

Abstract:

Pre-export spot checks of fumigated fruit in South Africa have exposed considerable variation in the sulphur residue levels of different consignments. A study was therefore launched to determine the most important environmental and fruit physiological causes of the observed variation in sulphur dioxide residue levels. The observations were made directly after fumigation as well as during the sea export and shelf life periods. The results firstly confirmed the results of previous reports that sulphur residues are considerably higher in 'McLean's Red' than in 'HLH Mauritius'. It was further found that the residue level is increased when incorporating an acid dip. Another important observation made was that the sulphur dioxide levels on the aril of the fruit increased with advancing maturity while the residues on the peel decreased co-equally. The relationship between ambient temperature and relative humidity during fumigation was also quantified. Increased ambient temperature in combination with decreased humidity was found to increase the residue level considerably. A further important observation made was that the practice of leaving fruit overnight before fumigating leads to increased residue levels. The results have been conveyed to the South African litchi industry and appropriate maturity guidelines and fumigation environmental control measures are to be developed.