

Winterize your trees

## Lab findings may alleviate tree mortality

To a tree, Greg Brown is a "cold" person.

On more than one occasion he has calmly watched little seedlings freeze to death.

Then he has torn apart the seedlings — right down to their cells — to find out why some trees are more cold-hardy than others.

The "autopsies" are beginning to pay off. The University of Missouri-Columbia professor of forestry had identified factors ranging from a "supercooling" phenomenon to a built-in "antifreeze" that could help us have more cold-hardy trees in the years ahead.

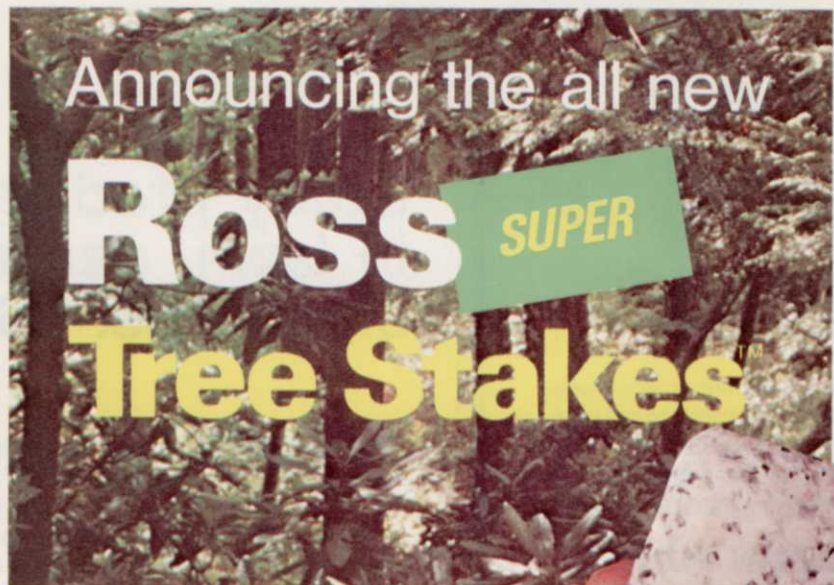
He and his colleagues have isolated and identified a glycoprotein (a protein bound with sugars) which binds the water in the cells and keeps it from turning into ice. They found the glycoprotein in black locusts, well-known for their hardiness. Similar glycoprotein has been found in fish which live in the Antarctic Sea.

Brown's basic research findings will be used by plant breeders who will now be better able to select for cold hardiness. Others will use his information to develop chemicals that will stimulate plants to produce glycoprotein or other forms of plant "antifreeze."

Manufacturers are already selling cyro (cold) protectants which basically slow plant growth. "Dormant plants are more hardy," explained Brown.

The UMC research will help protect trees from early fall freezes and late spring freezes — something that would be worth millions of dollars to the fruit and nursery industries.

"And by extending a tree's hardiness, we could introduce desirable species into areas where they couldn't grow before," said Brown.



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