

Cold Hardiness is Determined by Fall Conditions

OR

The Kale Who Lived to Tell the Tale

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Christmas, 1983. I had never seen such terrible carnage. In this one town, those which had been upright and full of life a week ago were dead and dying the next morning. It was almost as if you could hear them crying out in pain and surprise. Some of the more succulent ones succumbed early and were followed by the supposedly tougher members; all cut down and lying on the environmental battlefield. The attack from the north came on the heels of soft southern breezes, breezes which gave winter a feeling of spring. For months prior to the onslaught, the victims had been basking in the glow of warm days and nights which never allowed them to properly prepare. In fact, the only reason the attack was so successful was due to its total surprise; there had been no time to prepare. If they had even a few weeks of preparation, few victims would have been counted. As it was, however, few remained standing.

Christmas, 1989. Once again the attack came from the north, once again it was brutal and persistent. However, this time there were few victims, only some minor injuries not uncommon for that time of year. The difference was that they had been preparing for weeks. And what a difference preparation made!

The place was the southern half of the country, the attacks were the great freezes of December, 1983 and 1989, the victims were the hundreds of thousands of plants in nurseries and landscapes and the observer was me. In 1983, greenhouse species planted in the winter landscapes, such as ornamental kales and cabbages turned to cabbage soup at 25 F, snapdragons and pansies died at 23 F, nursery containers of perennials and woody plants perished in the high teens and even mature privets, hollies, camellias, magnolias and redtips were dead long before their time. Twenty degree temperatures were not uncommon where I live and although temperatures kept plummeting to record lows that year, the damage to many plants occurred long before the mercury reached 0. Unfortunately, little cold weather had occurred prior to Christmas and plants had not undergone all the cellular and tissue changes necessary for normal winter preparedness. Many of the woody plants had not even attained a state of dormancy and were actively growing. The kales and cabbages were growing well and looked particularly good, the pansies were flowering profusely and the buds of the witch hazels were swelling. Nature had neglected to tone the plants and the consequences of the neglect were disastrous. Patton could not have planned a more efficient surprise

attack; the temperatures plummeted, the plants were standing exposed and the damage was done. Like Sherman's march to the sea, the arctic winds left little standing in their wake.

In 1989, however, temperatures had followed a regular decreasing pattern through the fall and plants reached mid December in a state of dormancy normally associated with that time of year. This time Mother Nature had her plants toned and ready for the cold. Temperatures fell to 5 F in Athens, Georgia and everybody huddled by the fire. We had put out a large field trial of ornamental kale and cabbage and I assumed that once again, soup would be the order of the day. As night temperatures hit 25 F, I crossed my fingers; when 19 F was in the forecast, I gave them last rites and when 5 F dropped in, all I could do was scratch

my head and stare. They were damaged, the bottom leaves of some of the cultivars had to be removed but they sat there in a glory of white, red and maroon as if to say, "is that the best you can do?" Everyone

commented on the lack of significant plant damage resulting from the cold snap. Visions of dead privet hedges and camellias were not far removed from everyone's memories and a collective sigh of relief could be heard from nurserymen, landscapers and gardeners.

The lesson of this tale is that plant toning is a natural required phenomenon to overcome the rigors of stress. Stress may take the form of cold temperatures, lack of water, rough handling or hot temperatures. For garden pansies, stress may be freezing temperatures at Christmas or a mass market outlet in May. If plants such as bedding plant flats are to be moved from the friendly confines of a greenhouse to the stressful retail environment, tone the plants. In the case of bedding and pot plants, reduce the fertility level, reduce the water and reduce the temperature prior to shipping. Allow the plants to prepare for future stress. Much has been written and said about the benefit of toning to enhance postproduction life but the recent freezes with such similar temperatures and such dissimilar results brought the point home once again. All one has to do to understand the importance of plant toning is to visit my kale and cabbage. They are blemished but not defeated. Nature reinforced a lesson greenhouse people have known for years. Unfortunately it is not yet practiced by all.

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