The Plant Doctor's LANDSCAPE TIPS

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LAWN GRASSES UNDER TREES: BRINGING HAPPINESS TO A PERENNIAL STRUGGLE

INTRODUCTION

High quality turfgrass (i.e. lawns) and trees generally do not mix – they are constantly battling one another in their effort for survival and advantage. This competition between trees and turf is usually for water, nutrients and sunlight (in the case of turf). Allelopathy, secretions of toxic chemicals by plants to inhibit other plants, may also occasionally be involved. A prime example of Allelopathy is Walnut and its secretions of juglone.

This struggle between turf and trees is natural, essentially nature's way, which is why Mother Nature has resolved this issue long ago with the establishment of forests/woodlands and grasslands/prairies. However, humans continually attempt to override this natural ecosystem in modern landscapes. Striving for that perfect lawn has caused numerous psychological problems in humans and may even contribute to marital breakups, ranking right up there with money issues and affairs. In modern landscapes, we expect lush, dense turf right up to the trunks of trees, even in very shaded conditions. This lawn culture consists initially of sodding or seeding a new lawn, subsequently followed by applications of lawn herbicides for weed control, fertilizers that favor turfgrass growth, and frequent irrigation, among other inputs, that eventually lead to an increased soil pH and a bacterial-based soil food web, which rewards turf culture over tree culture. These inputs for high quality lawns often leads to the decline and death of trees (Photo 1).

Photo 1: This tree in a golf course in northern Michigan is likely declining due to the high maintenance the surrounding turf receives. It is not unusual for trees to gradually decline and die in such situations.

Photo 2: This massive willow oak was quite successful at overcoming the detriments of a surrounding turfgrass lawn. Note bare areas where the oak competitively outperformed turfgrass and even weeds. Establishing a lawn or groundcovers beneath the tree may prove very challenging if not almost impossible without destroying the tree. Aggressive pruning to allow sunlight penetration may also prove detrimental to the tree. This tree is a prime candidate for a large, thin (in depth) mulch ring extending to at least the drip line.

If tree culture is favored or if matters progress "naturally", lawns often become thin and gradually lose out (Photo 2). In Nature's Ecological Progression, trees have created/adapted to an acidic soil pH and a soil food web comprised largely of fungi (not bacteria). So, how do we balance the health of lawn grasses vs. the health of trees? If unaccounted for, lawns vs. trees becomes a long-term battle about which arborists, landscapers, turfgrasses managers and the public are in constant turmoil. Lawncare personnel are charged by their clients with creating and maintaining a lush, dense, weed-free lawn . . . often at the expense of tree health. Meanwhile, arborists are expected to promote the health and longevity of trees . . . never mind the lawn. Following are some alternative options and ideas that may be utilized in specific landscapes to resolve this brutal competition between trees and landscapes, depending on the need and the desire.

Large Mulch "Rings": In modern day landscapes, the best way to achieve optimal tree health is to simulate forest conditions. Forest environments specify that leaves, twigs and branches fall to the forest floor every year and decompose. Over time, the soil pH decreases (becoming acidic) and a fungal-based soil food web along with mycorrhizae and billions of other microbes is created. The best way to simulate this natural condition in our artificial, modern-day, highly maintained landscape is the installation of large mulch rings around

Continued on page 14

LAWN GRASSES UNDER TREES: BRINGING HAPPINESS TO A PERENNIAL STRUGGLE

Continued from page 13

trees (Photos 3A & 3B). Ideally, a thin layer of mulch extending from the trunk of the tree to at least the drip line is extremely beneficial to trees. The larger the mulch ring the better. In other situations, just keeping turf and associated turf culture materials such as herbicides and lawn mowers away from trees can be helpful (Photo 3C). Weed control in mulch rings can be accomplished very easily with physical removal or by careful application of herbicides that are unlikely to be absorbed and translocated by tree roots. Never use a herbicide product that contains Imazapyr/Imazapic in the vicinity of trees – these chemicals can readily harm if not kill trees outright. A Large Mulch Ring is by far the best option in dealing with the "Lawn Grasses Under Trees" issue. Remember, roots of trees may extend 1 ½ - 2X the height of trees. A large mulch ring attempts to mimic Mother Nature's forest culture and provide a landscape tree a fighting chance in its struggle to compete with highly maintained turf.

Sodding or Turfgrass Reseeding: For shaded areas where turf is reluctant to grow, occasional reseeding may be beneficial. Reseeding with shade tolerant mixes of turfgrasses may have to be occasionally performed. It would not be uncommon that reseeding beneath large, old trees may be required at least every spring and fall (perhaps more often). Shade tolerant mixes of turfgrasses are available and generally include specific cultivars of shade-tolerant ryegrass, fescue and bluegrass, etc. It is probably best not to fall for those unbelievable "As Seen On TV" Ads, where it may cost $39.95 to reseed a 10 square foot area with "SuperHumdingerMiracleTurf" variety of lawn that was "proven scientifically" to grow better than any other variety; "it even grows on cement and on volcanic rock!" "But wait, there's more!!" Experimentation is highly recommended to determine what works best for specific areas. It would not be unusual for people to experience different results in similar environments with the same variety of turf mix.

Pruning: If healthy turf beneath trees is an absolute requirement for specific landscape situations, pruning may be a viable option (Photos 4 & 5). Trees can be "limbed up", and trees can be

Photo 4: "Limbing up" trees may help promote turf beneath them and allow ease of maintenance such as mowing . . . and golf ball retrieval.

Photo 5: This large, 4-foot-dbh red oak in northern Michigan was severely thinned to promote sunlight penetration to the turf beneath it. A procedure that cleans out the inner, lower branches of trees is often referred to as "Lion's Tailing." Drastic procedures such as pruning to this degree can jeopardize the health of the tree by increasing the possibility of pest/disease attack from excessive wounding.

Photos 3A, 3B & 3C: The best way to promote tree culture over turf culture is to keep turf away from trees. Large mulch rings on this oak in lower Michigan (3A) and on this large beech tree at a golf course in northern Michigan (3B) is an excellent technique to simulate the natural forest environment and promote tree health. Even rock mulch (3C) will help keep mowers and lawn chemicals at bay.

Photo 6: Improper pruning can lead to slow wound healing and severe internal decay, possibly leading to hazardous conditions and a shorter lifespan for the tree.

Photos 7 & 8: Utilization of shade tolerant perennial plants or groundcovers can substitute very nicely for turfgrasses in shady conditions beneath trees. English Ivy (Photo 7) is very aggressive in low sun areas. Although considered invasive by some individuals, English Ivy nevertheless does its job very admirably. Vinca (periwinkle, Photo 8) provides a nice understory planting while contrasting nicely with the high grade, adjacent turfgrass lawn.

Photos 9A & 9B: This large focal point maple tree (Photo 9A) in a circular drive at an estate in southeast Michigan was showing symptoms of severe decline: stunted, yellowing foliage and dieback (Inset). The pachysandra bed beneath the tree had been planted 40-50 years previously. It was decided to carefully remove the groundcover because of extreme restrictions around the tree and in the vicinity of its roots. Over those several decades, the pachysandra had developed a mass/mat of plant material 2 feet deep and proved to be a monumental task in the difficulty of its removal. This pachysandra mat was obviously competitive with and detrimental to the tree. Subsequently, a new batch of soil media was distributed beneath the tree and pachysandra was once again established. Within 1-2 years after the removal of the old, thick, girdling mass of pachysandra (and its replanting), the tree demonstrated obvious, progressive recovery (Photo 9B) . . . to the delight of the property owners.

"thinned"; both pruning techniques may allow more light into the area, promoting the possibility of a more healthy, robust turfgrass lawn beneath trees. However, pruning may cause serious consequences to trees if not done properly (Photo 6). Many trees in landscapes are improperly pruned by so-called "experts" who know little about pruning. Improper pruning can lead to slow wound healing and serious internal decay, which can potentially cause serious structural problems (Photo 6). Grand old trees may become hazardous to people and property and will undoubtedly experience a much shorter lifespan due to improper pruning. In my opinion, trees should only be pruned by professionals who know what they are doing and only as needed. Proper pruning is time-consuming, costly and requires expertise, essentially an art, which many "experts" don't possess, despite their "professional" claims. Pruning should never occur just because it is deemed a scheduled maintenance event analogous to a human "Haircut."

Perennials/Ground Covers: Installation of shade tolerant perennials and/or ground covers may resolve some serious decline and thinning issues with turfgrasses beneath trees (Photos 7 & 8). Ground covers such as English Ivy, Pachysandra and Vinca (Periwinkle) are relatively shade tolerant and aggressive. While some plants such as the groundcover English Ivy are sometimes considered invasive, they nevertheless perform their function very well . . . namely growing in locations where turfgrasses are unlikely to perform well (Photo 7). In some circumstances, groundcovers may also become quite competitive with trees (Photos 9A & 9B). Aggressive restrictive efforts may occasionally be needed to keep specific ground covers in place, to keep them from forming natural "girdling ropes" around the base of trees and to keep them from climbing trees . . . which can be detrimental to a tree's health.

Continued on page 16

LAWN GRASSES UNDER TREES: BRINGING HAPPINESS TO A PERENNIAL STRUGGLE

Continued from page 15

Specific perennials may flower at certain times of the year while providing a green undergrowth the balance of the year (Photo 8). Shade tolerant shrubs and small trees may also prove to be wise alternatives for turfgrasses (Photos 10 and 11). I do not recommend annual plants under trees (Photo 12) because scheduled and frequent soil disturbances for replanting efforts will harm roots of trees and may lead to lethal root or lower trunk infections of trees . . . ultimately leading to tree decline and death.

Do Nothing: It is sometimes best to do nothing. Many property owners have made this decision, which saves money and eliminates undue stress from worry about having a perfect lawn where turfgrasses are difficult to establish (Photo 13).

Prioritizing Trees and Turf: In highly maintained landscapes, we often tend to consider only how well the lawn appears. We tend to ignore large trees, believing they have lived there

Photos 10 & 11: Shade tolerant shrubs such as azaleas and rhododendrons can provide a lovely alternative to lawns beneath trees (Photo 10). Small trees such as these redbuds (Photo 11) in the author's front yard can also provide alternatives to lawns, also having the added bonus of requiring less mowing!

Photo 12: Annual plants obviously add beauty to landscapes. Because annuals (and perennials) require planting, sometimes several times per year in highly maintained landscapes, I do not recommend annuals (or frequent replanting) in the vicinity of trees. Frequent wounding of tree roots and lower trunk/root collar regions can predispose trees to root and collar rots.

Photo 13: The owners of this large silver maple near Monroe, Michigan, loved the tree and the shade it provided, giving the tree its proper priority in the scheme of things in their universe. They cared little for a lawn beneath the tree . . . or for that matter other understory plants, simply allowing to grow what may.

Photo 14: Lawn herbicides may not cause an immediate, obvious decline in trees. Their effects may be more subtle and chronic (but detrimental long-term) as noted on this large oak in Traverse City, Michigan. Note cupping and curling of foliage (Inset) caused by broadleaf weed herbicides (2,4-D and dicamba). Luckily, the property owners noted the odd, thinning foliage in time and asked the lawncare company to cease such routine, frequent, broad-spectrum applications of the herbicides.

for generations, need little care and will be there for many generations to come. We spend $1000s on mowing and other inputs per annum to maintain a healthy lawn (often) without spending a dime on trees. One of the most serious threats to trees is lawn herbicides. Lawn herbicides are designed to kill broadleaf weeds – most trees are considered "broadleaf" plants. Hence, lawn herbicides often have a detrimental effect upon trees; such detrimental effects will generally not be manifested conspicuously (Photo 14 and Inset) but may likely result over time in an overall decline, eventually leading to death of the tree. In such cases of tree neglect, property owners assume that a tree is simply old and has reached the end of its lifespan . . . or do not understand the impact that the turf culture has had upon their trees. In some cases, after years of tree neglect, once people realize their tree(s) might be dying, they often desire to spend any amount of money to save their lovely, landmark tree . . . frequently when it is too late. In other cases, trees might be better off with lawns around them (Photos 15 & 16).

It is ironic that a lawn can be replaced in a few days or a couple of weeks whereas trees cannot be replaced in more than 100-300 or so years (Photo 2). In addition, a tree in a landscape may be valued at several $10,000s, individually. Although a nice lawn is enviable in keeping up with the Joneses, in my opinion, trees need to be given a priority over lawns so that future generations can enjoy their majesty and grandeur in the decades and centuries to come. L

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Photo 15: This humongous cottonwood in Leland, Michigan became a tourist attraction, admired by many people whenever they visited the area. Unfortunately, because the tree was surrounded by pavement, sidewalks and buildings and because it gradually declined and dropped limbs, it was deemed hazardous and eventually removed due to liability reasons. Would it have been better off in a lawn grass environment?

Photo 16: City trees like city folks often live in restrictive areas. This tree will eventually slow in growth and development. Situated even in a lawn/landscape would probably have been better for its long-term survival and health.