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PACKHOUSE TO PORT: INVESTIGATING TEMPERATURE BREAKS IN THE SOUTH AFRICAN SUMMER FRUIT EXPORT COLD CHAIN

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Abstract

A large amount of fruit and money is lost every season due to breaks in the South African fruit export cold chain. With food security becoming an ever growing concern, especially in developing countries like South Africa, a high percentage of losses in a significant sector of the economy warrant further investigation. The objective of this paper is to identify the problem areas that are responsible for breaks in the South African fruit export cold chain. The focus is specifically on fruit exported in refrigerated containers, as it moves from the pack house through the cold storage and transport segments towards the port of export. Historic temperature data collected with temperature monitoring devices from different fruit export supply chains of apples, pears and grapes, are analysed to identify the percentage of cold chain breaks that occur during the cold storage, transport and port segments. In addition, temperature data collected from a trial shipment of apples shows how the temperature inside a container fluctuates as it moves through the cold chain and confirms the results of the historic temperature data analysis. This paper concludes with recommendations to address the identified problem areas by improving the operational procedures in the fruit export cold chain.