The Plant Doctor's LANDSCAPE TIPS

By David L. Roberts, Ph.D., *Senior Academic Specialist, College of Agriculture and Natural Resources, Michigan State University*

HAPPY NEW YEAR: GOODBYE 2014

Photo 1: Winter injury was regarded as the primary plant issue during 2014 by many professionals. Winter injury was manifested in a variety of ways. In this photo (color for the holiday season!), this ginkgo is undergoing an environmental thinning. Other ginkgo trees (inset: especially new transplants) died from the very harsh winter.

Photo 2: A progressive branch decline on Norway maple through the summer caused many people around Michigan to become alarmed. The cause appeared to be winter injury complicated by secondary fungal canker development. No Verticillium wilt or other maladies were detected in affected trees.

INTRODUCTION:

With the celebration of Veterans Day, Thanksgiving, Christmas (and other religions' holidays) and New Year's at this time of year, as it is every year, for me it is a somber time for reflection of the past and contemplation of the new year ahead. And perhaps more than any other time of year, it is a time for family and friends to get together to celebrate and rejoin their associations.

2014 was an interesting year. On a national level, terrorism still looms but the economy and employment continued to improve throughout 2014. Ebola briefly reared its ugly head in the U.S. leading to initial panic by some Americans, until cool heads and science prevailed. On the plant industry front, 2014 was a very difficult year in many aspects. While it is a daunting task to try to summarize with any degree of thoroughness the major issues of the green industry during 2014, I've decided to review a few specific and general topics, which I found to be of particular interest to me as a "Plant Doctor."

WINTER INJURY:

Perhaps the weather could be regarded as the *numero uno* issue during 2014 whether plant death from the record winter temperatures was concerned or whether interference from Mother Nature prevented us from performing our duties on schedule. Without a doubt, the winter of 2013-2014 was regarded as the most severe in recent years. While the winter was described as "record setting" (and perhaps it was), I recall during my childhood that this type of winter with abundant, persistent snowfall accompanied by many days below zero (F) as fairly typical. Nevertheless, plants all over Michigan were damaged during this past winter (Photo 1 and Insert). The damage ranged from severe, even plant death, to mild setbacks. Of a regrettable nature is the fact that many plants that didn't leaf-out on schedule were presumed to be dead and were removed ... often prematurely. Many trees and shrubs which appeared dead in the spring and which were not removed, eventually recovered. Of particular confusion to many people in regards to winter injury was the notion that winter injury could still affect their plants even into the late summer (See Norway Maple below).

It is difficult to predict what to expect for the coming winter of 2015. It is important to remember that winter injury occurs *every* winter to some extent. Winter injury can debut from sudden fluctuations in temperatures, from absolute temperature extremes (lows) and from duration of cold temperatures. And, different tissues of different species of plants may be affected, eliciting different responses and, hence, different symptoms (Photo 1).

NORWAY MAPLE BRANCH DECLINE:

A new phenomenon occurred on Norway maples throughout Michigan during the summer of 2014. In some locales such as the Tri-City area (Bay City, Saginaw and Midland) a very high percentage of Norway maple street trees were affected (Photo 2). Symptoms began to appear in late May to early June; those symptoms first appeared as off-color green, lethargic foliage, progressing to a rather obvious wilt and finally concluding with tan-brown foliage shedding from dead branches. As the summer advanced, additional branches on the same trees continued to decline in successive order as if by some divine directive. One can imagine the panic that many homeowners (and some professionals) expressed as one branch died one week, another the following week and so forth, as though something was very actively attacking the tree. The branch by branch decline ceased by mid-August. None of the branches seem as though they would recover. My original theory (still my best hypothesis) is that winter injury associated with opportunistic canker fungi was the cause. Valsa/Cytospora appeared to be one of the more common fungi associated with the decline. If 2015 is a "normal" winter, I do not expect a recurrence of this problem ... at least let's hope not.

TRELLIS RUST:

Although Trellis Rust was first reported in Michigan in 2009, this import from Europe exploded in some locations during 2014. Trellis Rust (aka European Pear Rust) has potential to cause serious harm to ornamental and fruit-type pears (Photo 3A and 3B). Ornamental pear was perhaps the most common replacement for ash trees; this new disease can potentially cause Pyrus sp. to become an unacceptable tree for Michigan landscapes. Because the fungal rust spores can be distributed for miles from the juniperus alternate host, control will be very difficult. We will have to continue to monitor the disease and, perhaps, begin field tests to determine the most efficient and effective management procedures.

Photo 3A (top) and 3B: Trellis pear rust exploded in some areas during 2014. Initial infections (3A) early in the season appeared rather pretty (yet another pretty photo for the Christmas season!) but had turned rather ugly (3B) and debilitating to pear trees by season's end.

Photo 4: Similar to disease agents, it is very difficult to predict survival of insect pests, secondary opportunists or beneficial insects during mild or harsh winters.

OAK WILT:

This lethal disease continued to make significant advancement during 2014. Perhaps the apparent increase is due to more people becoming aware of the problem, and reporting specific cases. While the major means of spread is probably through root graft transmission, new epicenters develop from inappropriate pruning and storm injury to trees. Regrettably, an alarming number of homeowners and even some "arborists" do not understand or ignore the tree injury connection and oak wilt development.

PESTILENCE (GENERAL):

One of the more hotly debated topics during the record-setting 2014 winter and following spring was the impact the cold weather would have on arthropod survival, particularly the Emerald Ash Borer. It is always difficult to predict the survival of insect pests during winters ranging from mild to severe; pests vary tremendously in their ability to survive adverse weather conditions (Photo 4). While it is true that EAB populations probably declined somewhat, it is doubtful populations of the EAB and most other pests declined so significantly to

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Photo 5: While tar spot on maples had been building up to epiphytotic levels over the years, sometimes resulting in mid- to late-season defoliation, the incidence of tar spot declined dramatically in many locales during 2014.

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impede their progress in attacking our valuable plants. Depending on environmental conditions, pest populations can increase very quickly, especially those with multiple life cycles per year. Complicating these considerations is the survival of beneficial predators, pathogens and parasites, which can also be adversely affected by harsh winters. Obviously, the die-off of predators can enable a pest to recover from a record-breaking winter much more quickly.

DISEASES (GENERAL):

Disease development was interesting for 2014. While some diseases (scab on Malus sp.) appeared in rather normal patterns, others did not. Tar Spot on maple, for example, had been building up in incidence in Michigan for many years, but was practically non-existent in some locales during 2014 (Photo 5). Were the overwintering structures of the tar spot fungus killed during the harsh winter? Or were the environmental conditions during the spring simply not conducive during the normal infection periods? Many conifer foliar problems seemed to have increased during 2014. For example, Dothistroma needle blight on Austrian pine reached the greatest epidemic proportions ever encountered by the author (Photo 6 and Insert).

Photo 6: Many needlecast diseases on conifers seemed to be very aggressive during 2014. In some locations, Dothistroma needle blight reached the highest incidence the author has ever encountered. This Austrian pine (center-left) was plastered head to toe with the disease (Inset).

HAPPY NEW YEAR!

It is very difficult to predict what will happen in 2015, somewhat because at the time of this writing (Nov, 2014), it is very difficult to predict what the winter will be like. Forecasts span the gamut from a very mild winter to more severe than 2014. While we ponder the coming New Year, the author wishes all of you the happiest of holidays filled with peace, joy and love.

For more information, please feel free to email David Roberts at robertsd@msu.edu or contact a professional plant health care provider. The author, MSU and MGIA do not endorse any particular products. If using pesticides, be sure to read and follow label directions.

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