



Pest e-alerts



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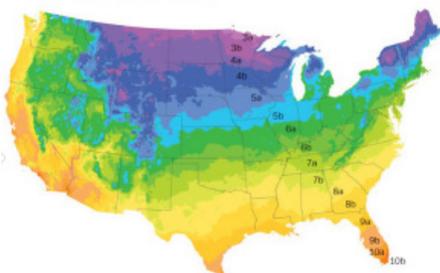
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Changes to the USDA Plant Hardiness Zones

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For those of you who may not be aware, the USDA recently released a new plant hardiness zone map (Fig. 1). Compare this new map to the old map (Fig. 2) and you can see that there have been some major shifts throughout the country. The new map is based on weather information from 1976-2005. The old map was based on weather information from 1974-1986. The interactive version of the new map can be accessed at <http://www.planthardiness.ars.usda.gov>. This

version has GIS (Geographic Information System) capabilities and can be searched by zip code. In addition, the new map has 13 zones (2 new zones added), with each 10-degree zone divided by an A and B 5-degree sub-zone. The new map also incorporates more sophisticated weather mapping which accounts for changes in elevation and proximity to large bodies of water.

In some areas of the country, the shifts in zones resulted in the movement from warmer zones to cooler zones. However, in Oklahoma (Fig. 3) the shift has trended toward warmer zones. In our state, the shift in plant hardiness zones has resulted in some significant differences from the previous map. These changes should be carefully considered not only when choosing plants for Oklahoma landscapes, but also when diagnosing plant diseases on landscape plants. In the 1990 map, much of Oklahoma was in the northern portion of zone 7 with intrusions in the northern portions of the state by zones 6a and 6b. In the 2012 map, zone 6a has been nearly eliminated from the state except for the far reaches of the panhandle near Boise City. Zone 6b has also been significantly reduced in size, which has resulted in the movement of Zone 7 north in the state to now encompass many of the northern counties once in zone 6. Also important to note is that zone 8a is now in the far southeastern reaches of the state. Previously, zone 8 was only found in the midsections of Texas.

For some Oklahoma horticulturalists, the shifts could result in the ability to grow some plants that are adapted for warmer climates (e.g. southeastern Oklahoma). For others, the shift in hardiness zone might mean that there will be added environmental stresses to plants, which have not been previously encountered (e.g. north-central Oklahoma). For example, trees like

arborvitae and some spruces can be found in northern Oklahoma. These trees are listed on the Arbor Day Foundation website (<http://www.arborday.org/media/zones.cfm>) as adapted to areas as far south as zone 7. While much of Oklahoma still resides in zone 7, these plants may now begin to be a struggle for some horticulturalists to maintain, as Oklahoma experiences warmer weather conditions. Care should be taken to thoroughly examine the new zone map and make decisions about plants that are well adapted to zone 7. Choosing plants not well adapted to zone 7 might result in limited, or no success, when trying to grow them in Oklahoma.

Also consider the diseases that may now affect horticultural commodities in Oklahoma. If a shift in the species of plants chosen for our landscapes occurs, we might also see a shift in the plant pathogens that are identified because of their preference for certain plants. Furthermore, a shift in frequency of certain diseases might also occur as a result of overall warming of the Oklahoma climate. For example, Botrytis fruit rot of grapes caused by *Botrytis cinerea* might be less of a concern near harvest due to warmer temperatures and dryer conditions, than what might have been encountered in the past. In contrast, the frequency of southern blight caused by *Sclerotium rolfsii* (see [Pest e-Alert vol.7, no. 23](#)) in landscape plantings could be on the rise as a result of longer durations of very warm moist conditions, which favor the growth of this pathogen.

While it is difficult to predict what the real consequences of the warmer climate will be on plants or what the adjustment of the plant hardiness zone map really means, it is imperative that as we move into the future, horticulturalists should consider that environmental stress could be a significant player when diagnosing plant problems. Far too often the assumption is that a plant disorder is caused by a plant pathogen when in actuality the problem is an abiotic (non-living cause) disorder. Environmental stress is going to be an important diagnosis to consider for struggling landscape plants as we move into the future in Oklahoma.

References:

Kaplan, Kim. 2012. USDA Bulletin: USDA Unveils New Plant Hardiness Zone Map. <http://content.govdelivery.com/bulletins/gd/USDAOOC-27e7f9>

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Fig 1. USDA hardiness zone map, 2012.

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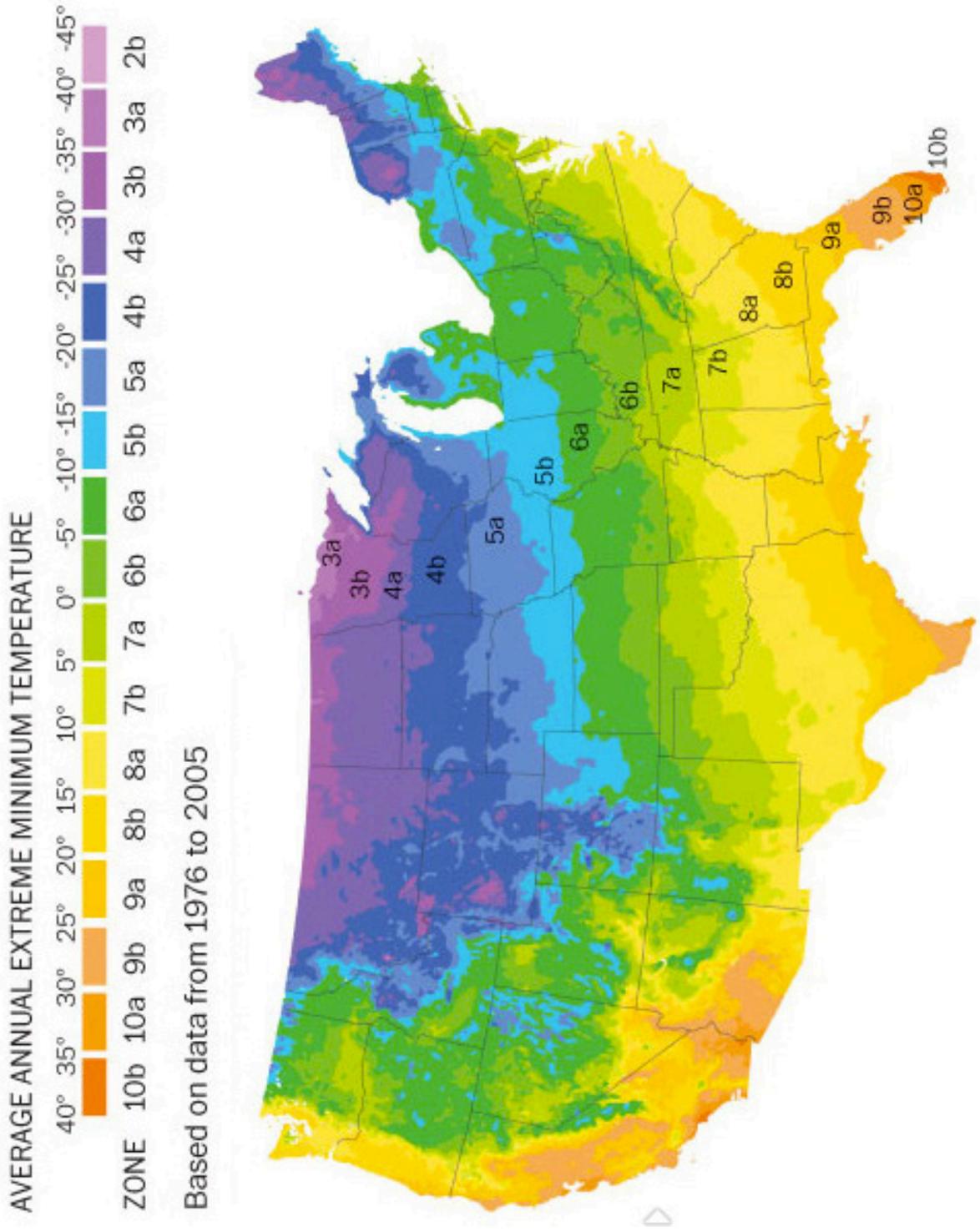


Fig 2. USDA hardiness zone map, 1990.

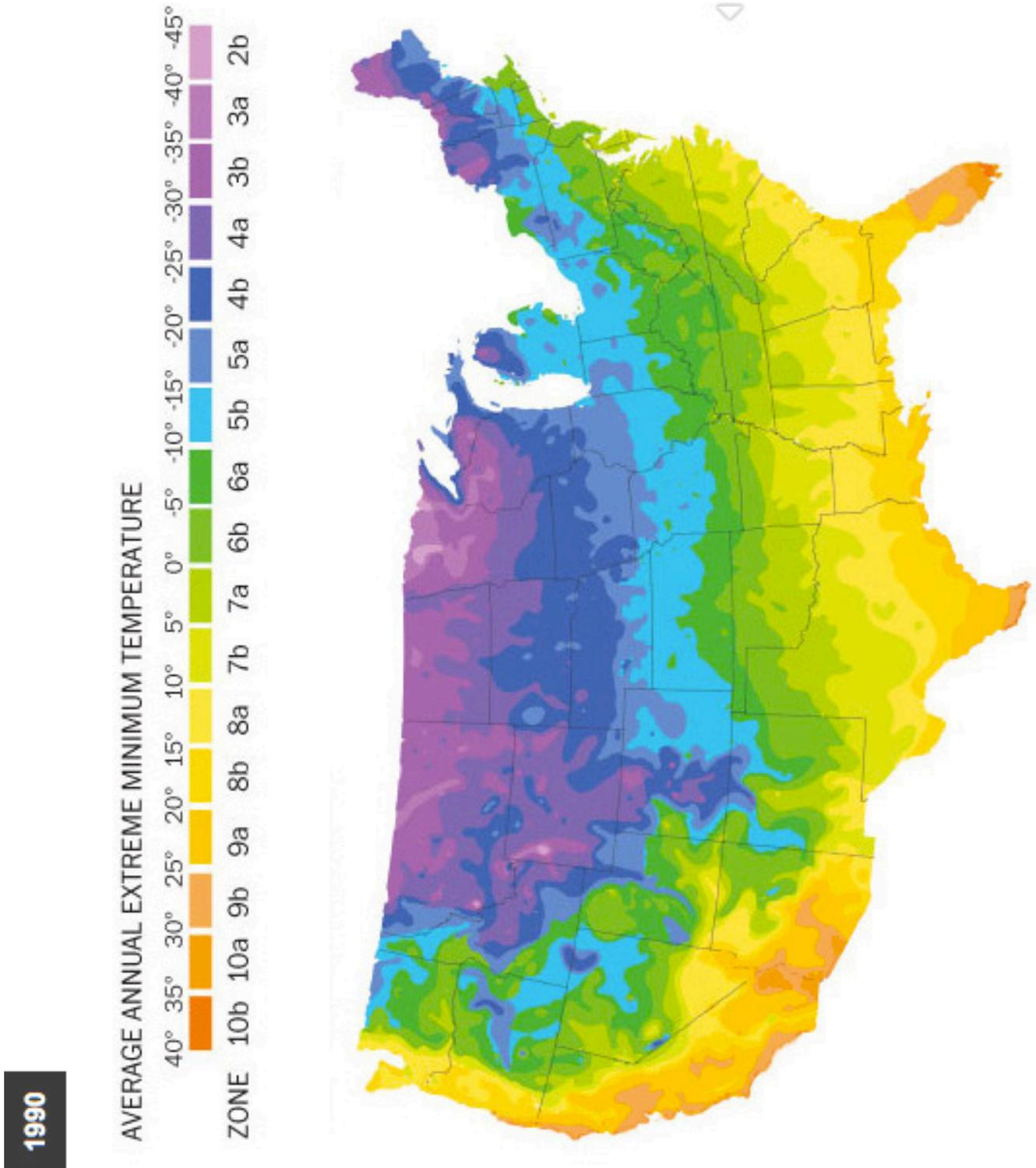


Fig 3. 2012 USDA hardiness zone map for Oklahoma.

