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The Role of the Evaposensor in the Propagation of Hardy Nursery Stock©

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Standard mist controllers (such as simple timers, electronic leaves, or those using solar radiation integral) often fail to match misting frequency to the needs of the cutting very well, leading to reductions in rooting percentage and quality. The need for mist (or fog) varies with light level, humidity, temperature and air movement, all of which fluctuate with the weather, season and time of day. The Evaposensor, with its wet and dry artificial "leaves," responds to all these factors making it possible to measure and control the evaporative demand on cuttings in a reliable and reproducible way. The Evaposensor was invented in the 1990s as a research tool for controlling mist and fog environments, but only recently has equipment suitable for growers become available. Starting in 2007, a Horticultural Development Company (HDC) project promoted the development of a dedicated controller for use with the Evaposensor and funded trials on six nurseries. Evaposensor control gave significant improvements in rooting across a wide range of subjects, combined with easier management of the propagation environment. The new mist controller is made by E&TS Ltd. It can be used independently, or integrated with existing controllers in a variety of ways, for example to allow multiple beds to be controlled from a single Evaposensor.

INTRODUCTION

Mist or fog propagation environments for leafy cuttings reduce the evaporative demand on the cutting, thus helping it to maintain its water balance, limit stress and thus promote vigorous wound healing and rapid rooting. The problem is that the optimum amount of mist required will vary (even hour to hour) according to the weather, season, type of propagation facility, degree of shading etc. A good mist or fog control system needs to vary the application of water according to the needs of the cutting, to avoid either over or under wetting the foliage and rooting medium, either of which can increase cutting stress, risk of tissue damage and development of disease. Mist controllers vary in sophistication from simple timers to glasshouse computer algorithms involving solar radiation integral, temperature and humidity. Many growers favour the simplicity of timers but find they are not able to keep up with the manual adjustments needed to account for changes in the weather. The widely used "wet leaf" or "electronic leaf" sensor, which is based on the conductivity between two electrodes to trigger mist bursts, is notoriously temperamental and unreliable. It is rapidly affected by hard water deposits, tends to over mist in dull