

Shelf Life of Kai Lan Vegetable Lengthened by Employing DPA System

Challenge

One of Singapore's leading vegetable farms which cultivate leafy vegetables with soil protected by netting faced the challenge of retaining the freshness and quality of vegetables. Between harvest and distribution of the vegetables, there is a lead time. During this period, vegetables need to be stored and transported to other distributors. Kai Lan could dehydrate and lead to a deterioration in quality. Thus, they could become less marketable to customers.

Solutions

SIF Technologies identified the challenges facing the farm and initiated a trial using DPA system. Two sets of samples were used for the experiment. Both sets of Kai Lan were randomly plucked and were uprooted at approximately 1000 hrs from the Farm on 08 February 2006. One sample was drawn from a plot of Kai Lan plants watered using the DPA System while the other is from another plot of Kai Lan plants watered using existing water system. The changes in water retention in the two samples were observed over 164 hours.

Daily observations of physical conditions of the samples were recorded. One set of optical recording equipment was also used to capture progressive changes in the leaves and it was documented as pictorial evidence.

Results

During 164 hours of observation, it was found that the Kai Lan leaf applied with DPA water shrivelled at a slower rate than the Kai Lan leaf applied with normal water. It can maintain its original size for a prolonged period. This shows that the Kai Lan leaf used with DPA treated water has better water retention properties.

Initial condition of the Kai Lan Leaf



55 hours: The Kai Lan leaf watered with DPA system shrivelled at slower rate



Leaf watered with DPA System



Other signs also verify that when used with DPA water, the Kai Lan plant can stay better hydrated. The stem of the Kai Lan plant remained supple and firm longer. Moreover, with DPA water, the Kai Lan leaf can also retain its greenery longer than the leaf applied with normal water systems.

55 hours: The Kai Lan crop watered with DPA system is of larger size than the other



Kai Lan crop watered with DPA System



Kai Lan crop watered with normal water