

## A Greener View: Pay attention to source of hardiness zone rating

*by Jeff\_Rugg*

One of the significant pages you will read in your garden catalogs is the cold hardiness map. As important as it is to know your cold hardiness rating when ordering from that catalog, it may be as essential to ignore the rating on the map when you look at other catalogs. There are several maps being used in catalogs, and they are not based on the same data.

Alfred Rehder published the first cold hardiness zone map in 1927. He divided the country into eight zones based on the lowest mean temperature of the coldest month. Eleven years later, Donald Wyman of the Arnold Arboretum in Boston published a new hardiness map based on a U.S. Weather Bureau map of data from 1895 to 1935. He updated the map several times until 1971. In 1960, 1965 and 1990, the United States Department of Agriculture (USDA) produced maps. Each map update used more recent temperature data.

Most of the maps until the 1990 USDA map had used 10 degree increments, but this most recent map also used dark and light shades of color labeled as A and B zones to denote 5 degree increments. This map included 8,000 weather stations, which was twice as many as the previous maps. The additional data displayed hot pockets known as heat islands where large cities influence the local climate. The 1990 USDA map depicted the average minimum temperature for the years 1974 through 1986. Overall, the 1990 map showed much of the country as being a zone or more colder than the 1965 USDA map.

The 1965 map used data from a warmer period of years, while the 1990 map used data from a colder range of years.

The Arbor Day Foundation (ADF) released a map in 2006, the newest since 1990. The USDA had said there would be a revised map in 2007, but it isn't out yet. The ADF map uses data from only 5,000 stations during the previous 15 years, which were back to being warmer. Therefore, the map once again looks similar to the 1965 USDA map.

Since we now have weather data from many weather stations, it makes no sense to create a map from such a short time period. Average weather is made up of highs and lows. Taking a small sampling of data will most likely taint the data to one end or the other. The trees and shrubs that most people use in the zone maps

live far longer than a decade or two - short term maps can be misleading.

The ADF map shouldn't be touted as illustrating global warming, just as the 1990 USDA map didn't show global cooling. Combining nearly a century of maps shows a much more stable cold hardiness map than any of the short-term maps.

Before you can use a hardiness zone rating for a plant, you must know which map the information is based on; however, many times that map source is not given. You will not want to plant trees or other plants in your yard based on a short-term warm map. The cold weather has a habit of showing up again and your trees may not last.

Keep in mind that the cold hardiness zone map only accounts for one factor in a plant's environmental needs for survival. All of the following factors can influence a plants survival: Heat, street lights versus day length, soil and airborne toxins, acid rain, fertilizer, watering, pest control, location, a yard versus planter box, microclimates, spring and fall frosts, soil pH, soil aeration and many others.

Even though west Texas and eastern Georgia are in the same 2006 ADF cold hardiness zone of eight, they have very different macroclimates when you consider all the other weather factors. Every landscape has small climatic differences. The flower beds in front of a south-facing brick wall may be a cold hardiness zone or two warmer than the flower beds in the shady north side of the same building.

There is a heat zone map created by the American Horticultural Society that works much the same way as the cold hardiness map. Only 4,745 stations were used for a 12-year time period between 1974 and 1995. For this map, each zone indicates the average number of days in a year that are over 86 degrees Fahrenheit (30 Celsius). When a plant becomes too cold, it usually dies rather quickly. But when it is too hot, the damage may not appear for a while. Sometimes the plant will actually take more than a year to die after an episode of too much heat.

In either too hot or too cold conditions, the leaves and flowers react first, followed by the stems and the roots

that are more protected in the soil. Drought conditions have a powerful influence on the amount of heat a plant can tolerate, since plants use water to cool off.

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