha) and potassium (55 kg/ ha, 110 kg/ ha, 220 kg/ ha) were applied in the same order of treatments. Control plots were maintained without application of calcium or potassium fertilizer. Fruits harvested at 5% ripe stage were stored in a cold room at a temperature of 15 oC and 80 - 85% RH. They were removed from cold room at weekly intervals for four weeks and were analyzed for IB intensity using a visual scale of 0 - 5, fruit calcium and potassium, ascorbic acid, total soluble solids, percentage weight loss.

Fruits of basal calcium 150 kg/ ha with potassium 110 kg/ ha + top dressing calcium 100 kg/ ha with potassium 110 kg/ ha and basal calcium 150 kg/ ha with potassium 220 kg/ ha + top dressing calcium 100 kg/ ha with potassium 220 kg/ ha had IB development less than one on the scale after the third week and had significantly low IB development level from first to the fourth week . They also had significantly low percentage weight loss after first to the fourth week, significantly high TSS after first to the third week, significantly high ascorbic acid, fruit calcium and fruit potassium content up to the fourth week. Increased fruit calcium reduce IB development because calcium binds with pectic substances of middle lamella and strengthening structural components of cells. Potassium deficient plants exhibit high activity of polyphenol oxidase that lead for the IB development. Basal calcium 150 kg/ ha with potassium 110 kg/ ha + top dressing calcium 100 kg/ ha with potassium 110 kg/ ha is considered best for controlling IB development.