

## Improvements in the Production of Rooted Cuttings in a Mist-irrigation Greenhouse

**Keisuke Uchida**

Green Claft Co., Nobono 43-3, Kameyama, Mie, 519-0212

### INTRODUCTION

At my nursery plants are grown in containers for public landscaping. I grow mainly conifers.

Currently, the economic situation is very critical for nursery-stock growers because spending on public landscaping has been reduced. On the other hand, home gardening booms and people have a strong interest in green plants. However, there are very few plants available which satisfy this new demand of plant lovers. To find a way out of this critical situation nursery-stock producers are introducing new plant cultivars, producing new tree forms, and developing special tree standard forms. Not only are the plants that will be grown by nurseries changing but the systems required to produce those plants will have to be changed. This change will be promoted by using new types of labor-saving agricultural implements, materials, and facilities.

### SUMMER PROPAGATION

During our summer propagation season the worst problem was reduced rooting related to excess humidity and high temperature. To overcome this problem in my nursery we have introduced a mist-irrigated greenhouse system. The system consisted of the following:

We set up the reversible sheets around the greenhouse for shading and preventing the wind flow from outside.

Roof vents and side ventilators were fully opened to lower the inside temperature.

Water irrigation was carried on using irrigation tubes to keep the humidity at an adequate level when the inside humidity become low (by using this method, the inside temperature was reduced 3°C).

Water irrigation on the top of greenhouse roof (by using this method, we lowered the inside temperature about 1°C and were able to reduce the number of times that we used the mist irrigation.

By the above treatments we were able to prevent the reduced rooting occurring during the summer propagation season.

### WINTER PROPAGATION

In winter we used heating pipes to keep the propagation bed temperature higher for nursery stock production. In order to maintain uniform heat conduction from the heating pipes a layer of perlite was used. A problem developed in that the heated beds were prone to drying around the heating pipes; this eventually resulted in the temperature around the hot water pipes becoming higher and rooting became subsequently inconsistent. This problem was solved by placing plastic pipes with 2-mm-diameter holes on 20-cm diameters and running water through the pipes to keep the heated beds moist. This procedure allowed us to maintain the propagation-bed temperature and rooting of cuttings uniform.