

Ryan Instruments

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MARKET: Horticulture industry and forest seedlings.

CUSTOMER: U.S. Forest Service, particularly for the Mendocino National Forest in northern California.

PROBLEM: The Forest Service is responsible for the storage and distribution of 15 million seedlings -- mostly conifers such as Douglas Fir and White Fir -- prior to planting them. The seedlings must be maintained at an optimal temperature of 32° Fahrenheit. Temperatures above 40° F for long periods of time will reduce their root growth capacity. This, in turn, prevents the seedlings from growing and maturing when planted.

APPLICATION: Records from Ryan time/temperature monitors (TTMs) helped the Forest Service pinpoint two problem areas in its distribution system where temperatures were not properly maintained:

- A trucking firm (contracted by the Forest Service to ship more than one million seedlings) wasn't keeping the seedlings cool enough during transit.
- Forest Service personnel were often allowing the seedlings to remain on hot truck beds for extended periods of time.

BENEFIT: After the Forest Service showed TTM records to the trucking firm, the shipping problem was quickly fixed. Likewise, Forest Service management eliminated the practice of allowing the seedlings to remain on hot truck beds.

CONCLUSION: "The use of the monitors brought certain problems in handling to our attention," says David Isle, forestry technician. TTMs ultimately helped Forest Service management to make major improvements in the distribution of 15 million conifer seedlings.