

but we expect at least 80% take or better. It should be noted, however, that a rooting medium with low porosity or overly wet conditions in the house can cause rotting. This may account for some reports I have read complaining of poor success in rooting these species.

DISCUSSION

Although the hardy kiwis have been growing in North America for nearly a century, there are still only a limited number of nurseries growing the improved cultivars. Those nurserymen growing in the colder regions should consider this crop. The market for these vines is potentially immense. The exotic nature of the plants fascinates a public jaded by "the commonplace" in horticulture. Once we have convinced our customers that these kiwi are truly hardy, we have not had any problems selling the plants. Our biggest challenge has been to hold onto the vines long enough to get them to size. The desirability of the hardy kiwi vines, combined with their relative ease of propagation, presents an ideal opportunity to provide a fascinating new group of plants to the public.

Light Light Light

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INTRODUCTION

This presentation is a review of a novel and effective way to provide light to plants to facilitate optimum growth and quality, while trying to reduce operating costs.

Quality plant growth requires water, nutrients, media, proper temperatures, an environment free from pests and pathogens, and light in proper quantity and of sufficient quality. Light is the energy source essential for survival and proper growth. Typically on the 21st day of June the maximum light in terms of quality, quantity, and duration is available via the sun alone. On the 21st day of December there just is not enough light to achieve the same result. Also, proper light enables maximum quality potential barring other limiting factors.

I have observed and participated in efforts where plant quality has been compromised due to insufficient light. Because of this, I have sought to find methods to improve lighting systems but remain cost effective.

In addition to the direct experiences I have acquired lots of antidotal evidence of the value of things, like moving shade houses, which have yielded crops of unsurpassed quality. The wave concept has the analogy of a sunny day with cumulus clouds intermittently providing a cooling shade as they drift over the crops.

METHODS

Experiments were conducted during the growing period of 15 Oct. 1998 through 15 March 1999. The greenhouse was maintained at a daytime temperature of 78°F, and a night time temperature of 68°F. Photoperiod was 16 h light and 8 h dark. Lights were on from 5 AM through 9 PM.

Determining the “right” number of lights for a stationary configuration was difficult. Based on general recommendations it seemed like one light per 56 ft² was appropriate.

Agrosun bulbs (430 W), which are hybrid bulbs, were used. They have both sodium and metal halide elements which increase the amount of red light being delivered.

The point of this submission of information is that the lighting system was set up based on industry recommendations and practical budgetary considerations. Using this set up there was improvement over ambient conditions but plants were not growing as hoped!

LIGHT SYSTEM

Two light bridges were used for evaluation. The two bridges are nominally 18 ft apart and have a travel of 17 ft to cover an area the length of 36 ft with uniform light. There is light coverage beyond that distance, but attenuation is significant beyond that point.

RESULTS

For green beans, internodal distance was greatest for plants grown under ambient light, intermediate for plants grown under stationary light, and least for plants under the moving light system. Stem diameter measurements are greatest in reverse order.

With tomatoes stem diameter is greatest for plants grown under the moving lights, intermediate for the stationary lights, and least under ambient conditions. Leaf and leaflet length were greatest with the moving light system, intermediate for the stationary lights, and least for the ambient light. Plant leaf number was greatest with the moving light system, intermediate for the stationary lights, and least for the ambient light only plant.

Ajuga, under the same conditions, exhibited dramatically greater growth in size and also rate under the moving lights as compared to ambient light conditions.