

## **A Message of Congratulations on the 2nd Annual Conference of IPPS Japan Potential Region**

### **S. Tsumura, Mayor of Miyazaki City**

It is a great pleasure for me to express congratulations on the 2nd Annual Conference of IPPS Japan Potential Region in Miyazaki, and also to welcome overseas and home participants. In addition, I have a deep respect for the communication opportunities among people concerned in production, marketing, consumption, and research.

Because it is mild in winter and sunshine is abundant all the year round, Miyazaki is an important centre for the production of horticultural crops in Japan, especially the glasshouse production of pumpkin, sweet pepper, and cucumber. At present, we are facing big changes in horticulture and agriculture on an international scale. Therefore, the creation of good cultivars and the introduction of new technology into the field are necessary. Recently, there have been remarkable advances in biotechnology, and we await the application of these advances to the production and management of crops.

I believe the presentations and communications during this Conference will be very productive for the promotion of agriculture and horticulture.

There are a lot of sight-seeing places in Miyazaki City, for example "Paradise of Sea and Earth", "Seagaia". The number of tourists to Miyazaki has reached 5 million per year. I hope you will be able to enjoy at your leisure the sight-seeing places.

Finally I pray that the conference will be successful and I wish you good health.

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## **Drawing a Picture on the Earth**

### **T. Watanabe, President of Miyako-City**

Miyazaki prefecture is well known as a tourist resort. In former times, however, Miyazaki was not well known as there were no tourist attractions or hot springs. One man's vision was responsible for developing Miyazaki as you see it today, his name was Mr. S. Iwakiri. He was born in Miyazaki City in 1893. After graduation from Tokyo University he entered the head office of Sumitomo Co., and soon came back to Miyazaki.

In 1926, Mr. Iwakiri bought four used buses from Ford Co. and founded the Miyazaki Motorcar Company. In 1931, sight-seeing buses began running between Miyazaki and Aoshima. At that time, the bus guides of the Miyazaki Traffic Co. had the best reputation in Japan. Nevertheless, the number of tourists visiting Miyazaki was not large because there was no hot spring. Mr. Iwakiri thought that it was necessary to develop alternative tourist venues.

Mr. Iwakiri became interested in the Phoenix palm and from 1931 he started planting Phoenix palms on the Nichinan coast. Iwakiri had an idea of drawing a picture on the earth and he dreamed of making a beautiful roadside park. Through his efforts, the fame of the southern country of Miyazaki grew. Iwakiri also dreamed

of filling Miyazaki with flowers—under his guidance, many flowers were planted in Miyazaki City. Mr. Iwakiri was 92 years old when he died in 1985.

Seeing the beautiful environment of Miyazaki, we cannot help remembering the vision of Mr Iwakiri.

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## Environmental Control in Plug Production

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### INTRODUCTION

The commercial use of seedling plugs (called plugs hereafter) has recently increased rapidly worldwide in horticulture. They have many benefits, such as easier transplanting, faster growth, and greater uniformity compared with conventional nursery plants. However, the scheduling of plug production is still a common problem because of the difficulty in controlling plug growth in glasshouses. The precise control of environmental factors is needed to produce high quality plugs with rapid turnover. Short and thick stems (i.e. short height) is essential for quality plugs. This article summarizes the responses of plugs to environmental factors from an environmental control point of view.

### ENVIRONMENT INSIDE THE PLUG STAND

In general, the environment inside the plug stand in a glasshouse is characterised as follows: high relative humidity (RH), high daytime air temperature, and low nighttime air temperature when compared with the temperatures outside the plug stand, low light intensity at the lower part of the stand, and lower CO<sub>2</sub> concentration under a higher light intensity. These characteristics often cause poor and/or uneven growth of the plugs.

### RESPONSES OF PLUGS TO ENVIRONMENTAL FACTORS

When the temperature varies from the optimum temperature recommended, the growth and quality of the plugs is adversely affected. The leaf temperature of the plugs will affect the growth and quality more directly than the surrounding air temperature, and will be 2 to 3°C higher than the air temperature around the plugs in sunlight. The height of many ornamental plants increases with the increase in the difference in air temperature between day and night, known as "DIF" (Heins et al., 1988). Plants become taller with greater positive DIF value, i.e. when day temperature is higher than night temperature, and shorter with greater negative DIF value, i.e. when day temperature is lower than night temperature.

Low relative humidity will often induce water stress in plugs and thus inhibit photosynthesis, because the transpiration rate of the leaves would be higher than the water absorption rate of the roots. On the other hand, higher relative humidity in general makes plug stems longer. The relative humidity is often observed to be 10% to 20% higher under the canopy of plug stands than above it.

The photosynthetic rates of plugs are dependent on a photon flux in a spectral