

# X-tend™

## adds value

### WATER UPTAKE

Effective water uptake is probably the single most important factor affecting the quality and lifespan of a real Christmas tree. The inability to effectively absorb water at the cut surface of the trunk will quickly lead to wilting and senescence (loss of needles). Enhancing this crucial function and the movement of water into the cells in combination with efficient stomatal activity, which prevents excessive water loss, will prevent premature wilting and senescence (Fig 1).

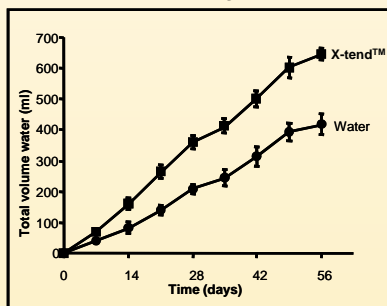


Figure 1. Improved water uptake in trees treated with X-tend.

### SANITATION

Except for the unpleasant nature of contaminated, putrid water it also affects the lifespan of a Christmas tree negatively. Microorganisms in the environment and on the trunk of the tree proliferate in the water and block the channels through which water is absorbed. In addition, these organisms can produce compounds that are harmful to the tree. Preventing microbial growth in the water will therefore not only enhance the esthetic value of the display but also increase the lifespan of the tree (Fig 3).

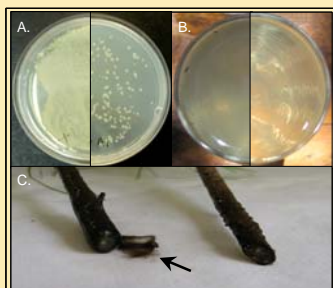


Figure 3. Reduced growth in X-tend™ treated laboratory cultures of bacteria on nutrient plates (A), water inoculated with the microflora of a real Christmas tree (B) and of fungi (arrow) at the base of the tree itself (C). The X-tend™ treatment is always on the right.

### BACKGROUND

X-tend™ is an exciting new product specifically developed to enhance the quality and lifespan of real Christmas trees. Its formulation is based on extensive research conducted by experts in the field of plant physiology.

When a real Christmas tree is harvested it has obvious implications for the growth, development and survival of the detached trunk. The loss of the root system does not only influence water and nutrient uptake but also the balance in growth regulators that govern the biological functions of the tree. In addition, the tree is no longer able to sustain itself in its new artificial environment and is also more exposed to microbial infections. If these factors are managed proactively it can increase the quality and lifespan of the tree. Three factors that influence the lifespan of a tree were identified...

- Water uptake
- Nutrition and growth regulation
- Sanitation

### NUTRITION AND GROWTH REGULATION

Trying to "feed" a Christmas tree with compounds such as sugars only cause detrimental effects but we have identified micronutrients that help maintain the crucial biological functions of the tree in its artificial environment. These elements play a role in, for example, functions such as water uptake and transpiration as explained earlier and the regulation of growth and development (Fig 2).

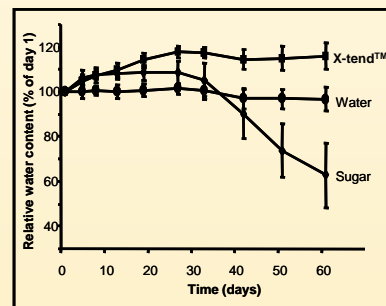


Figure 2. Sustained growth in trees treated with X-tend™.

### IN CONCLUSION



X-tend™ will increase the quality and lifespan of your real Christmas tree by ...

- improving water uptake,
- regulating growth and
- sanitizing the water.

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