

Vegetable Farm Uses DPA System to Enhance Endive Yield and Shelf Life

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. There is usually a lead time between harvest and purchase of the vegetables. During this period, vegetables may dehydrate and lead to a deterioration in quality.

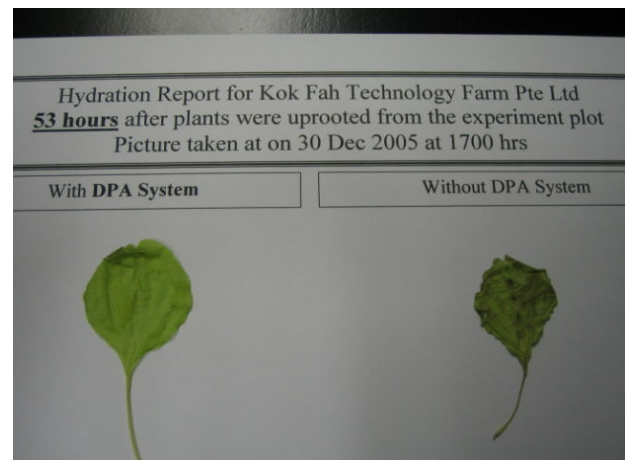
Solutions

SIF Technologies initiated a trial for the farm on 2 plots of land. On one plot of land, DPA system was introduced while the other was irrigated with existing water systems. Two sets of samples were used for an experiment. One sample was taken from a plot of Endive plants watered using the DPA System while the other is from a plot of Endive plants watered using existing water system. The changes in water retention of the two samples were observed over 220 hours. Results were evaluated by measuring changes in size and weight of the plants and observing the changes in their physical appearance.

Results

Longer Shelf Life

The leaves of endive plants were observed over a period of 220 hours and significant differences were recorded. The leaf that was applied with DPA treated water showed better water retention properties than the one which was applied with normal existing water system. The endive plant applied with DPA treated water also lost water at a slower rate than the other. As a result, the shelf life of the endive plant was improved.



53 Hrs later: Leaf applied with DPA treated water showed no signs of withering

Larger overall size

In the trial, it was found that the Endive plant applied with DPA treated water has grown to a larger size compared to the one applied with normal water within the same time period.



There is a significant difference in the stem size of both plants. The stem on the left (watered with DPA System) measures at approximately 4mm while the stem on the right (watered with normal water) measures approximately 3mm. The difference is approximately 1mm or 25% difference in stem size.



Heavier Weight

Both sets of Endive were weighed using a digital weighing machine. The Endive plant watered using DPA treated water weighs approximately 5gm while the Endive plant watered with normal water weighs approximately 3gm. The difference is approximately 2gm or 40%.



Better Yield

The trial was conducted on 2 plots of land. Within the same period of time, the Endive crops applied with DPA system is densely populated with thick foliage. However, the plot of Endive applied with normal water did not have foliage as thick as those on the left.



DPA System Introduced

Existing Water Systems