

Winter Survival: Creative Ways of Protecting Plants in the Northeast

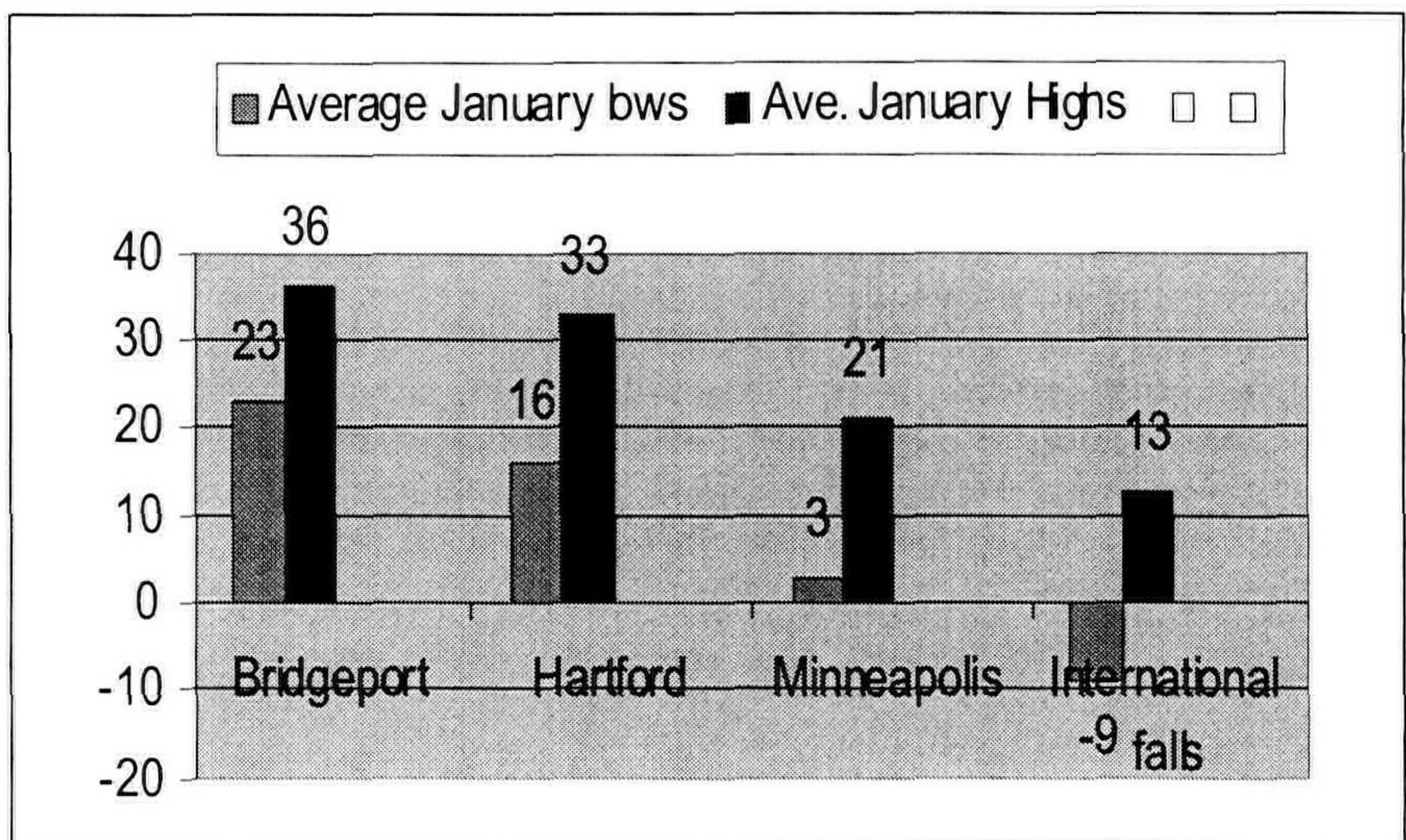
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Coming from southern New England to Minnesota to talk about protecting plants from the extremes of winter might be perceived by some to be foolish or even a bit cocky. It would be like a Floridian telling a New Englander how to dress for bad weather. It's not advised. However, cold is a relative term. What we in Connecticut might construe as bitter cold the people in the upper Midwest might refer to as Indian summer.

As the figure below shows Connecticut indeed has a much more temperate climate than Minnesota. We can, however, have extremes in our temperatures. During the 1990s, all but two of our winters have been at or below normal levels. How do you determine how to prepare for a winter in southern New England? Well there is the Farmers Almanac, the woolly bear, El Nino, La Nina, how many nuts are on the trees, etc. Then there is the more scientific approach where the weather meteorologists give their predictions and than you wait and see how wrong they are. Realistically the best you can do is prepare for the worst and hope for the best. And that is what I would like to share with you today.

Because the great creator never intended to have plants grown with their roots in the air and because that is exactly what we are doing in a container nursery we must find a way to protect them from the extremes, especially exposure to extremely low temperatures. The retired Dr. Havis of the University of Massachusetts pioneered some of the first research involving root kill temperatures of woody ornamentals. Utilizing that research we can get a pretty good idea as to which plants need minimal winter protection and those that require a greater degree of protection than what can be provided by a single sheet of overwintering film.



The first group of plants has, through trial and error, demonstrated no need for any kind of winter protection in southern New England. These plants are simply left outside without any kind of winter protection. The containers are merely collapsed pot to pot and left to the elements. Some plants grown by Prides Corner that fit into this category are:

- *Cornus alba* 'Argenteo-marginata'
- *Cornus sericea* (syn. *stolonifera*)
- *Cornus sericea* 'Flaviramea'
- *Potentilla fruticosa* and cultivars
- *Salix discolor*
- *Lonicera tatarica* 'Arnold's Red'
- Any tree grown pot in pot

A quick word about trees grown pot in pot. There are some real advantages to growing trees this way. First is that they simply don't blow over under windy conditions. Because the roots are not exposed to a hot container during the summer months there is no root kill on the south side. Finally, because the buried container is larger and wider than the pot the tree is grown in there is good insulation of the root system during the winter allowing the trees to be overwintered in place.

Approximately 70% of all the nursery stock grown by Pride's Corner Farms (PCF) is overwintered conventionally in overwintering structures using opaque plastic to protect the plants from the winter environment. They are merely 14-ft wide structures that are manufactured in house. Because of record snow levels during two of the winters in the early 1990s we have converted from a traditional quonset-style structure to a gothic style. This new design sheds snow loads much better and believe it or not seems to take the wind better as well

The simplest form of winter protection is to cover them with a single sheet of white co-poly. Even this method has been critiqued and adjusted by us over the years. Originally our plastic was wrapped on a piece of faring strip and attached to the house using 8d duplex nails. Although the plastic is firmly attached there are spaces between the baseboards and the ground that cold air can seep into, especially when the wind is blowing. We overcame this by simply laying the sides onto the ground creating a skirt that seals the house more completely. This alone makes a huge difference in how well a house overwinters. Most plants that have a root kill temperature of 15 to 20°F or less usually do not need any additional winter protection other than this. Shrubs such as H-1 and H-2 *Rhododendron*, *Viburnum*, *Spiraea*, deciduous azaleas, and *Juniperus* just to name a few are some groups of plants that fall into this category.

Then there are the plants that either from time to time or on a consistent basis need additional winter protection to ensure their winter survival. Through the years PCF has identified and targeted these plants so that they can get special treatment. The process is simple in that an additional layer of poly is placed into the house to be used as a blanket to create a warmer environment that has a higher relative humidity. As simple as it sounds the process is not and it requires that certain criteria be met in the installation process and when the plants are covered.

Plants that require a poly blanket are determined at or before the time they are first potted. By doing this they can be put into the house a certain way. That is, first we do not put these plants down at the end of a house. The coldest part of any overwintering structure is at the ends so we begin and end the plants 10 ft from these

ends. We also must take into consideration the space the poly blanket takes up so we leave an area approximately 6 inches wide along the inside of the baseboard. The blanket is then placed before the house plastic is put on. This makes it much easier to cover the plants and the quality of the job is much better which is essential to how the blanket will perform.

Timing is also important in knowing when to apply. If applied too early diseases due to excess moisture can be a problem. Applying too late and damage could already have been done. The weather is watched very carefully and when a significant cold outbreak is anticipated we will begin to cover. Historically the timing of this is usually around Christmas. After the blanket is put on, the plants are checked periodically to see how they are doing. Moisture levels are checked as well as checking to see if bait put out to control rodents have been eaten. This is a warm secure environment for these four legged eating machines and they can quickly devastate a crop if not kept in check. Also checking to make sure that the blanket is on securely is important. The one sure-fire way to know this is to look at the condensation on the underside of the blanket. If it is completely covered you have a good seal. If there are dry areas on the underside of the plastic there is cold air seeping in from the outer portion of the house and therefore needs attention.

This form of winter protection is vital to a number of important crops we grow. Plants such as evergreen *Ilex* (holly), *Magnolia*, *Pieris*, *Cotoneaster*, *Buddleja*, and evergreen azaleas to name just a few, need this additional protection to ensure they survive our winters in Connecticut. We would not even attempt to grow these plants unless we were able to protect them this way.

A second group of plants requires winter protection but not necessarily in an overwintering structure. Some of our needle evergreen material have been found to do quite well when protected with what we call micro film. The material is ¼-inch thick foam with a 2-mil opaque film embossed on the outside. The material is 12 ft wide and up to 100 ft long. Because the material is put right over the top of the plants there is very little ambient air, therefore, the environment underneath remains remarkably stable with little fluctuations in temperature. We often will overwinter plants we know will do well in this environment when there aren't enough overwintering structures for all the plants in the nursery. Some of the drawbacks of this system are that the plants are inaccessible and they are difficult to monitor through the course of the winter. If there is a snow load you can forget getting a peek inside. Also, because of the way the plants are packed it is once again very important to make sure they are protected from rodents. One very nice thing about this system is that if the plants are covered moist they do not dry out at all as the soil maintains a high moisture content throughout the overwintering period.

These are just a few techniques we have developed to overwinter our containerized plants. To some these extra steps might seem a bit tedious or even unwarranted. Our research and findings are the results of trial and error; lots and lots of errors. I can assure all of you that these techniques do in fact work and work very well. I have simplified stating these techniques, as the time allotted does not allow me to be more specific. I will make myself available afterwards to anyone who would like to talk some shop with me. Growing plants is truly a labor of love. Under intense growing conditions practical techniques to take care of them are vital. In the spirit of seeking and sharing I hope this information will be of benefit.